NEWSLETTER KICT

KICT NEWSLETTER

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KICT
KULLIYYAH OF INFORMATION AND COMMUNICATION TECHNOLOGY

KICT TEACHING EXHIBITION & LEARNING (TALE)

KICT TALE 2024
IIUM

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HUMANISING ICT IN EDUCATION
25 SEPTEMBER 2024 | KICT MULTI-PURPOSE HALL

KULLIYYAH OF INFORMATION & COMMUNICATION TECHNOLOGY
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA (IIUM)

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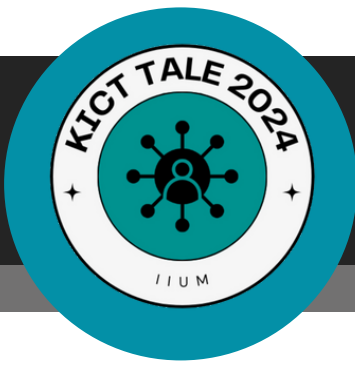**ADVISOR:**
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KICT TALE NEWSLETTER

HUMANISING ICT IN EDUCATION

KICT TALE 2024

KICT TEACHING & LEARNING EXHIBITION (TALE)

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INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA (IIUM)

The KICT Teaching and Learning Exhibition (KICT TALE 2024), held on 25 September at KICT MPH, marked a significant milestone as the first event organised by KICT to showcase innovative teaching methodologies, cutting-edge technologies, and best practices in computer science and IT education. With the theme "Humanising ICT in Education," the event focused on integrating technology in a way that prioritises the human aspect of learning, ensuring that it complements rather than replaces the essential human connection in education.

The exhibition aimed to foster knowledge sharing and introduce diverse teaching methods related to technology-based courses.

Through poster displays, participants demonstrated how ICT serves as more than a tool, but a bridge connecting hearts, minds, and futures.
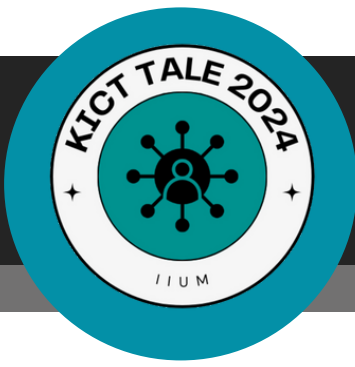
KICT TALE NEWSLETTER
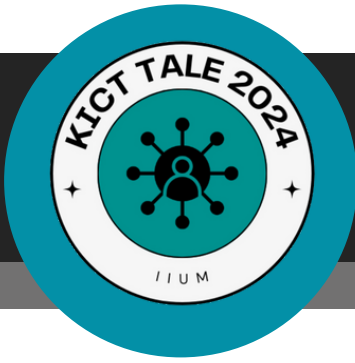
HUMANISING ICT IN EDUCATION

The event began with opening remarks by the Dean of KICT, Prof. Murni Mahmud, followed by a keynote address by Prof. Tengku Mohd Tengku Sembok, setting an inspiring tone for the day. Participants then explored the poster displays and voted for their favourites, an interactive and enjoyable activity that fostered engagement and dialogue among attendees. This aligns perfectly with the event's main objective of promoting sharing and knowledge exchange. The event continued with an engaging talk by Dr. Shukri Nordin from the Kulliyyah of Education. His session on "Technology Enhanced Active Learning" offered practical strategies such as think-pair-share and gamification to enrich the classroom experience.

The highlight of KICT TALE 2024 was the much-anticipated award ceremony, where ten winners were celebrated for their exceptional contributions from the accepted 36 posters. Five participants earned gold awards, while five received silver awards, selected through a rigorous judging process. Additionally, an award was presented for the Most Favourite Poster, voted on by the attendees.

The event concluded with heartfelt closing remarks from the KICT TALE 2024 chairperson, Dr. Hafizah Mansor, bringing the successful exhibition to a close with a sense of accomplishment and anticipation for future editions.

KICT TALE 2024 successfully met its objective of creating a platform for learning and collaboration. The event's success was a collective effort from all Kulliyyah members, setting a strong foundation for future exhibitions.
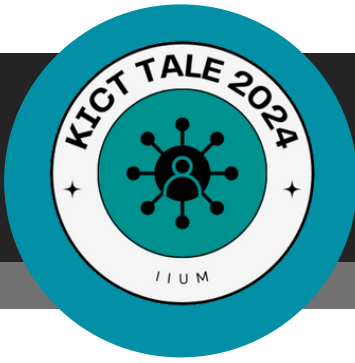
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HUMANISING ICT IN EDUCATION

AWARD RECIPIENTS

Poster Title	Author	Award
Collaborative Learning in Networking: Building Real-World Solutions in the Lab	Asst. Prof. Dr. Zainab Attar Bashi	Gold
DATANarratives: Crafting Insights: A Journey in Information Visualization Course	Asst. Prof. Dr. Madihah Sheikh Abdul Aziz	Gold
Collaborative Flipped Classroom: A Model for Computational Courses	Asst. Prof. Dr. Akeem Olowolayemo	Gold
INFO 3308 Project Management in IT	Madam Noor Azian Mohamad Ali	Gold
Using Reward Mechanism to Encourage Learners' Motivation : An Exploration of Learning Management System Features	Asst. Prof. Dr. Azlin Nordin	Gold
Exploring Escape Room for Learner Engagement	Asst. Prof. Dr. Azlin Nordin	Most Favourite Poster

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HUMANISING ICT IN EDUCATION

AWARD RECIPIENTS

Poster Title	Author	Award
Enhancing Digital Systems Learning Through Simulation and Hands-On Pedagogy: A Path to Improve Student Performance	Asst. Prof. Dr. Asmarani Ahmad Puzi	Silver
DeSIGn Thinking - Applying Design Thinking in Real World Problems	Asst. Prof. Dr. Elin Eliana Abdul Rahim	Silver
Hackers in the Hallway: Humanising Cybersecurity through Role Play	Asst. Prof. Dr. Andi Fitriah Abdul Kadir	Silver
Extended Reality Education (XR-Ed)	Asst. Prof. Dr. Aidrina Sofiadin	Silver
Empowering Peer Assessment in Group Project: Towards Effective Collaboration and Fair Evaluation	Assoc. Prof. Dr. Norsaremah Salleh	Silver

KICT TALE 2024

EVENT

OPENING BY PROF MURNI, DEAN OF KICT

KEYNOTE BY PROF TENGKU SEMBOK

ALL TALE 2024 PARTICIPANTS

OPENING REMARKS

KEM MEMBERS

KEYNOTE SPEACH

KICT TALE 2024

EVENT

AWARD GIVING CEREMONY

TALK BY DR SHUKRI

CLOSING BY CHAIRPERSON

TALK BY DR. SHUKRI

WINNERS

KEM MEMBERS

CLOSING BY DR. HAFIZAH

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NORSAREMAH SALLEH
COMPUTER SCIENCE DEPT
norsaremah@iium.edu.my

EMPOWERING PEER ASSESSMENT IN GROUP PROJECT

Towards Effective Collaboration and Fair Evaluation

INTRODUCTION

Peer assessment is a critical component of collaborative learning, especially in group projects where evaluating individual contributions can be challenging. The "**Workshop**" activity in **iTa'leem** provides an effective and structured platform for implementing peer assessment in educational settings. It is a powerful tool for fostering reflective learning, promoting fairness in group assessments, and enhancing students' critical thinking skills.

Workshop activity allows students to submit their contribution or reflection, which is then assessed by their peers based on predefined criteria. This dual-phase process—submission and assessment—engages students in both giving and receiving feedback, thereby encouraging a deeper understanding of the subject matter. Moreover, the Workshop module supports multiple grading strategies, including rubric-based assessments, making it adaptable to various pedagogical approaches.
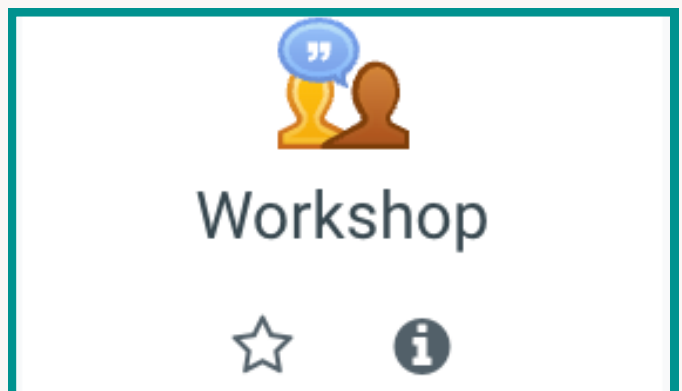
Workshop

CSCI 1305 INTRODUCTION TO SOFTWARE ENGINEEERING

HOW IT WORKS?

- **Setting up** - Workshop description, prepare instructions for students to provide their own reflection
- **Submission** - Students are to submit reflections within the allocated period of time.
- **Assessment** - Students to provide assessment
- **Evaluation** - Calculate grades (automatically by iTa'leem

Setup Phase

Submission

Assessment

Evaluation
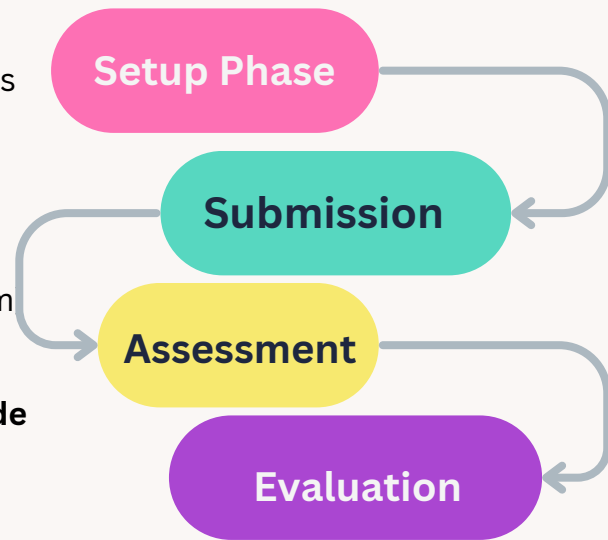
SUBMISSION PHASE

During Submission phase, students are required to **provide reflection** by answering these questions:

1. What is your contribution to this project?
2. How long did you spend to complete your part?
3. What did you learn from this project?

Reflection for Project
by SIDDIKI HASAN AL BANNA 1732003
submitted on Monday, 24 June 2024, 10:57 PM

1. My primary contribution to the project was the completion of the Design Phase.

2. I dedicated four days to this task, which involved conducting research, brainstorming, drafting, desi

3. The project provided me with a profound understanding of the Software Engineering process, partic

enhanced my collaboration and communication skills by actively engaging with team members and sh

[TEAMWORK] Peer Assessment for PROJECT

Grading evaluation phase

Setup phase	Submission phase	Assessment phase	Grading evaluation phase
Switch to the setup phase ○	Switch to the submission phase ○	Switch to the assessment phase ○	Current phase ●
✓ Set the workshop description	✓ Provide instructions for assessment	ⓘ Open for assessment from Sunday, 30 June 2024, 12:00 AM (53 days ago)	✓ Calculate submission grades expected: 41 calculated: 28
✓ Provide instructions for submission	✓ Allocate submissions expected: 41 submitted: 34 to allocate: 0	ⓘ Assessment deadline: Sunday, 30 June 2024, 11:59 PM (52 days ago)	✓ Calculate assessment grades expected: 41 calculated: 22
✓ Edit assessment form	ⓘ There is at least one author who has not yet submitted their work	ⓘ Time restrictions do not apply to you	✓ Provide a conclusion of the activity
	ⓘ Open for submissions from Tuesday, 11 June 2024, 12:00 AM (72 days ago)		✓ Switch to the next phase
	ⓘ Submissions deadline: Saturday, 29 June 2024, 11:59 PM (53 days ago)		
	ⓘ Time restrictions do not apply to you		

ASSESSMENT PHASE

Each team member will be peer-reviewed by other team members in the same group based on the following criteria.

Excellent ⭐⭐⭐⭐⭐ Very Poor

Attends all group meetings regularly	Completes task on time
Arrives on time	Prepares work in a quality manner
Communicates constructively in the discussions	Cooperative with other group members
Treats other group members with respect.	Contributes to the completion of group task
Suggests ideas and solutions to complete the tasks	Overall performance for this project.

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ADAMU ABUBAKAR
COMPUTER SCIENCE DEPT
ADAMU@IIUM.EDU.MY

Facilitating Students' Involvement in Computer Networking

FIGURE 1: FULLY INTERCONNECTED IP NETWORK
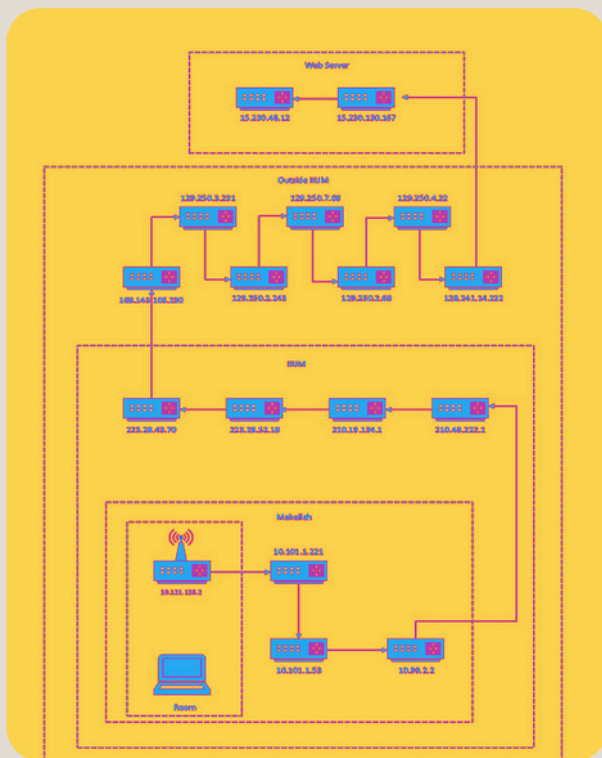
Fully Integrated IP Network

A fully interconnected IP network is necessary for teaching and learning of Computer Networking. Regarding this course, students are expected to formulate and execute a comprehensive network design. Figure 1 provides an example specifically intended for instructional purposes. It effectively illustrates all the necessary components for constructing computer networking.

Facilitating students' involvement in a real-world fully integrated IP network involves integrating practical, experiential learning opportunities that connect theoretical principles with real-world industry practices. The path laid for putting this into practice is associated with the following protocols:

7. Application
6. Presentation
5. Session
4. Transport
3. Network
2. Datalink
1. Physical

Overview of Computer Networking

The objective of this course is to equip students with a comprehensive knowledge of fundamental technological areas related to the efficient advancement and utilization of computer networking and telecommunications. The themes addressed in the course encompass the integration of key computer networking concepts and applications. This includes the clarification of all the IP protocol and their integration.

After successfully learning computer networking, students are expected to:

- Demonstrate an understanding of the use of network protocol layering in computer communications
- Identify, explain and differentiate between key network components such as routers, switches and end systems
- Work in a team to design and implement networking systems

TEACHING AND LEARNING ENGAGEMENT

When active involvement is considered to be the core point of focus, particularly in the context of computer networking, teaching, and learning, it is of utmost importance to consider the following:

- To foster active participation in Computer Networking classes, it is necessary to provide a network environment in both simulated and real-life scenarios. In recent times, these two environments have been more easily accessible in comparison to the previous two to three decades.

- For instance, CISCO Systems offers an educational program known as CISCO Networking Academy (NetAcad). This academy offers a comprehensive range of hardware and software facilities for both virtual and real-life simulation environments.

- Furthermore, it is necessary to create a design (in the form of written and visual representation) for a network scenario. A typical example is the one presented in Figure 2 below:
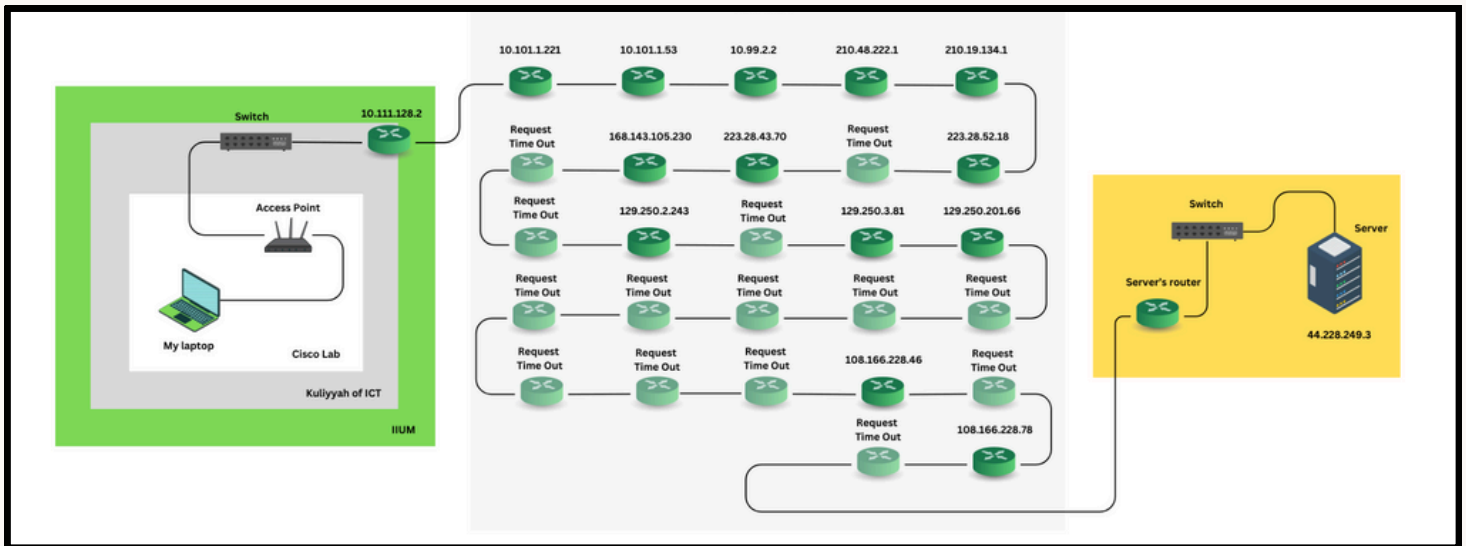
FIGURE 2: NETWORK SCENARIO UNDER STUDY

This network scenario must be perfect and present somewhere (in real life) that all of the students are familiar with as the sources, and then any location can serve as the destination. An example of this may be seen in Figure 2, which depicts a scenario in which the CISCO Lab located in the level 4 KICT building at IIUM serves as the classroom for teaching computer networking. The CISCO Lab is where every student who has enrolled in the course attends their session. In other words, they are all familiar with the setting that they would be working in.

For a typical scenario in which a server is located somewhere and needs to be accessible, the concept was developed as in Figure 1. As a result, the drawing indicates that the source site is the "CISCO Lab" in the KICT building. The next connecting point is the "Access Point" of the Lab, and after that comes the Gateway of IIUM to the outside IIUM. Additionally, the design outlines the path that must be taken from the origin to the destination, as well as every point that the data must pass through in order to get to the destination.

Upon the successful completion of the network design drawing, it is crucial to include a legend and accompanying notes as outlined below::

- In the first step of the process, the student should identify everything associated with the "connecting medium" the cables and the access points as well as physical ports associated with the network interface card. The student can connect the devices to make up the network and send requests through the gateway, which is the way out of the IIUM local area network.
- The request is communicated in the form of a message that is contained within the IP protocols.
- Following that, the request will be transmitted to the public network via the local gateway itself.
- The protocols that are wrapped (encapsulated) within the network guarantee that the request will be delivered to its intended destination.
- It is necessary for the destination (intended location) to de-encapsulate the protocol in order to read the content of the "request."
- The response to the request will likewise be sent back using the same protocol, as stated above.

BASIC TOOLS & SIMULATIONS ENVIRONMENT

The basic Hardware Tools include: "Routers and Switches "for demonstrating routing and switching concepts. Other tools within this category are: "Ethernet cables", "fiber optic cables", "crimping tool", "tester", "Network Interface Cards (NICs)", "Firewalls", "Servers and Workstations" and "Access Points".

The basic Software Simulation and Emulation Environments are: "Cisco Packet Tracer", "GNS3 (Graphical Network Simulator)", "EVE-NG (Emulated Virtual Environment Next Generation)", "NetSim", "Wireshark", "VirtualBox/VMware", "Boson NetSim", "Mininet", and "Opnet/NS2/NS3".

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ENHANCING LEARNING IN DATA STRUCTURES AND ALGORITHMS WITH VISUALGO

HAMWIRA YAACOB
DEPARTMENT OF COMPUTER SCIENCE
hyaacob@iium.edu.my

VisuAlgo

VisuAlgo is an innovative educational tool developed by Dr. Steven Halim and his team at the National University of Singapore. It was created to help students better understand the complex concepts of data structures and algorithms through interactive visualizations. This online platform has quickly become a valuable resource in computer science classrooms, making abstract topics more accessible.

In the Data Structures and Algorithms course, students are introduced to both linear and non-linear data structures, which can be difficult to grasp using traditional teaching methods. VisuAlgo addresses this challenge by providing clear, dynamic animations that demonstrate how these structures work.

Halim, S. (2015). Visualgo–visualising data structures and algorithms through animation. Olympiads in informatics, 9, 243-245.
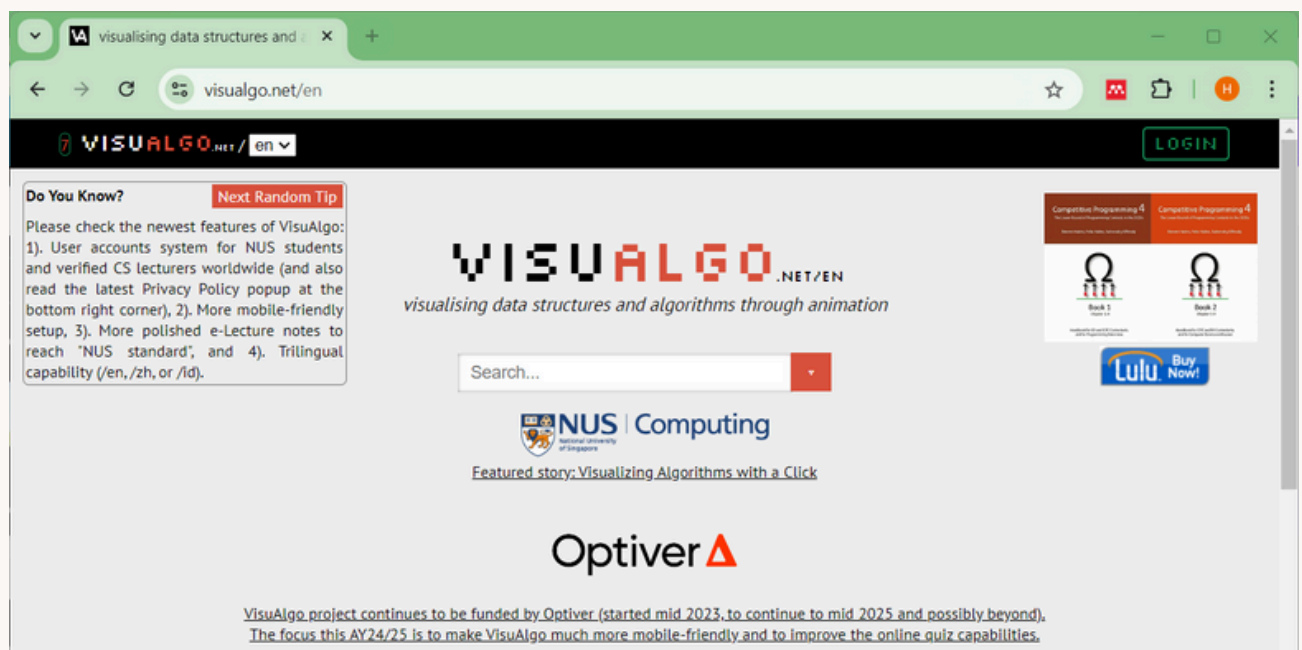
Understanding Linear Data Structures

For linear data structures like arrays, lists, stacks, and queues, VisuAlgo allows students to see operations such as insertion, deletion, and traversal in action. The platform effectively illustrates the Last-In-First-Out (LIFO) principle of stacks and the First-In-First-Out (FIFO) process of queues, making these key concepts easier to understand.

Visualizing Non-Linear Data Structures

The course also covers more complex non-linear data structures, including binary search trees, AVL trees, and graphs. Understanding these structures is crucial, but their complexity can make them difficult to learn through static diagrams alone. VisuAlgo addresses this challenge by providing visualizations that show how these structures maintain order, balance, and connections. Through VisuAlgo, students can observe the dynamic behaviour of binary search trees, see how AVL trees self-balance, and explore how graphs model networks through various traversal techniques.

Insertion of an element into a singly linked-list
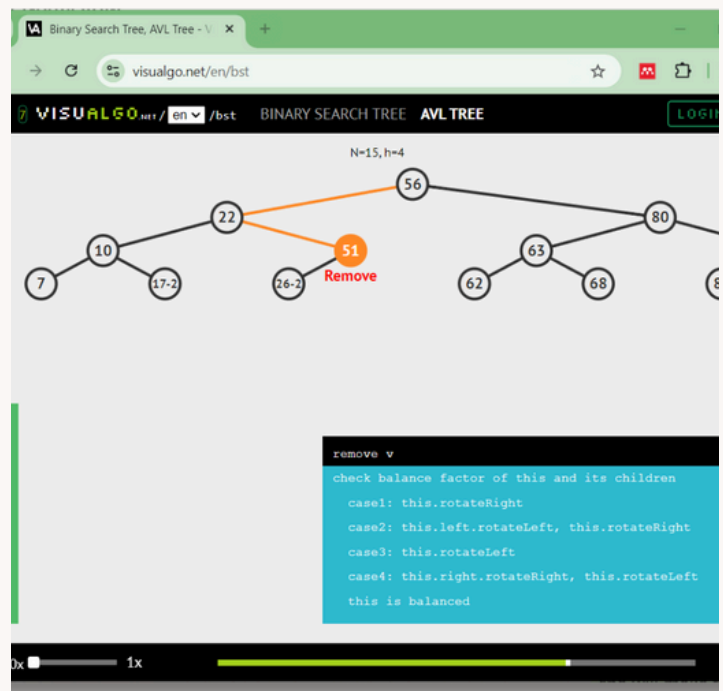
Deletion of an element from an AVL tree

Conclusion

VisuAlgo is a valuable tool for enhancing the learning experience in Data Structures and Algorithms. By offering dynamic visualizations of both linear and non-linear data structures, along with topics like hashing and binary heaps, it helps students grasp essential concepts more effectively. This approach clarifies key principles and makes learning more engaging, leading to a stronger understanding of computer science fundamentals.

TS. DR. AIDRINA SOFIADIN
DEPARTMENT OF INFORMATION SYSTEMS
AIDRINA@IIUM.EDU.MY

Extended Reality Education (XR-Ed)

INTRODUCTION

A first-hand experience of deploying immersive technologies such as Augmented Reality (AR), Mixed Reality (MR), and Virtual Reality (VR) that provide students with the opportunity to expose real-world operations and interactive ways to learn and complete their assessments.

The world's urgent call for sustainable actions requires support and commitment from everyone. The student's experiences in virtual real-world situations could prepare them to become future-ready graduates with global citizenship.
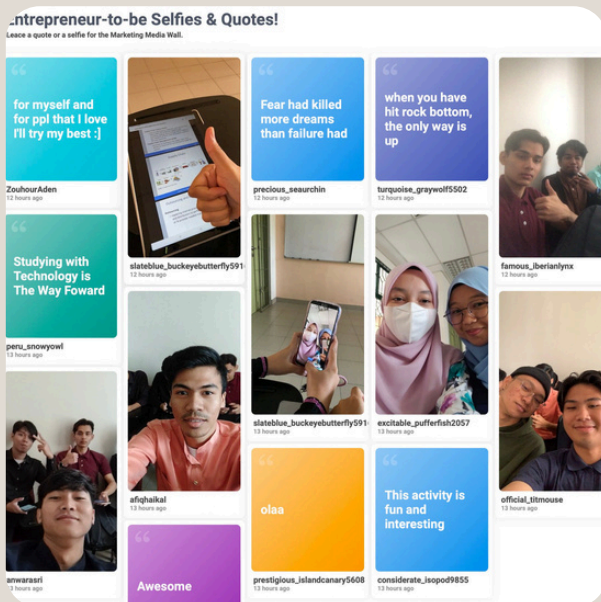
INFO 1302 Business Fundamentals

This course is designed for students to learn to know about the fundamentals of business management. Extended Reality (XR) enhances students' ability to learn and experience real-world business practice using immersive technologies.

IMPACT

LEARNING THAT STIMULATES AND CULTIVATES HIGH-LEVEL THINKING SKILLS.

XR provides the opportunity to practice skills, discover, and interact with virtual characters and digital objects in a fun and engaging way, enhancing learner engagement and experiences.

The application of immersive technologies to create an immersive learning environment has various benefits for learners. The immersive reality has the potential to create an active learning process that will enhance learners' motivation and engagement to learn, which leads to the promotion of lifelong learning. Furthermore, the learner's experiences in virtual real-world situations could prepare them to become future-ready global citizens.
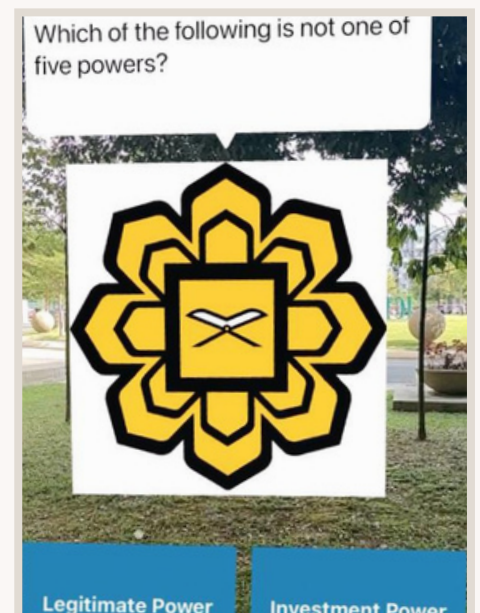
XR application

AR, MR, AND VR

The concept of mixed reality is applied when learners interact with virtual objects in a real-world environment. The learner can track virtual objects using a real-world map and geo-location.

Furthermore, the AR app allows learners to take quizzes and participate in class activities, by accessing it anywhere or at a specific location. Meanwhile, VR allows students to visit virtual tours such as Google Data Centre and other practical areas.

METHODS

Before using the XR application and devices, the students signed the consent forms on health and safety matters.

Students were required to approach the virtual object located in their classroom using a marker-based AR. Once they approach the virtual object, they will interact with it by reading the dialogue and answering questions on business management.

The students experienced virtual tours using Virtual Reality (VR) box that enhanced their global exposure to real-life business operations around the world. The use of VR box and 360 virtual videos were used to allow students to experience a virtual learning experience.

Upon summative assessment, an Augmented Reality-based platform was designed with learning activities and formative assessments.
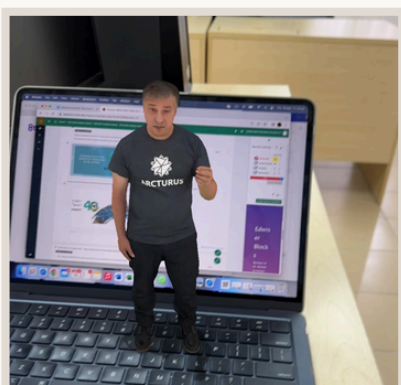
SIGNIFICANCE

 Immersive technology is rapidly growing its potential in the world. The learning engagement and motivation created through the immersive environment will enhance the quality of students' and future graduates' competencies and promote lifelong learning more interactively.

In addition, this experience could create a sustainable education that delivers a rich and memorable learning experience. This XR learning experience will significantly contribute to both practical and theoretical, aspects of sustainability and education.

KICT TALE NEWSLETTER

EFFECTIVE CLASSROOM PRACTICES TO HUMANIZE ICT IN EDUCATION

AKRAM M Z M KHEDHER
DEPT. OF INFORMATION SYSTEMS
KICT
AKRAMZEKI@IIUM.EDU.MY

Effective Practices to Balance Technology and Human Interaction in the Classroom

Humanising ICT in Education

In today's classrooms, it's important to use technology in a way that keeps the learning experience personal and connected. Simple actions like arriving early, starting with a Tazkirah, and having students use name cards help create a friendly and welcoming atmosphere. Keeping lessons organized by sharing the class agenda, reminding students about tasks, and making lectures interactive keeps everyone focused and engaged. Tools like polls, group activities, and peer feedback encourage students to participate more. Blending virtual and in-person learning, and inviting guest speakers, adds variety and flexibility. These practices help balance technology with the human side of teaching, making learning more meaningful and enjoyable for students.

Fostering Human Connection in Tech-Enhanced Education

TIPS AND ACTIVITIES

Creating a Welcoming and Reflective Learning Environment
- Arriving Early to Class: Build rapport and ensure a smooth setup.
- Opening the Class with Remarks: Start with praise, gratitude, and reflection.
- Starting with Tazkirah and Reminder: Encourage spiritual reflection and student engagement through Tazkirah.
- Student Reflection on Previous Class: Reinforce learning through brief reflections on past lessons.

Structured and Interactive Learning
- Class Agenda Overview: Provide students with a clear roadmap.
- Activity Reminders: Ensure students stay on track with assignments and tasks.
- Interactive Lecture with Discussion: Engage students through discussions, videos, and interactive presentations.
- Attendance Signing: Simplify attendance-taking using online tools.

Promoting Student Participation and Collaboration
- Name Identification for Connection: Use name cards for personal interaction.
- Sticky Note Reflections: Encourage anonymous feedback and reflection.
- Interactive Tools: Use technology like polls, chats, and collaborative tools to enhance engagement.
- Peer Evaluation for Group Projects: Promote accountability through peer assessment.

Flexible and Innovative Learning Approaches
- Blended Learning: Incorporate virtual classes to provide flexibility.
- In-Class Quizzes: Use paper-based quizzes to maintain confidentiality and focus.
- Guest Speakers: Enrich student learning with diverse industry perspectives.
- Feedback Sessions: Gather insights from students to improve future sessions.

KICT TALE NEWSLETTER

USING REWARD MECHANISM TO ENCOURAGE LEARNERS' MOTIVATION :

AN INVESTIGATION OF LEARNING MANAGEMENT SYSTEM (LMS) FEATURES

AZLIN BINTI NORDIN
DEPT. OF COMPUTER SCIENCE
KULLIYYAH OF INFORMATION & COMMUNICATION TECHNOLOGY (KICT)
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA (IIUM)
EMAIL: AZLINNORDIN@IIUM.EDU.MY

INTRODUCTION

The integration of badges in LMS has emerged as an innovative strategy to enhance learner motivation and engagement. Badges can be awarded to learners for completing tasks, demonstrating skills, or reaching milestones within an educational environment. A study by Abramovich et al. (2013) found that badges can significantly increase student engagement, particularly when the badges are perceived as meaningful and linked to relevant learning outcomes.

Incorporating digital badges as a reward mechanism in education not only motivates learners but also creates a more engaging and inclusive learning environment, thus fostering a culture of achievement and continuous improvement.

HYPOTHESIS

Learners feel motivated with the issuance of badges as a reward mechanism.

METHODOLOGY

The methodology of this study is depicted in Figure-1.

PHASE-1

The instrument was designed to get feedback from students. The questionnaire consists of open-ended question types of questions that focus on the specific learning activity that is of interest, and the reward mechanism that had been planned. The result is extracted from a feedback survey of the courses and only the relevant data was analyzed and discussed in this study.
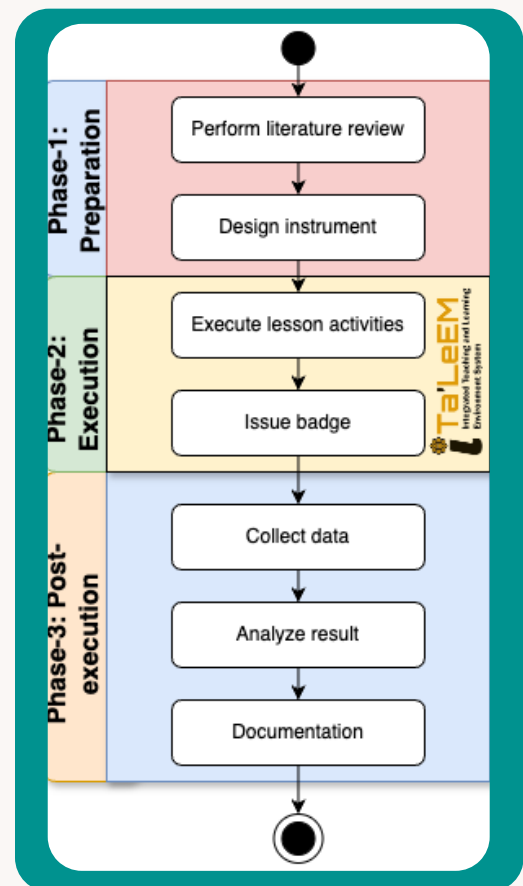
Figure-1: Methodology

PHASE-2

Next, the mechanism to be experimented using lesson activities in the Moodle platform was planned and created. For this study, the iTa'leem LMS was used. For completion of each lesson activity, students were issued badges as a reward mechanism for their achievements. These processes were iterated until all the lessons were completed. These processes were executed during the whole semester.

PHASE-3

Towards the end of the semester and after the completion of all lessons, when the learners had experienced the whole process, the questionnaires were distributed. The participation was on a voluntary basis and no monetary reward was given to participants.

Then, the data was collected and analyzed. Finally, the results were documented.
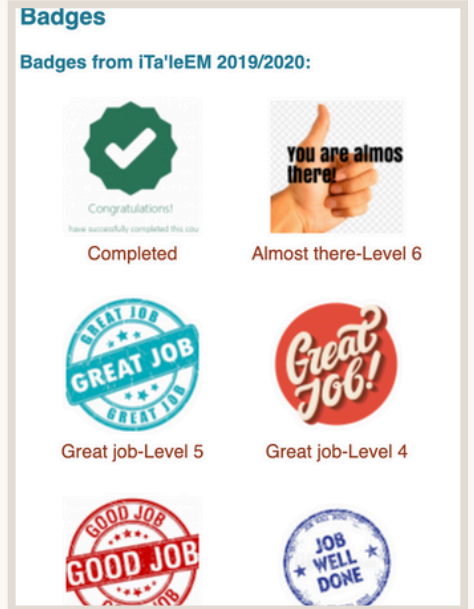
Figure-2: Sample of obtained badges

BADGES SAMPLES

Figure-4: Obtained badges on learner's profile

RESULT

Figure-3: Sample of badges

Figure-5: Result

The result of the study provided evidence that the majority of the learners gave positive feedback by the issuance of badges during the execution of the lessons.

REFERENCE

Abramovich, S., Schunn, C. & Higashi, R.M. **Are badges useful in education?: it depends upon the type of badge and expertise of learner**. Education Tech Research Dev 61, 217–232 (2013). https://doi.org/10.1007/s11423-013-9289-2

Denny, P. (2013). **The effect of virtual achievements on student engagement**. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 763–772). ACM. Abramovich, S., Schunn, C. & Higashi, R.M. Are badges useful in education?: it depends upon the type of badge and expertise of learner. Education Tech Research Dev 61, 217–232 (2013). https://doi.org/10.1007/s11423-013-9289-2

KICT TALE NEWSLETTER

TENGKU MOHD TENGKU SEMBOK
DEPT COMPUTER SCIENCE
tmts@iium.edu.my

COMPUTATION & COMPLEXITY
Construct & Bridge with Philosophy

Prolog as a Design and Implementation Platform

```Prolog
% Define states and transitions for the DFA
transition(q0, a, q1).
transition(q1, a, q1).
transition(q1, b, q2).
transition(q2, b, q2).

% Accepting state
accept_state(q2).

% Recognize a string (sequence of characters) by simulating the DFA
recognize(State, []) :-
    accept_state(State).  % if no more input and in accept state, accept.

recognize(State, [Symbol|Rest]) :-
    transition(State, Symbol, NextState),  % transition to next state
    recognize(NextState, Rest).  % continue with the rest of the string

% Start the DFA from the initial state q0
dfa(String) :-
    recognize(q0, String).
```

```
% Grammar rule: S -> a^n b^n
s --> [].
s --> [a], s, [b].
```

The course considers fundamental computation models such as finite automata, regular grammars, regular expressions, context-free grammars, pushdown automata, and Turing machines.

Prolog programs can be used to simulate and enhancing understanding of these fundamental models.

The state transitions are easily modelled as **transition ($q0,a,q1$)** as a Prolog clause. Thus, DFA, NFA, PDA, and Turing machine can be implemented easily.

Prolog's **Definite Clause Grammars** are suitable for implementing Regular, Context Free and Context Sensitive languages.

CONSRUCTION & SIMULATION PLATFORM

Students can construct and experiment with their automata and languages in Prolog, or other platforms. By coding and implementing automata and grammars, students can explore the notion and understand the theory of complexity. This opens the door to quantum computing and the idea of parallel worlds.

AUTOMATA AND PHILOSOPHICAL ENQUIRY

Blending automata theory with philosophical enquiries can deepen students' understanding of both the mechanics of machines and the complexities of human thought.

These exercises provide a creative way to connect computational theory with philosophical inquiry:

- Construct a journey of life automaton based on the concept of Jabariyah and Qadariyah.
- Construct a journey of Maqamat automaton based on Al-Ghazali's maqamat and their preconditions.

Answers to these exercises could be implemented in Prolog platform or using other platforms.

Divine Knowledge and Determinism

Sources of knowledge philosophy in invention: idealism - idea of computer; rationalism - Turing Machine Proof; Empiricism - von Neumann's Architecture; Revelation - Tafakkarun.
Complexity: Philosophy of Time and Space; Parallel World; Quantum Computer
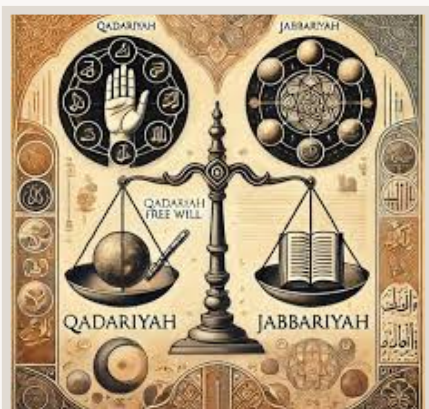
DISCUSSION ON JABARIYAH & QADARIYAH

The deterministic nature of DFA can be related to the deterministic views of the Jabariyah school of thought, which emphasizes predestination. In contrast, NFA—with its multiple possible states and non-deterministic paths—can be linked to the Qadariyah school, which advocates free will.

Discussion: In both models (DFA and NFA), the system still functions within a set of rules. This aligns with the theological principle that even in the Qadariyyah school, human free will exists within the broader framework of divine omniscience and decree.

Al-Ghazali's maqamat and spiritual states

Al-Ghazali outlines a spiritual journey toward closeness to God, described in terms of maqamat (stations) and ahwal (spiritual states). The maqamat represents the stages a seeker (salik) passes through.

Al-Ghazali's maqamat involves deliberate spiritual practices, self-discipline, and purification of the heart. The seeker progresses through these stages by internalizing each maqam, growing in their knowledge of God, and refining their character.

Construct a journey of maqamat automaton based on Al-Ghazali's maqamat and their preconditions.

Al-Ghazali's Maqamat Automaton

```
% Define transitions between stages
transition(tawbah, wara, 'Sincere repentance and intention for change').
transition(wara, zuhd, 'Avoidance of doubtful matters and moral vigilance').
transition(zuhd, sabr, 'Detachment from worldly desires and contentment').
transition(sabr, shukr, 'Patience through trials and maintaining faith').
transition(shukr, tawakkul, 'Gratitude in all circumstances and trust in God').
transition(tawakkul, rida, 'Total reliance on God's will with peace').
transition(rida, mahabba, 'Acceptance of God's decree and love for God').
transition(mahabba, ma'rifah, 'Love leads to deep knowledge of God').
transition(ma'rifah, fana, 'Gnosis culminates in annihilation in God').
```

MAQAMAT FINITE STATE AUTOMATON

Components of the FSA:

- States (Maqamat): Each maqam (spiritual stage) is represented as a state in the FSA.
- Transitions: The transitions between states represent the spiritual actions or conditions required to move from one maqam to the next.
- Initial State: The starting point of the journey, i.e., Tawbah (Repentance).
- Final State: The ultimate spiritual realization, i.e., Fana' (Annihilation in God).

KICT TALE NEWSLETTER

RIZAL MOHD NOR
COMPUTER SCIENCE DEPT
RIZALMOHDNOR@IIUM.EDU.MY

GitHub Codespaces: A Modern Platform for Effective Teaching and Learning

Introduction

In today's digital age, technology has the power to revolutionize education. One such groundbreaking tool is GitHub Codespaces. This innovative platform offers a cloud-based development environment, providing students with a seamless and accessible space to collaborate, code, and learn.

By eliminating the need for complex local setups and configurations, Codespaces empowers students to focus on their learning, rather than being distracted by technical challenges.

Empowering Students with GitHub Codespaces

GitHub Codespaces was successfully implemented in Operating Systems and Networking courses at KICT, IIUM. This cloud-based platform provided students with a convenient environment to learn and experiment with container technologies. Students were able to create, manage, and analyze containers, as well as implement complex multi-tier environments.

Key Benefits

REPLICABLE, CONSISTENT AND FREE

Key Benefits of GitHub Codespaces for Teaching
- Instant Development Environment: Students can start coding immediately without the need for complex setups.
- Cloud-Based Access: Students can access their work from anywhere with an internet connection.
- Collaboration Features: GitHub Codespaces facilitates real-time collaboration among students, fostering teamwork and knowledge sharing.

- Customizable Environments: Instructors can tailor the development environment to specific course requirements, ensuring a personalized learning experience.
- Version Control: Students can easily track and manage different versions of their code, promoting best practices in software development.
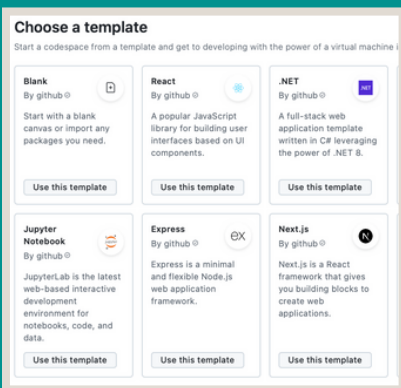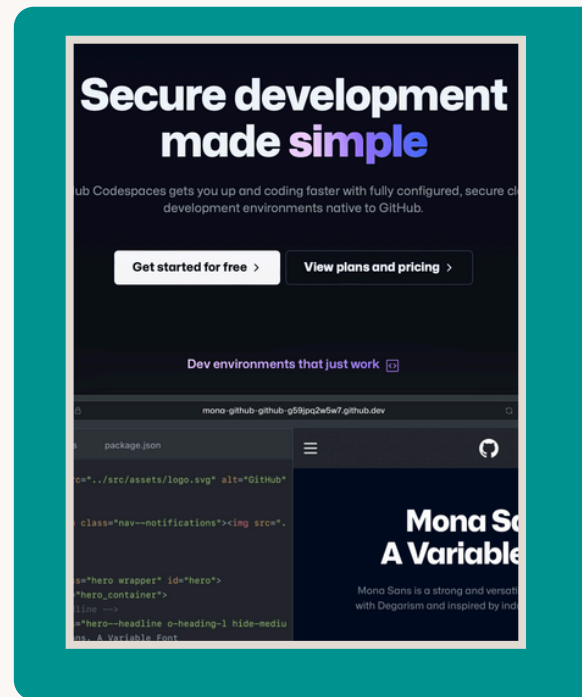
USE CASES

FLEXIBLE FOR IT RELATED COURSES

GitHub Codespaces offers a versatile platform for various educational applications. In programming courses, students can leverage Codespaces to explore different languages, data structures, and algorithms in a consistent and accessible environment.

For web development, students can build and deploy dynamic web applications directly from their Codespaces, gaining practical experience in full-stack development. Additionally, Codespaces is an excellent tool for data science projects, enabling students to conduct data analysis, visualization, and experimentation efficiently. The platform's collaborative features also make it ideal for group projects, fostering teamwork and knowledge sharing among students.

Exploring github codespaces

1. The next thing that we will be doing is exploring codespaces. First of all, read about codespaces https://docs.github.com/en/codespaces/overview#what-is-a-codespace
2. Then go to the link https://github.com/codespaces and we shall start a new codespace.
3. Click on *New codespace*.
4. Choose your own OSProject repository to start your codespace.
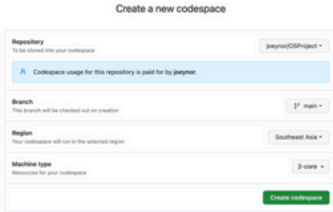
5. Once you have created you codespace, you will see the following. You might already be familiar with this, since it will look similar to VSCode.

KICT CASE STUDY

GitHub Codespaces was used in Operating Systems course, and it was encouraging. Students were able to:

- Access Development Environment: Eliminates complex setups, allowing focus on learning and experimentation.
- Cloud-Based Resources: Access the development environment and container resources from any device.
- Learn Collaboratively: The platform's built-in collaboration features enable students to work together seamlessly.
- Gain Hands-on Experience: Gain practical experience with containerization by creating, managing, and analyzing containers.

Implementation

PROJECT ASSIGNMENT

The assignment guides students through the following key activities within GitHub Codespaces with questions along the way to test and strengthen their understanding.

1. **Forking the Repository:** Fork the OS project repository to create a personal copy.
2. **Exploring Codespaces:** Navigate and use the Codespaces environment.
3. **Using the Terminal:** Practice basic Linux commands in the terminal.
4. **Running Containers:** Learn to run Docker containers and explore their functionalities.
5. **Persistent Storage:** Create containers with persistent storage to understand data persistence.
6. **Building a Web Application (Optional):** Build a simple web app using Node.js and MySQL in Docker containers to learn about multi-tier deployments.

You are on your own, create your own static webpage

1. Create a directory called webpage in your host machine
2. Inside the directory, create a page index.html, with any content you would like
3. Then, run the apache webserver and mount the webpage directory to it. Hint:

```
## the -p 8080:80 flag points the host port 8080 to the container po

docker run --detach -v /workspaces/OSProject/webpage:/usr/local/apa
```

4. If it works, codespace will trigger a port assignment and provide a URL for you to ac your webpage like the one below.

Conclusion

EMPOWERING STUDENTS OF THE FUTURE

Conclusion GitHub Codespaces offers a powerful and versatile tool for educators. By leveraging its capabilities, instructors can create engaging and effective learning experiences that prepare students for the demands of the modern workforce.

KICT TALE NEWSLETTER

COLLABORATIVE CODING IN ASSEMBLY LANGUAGE

Empowering Students to Build Community-Driven Applications

TS. DR. HAFIZAH MANSOR
DEPT. OF COMPUTER SCIENCE
hafizahmansor@iium.edu.my

```
0x0...    lb $10,0x00000003($9)    6:          lb      $t2,3($t1)
0x0...    lb $11,0x00000000($9)    7:          lb      $t3,($t1)
0x00...f  andi $11,$10,0x0000...   8:          andi    $t3,$t2,0xff
0x0040... 2a slt $9,$10,$11        9: loop:    slt     $t1,$t2,$t3
0x004001  8c0004 xori $12,$12,0x0000... 10:     xori    $t4,$t4,4
0x...4    $1,$10,$12               11:         blt     $t2,$t4,loop
0x...     $0,0xfffffffc                     
0x...     1,$12                    12:         slt     $t1,$t3,$t4
```

Data Segment

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)	Value (+

ABSTRACT

Assembly Language is a low-level programming language - closely tied to hardware, typically used for performance-critical applications. It can be challenging for students who are accustomed to and familiar with high-level languages, where the hardware details are abstracted away. Hence, a different approach is used to enhance the learning experience in the CSCI 3301 (Computer Architecture and Assembly Language) course. One of the assessments includes a Group Project, which accounts for 25% of the overall grade.

In the group project, students are given 3-4 options of titles to work on. The titles are impactful real-world IoT applications. Through this activity, students can learn assembly language programming (using the MIPS ISA and MARS simulator) and at the same time design and develop impactful solutions.

OVERVIEW

CSCI 3301 is a core course in the Bachelor of Computer Science programme, designed for Level 3 students. By this stage, students have gained experience in several high-level programming languages. However, this course shifts the focus

to assembly language programming, which can be challenging. Students often find it difficult to see the connection between high-level programming and the underlying hardware. This course aims to bridge that gap, helping them understand how low-level code interacts with computer architecture.

In this course, one of the assessments is a group project. There are three learning outcomes from the group project: technical skills, collaboration and community impact. Students develop technical skills by writing, testing, and debugging assembly language programs with visible output. Collaboration is manifested through teamwork and peer learning, by working together to design and implement the projects. Working on applications that address real-world challenges allows students to think critically to create impactful and meaningful solutions.

COLLABORATIVE CODING EXERCISE
PROCESS FLOW

Each semester, students are presented with four project titles, all focusing on solving real-world challenges. After selecting a title, they start to work on the design phase - planning the architecture, identifying the required hardware and outlining the solution flow. This is followed by the implementation, where the team works on coding the solution in modules. Each team member is responsible for a specific module. The project concludes with the integration and testing of the full solution. This collaborative process helps students apply their theoretical knowledge to practical, real-world scenarios while strengthening their problem-solving skills. The collaborative coding phase emulates real-world industry practices, giving students hands-on experience with the challenges and dynamics of professional coding environments.

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IMPACT

As aspiring Khalifah and programmers, students are empowered to create impactful solutions that can improve the society's quality of life, in terms of efficiency and safety. Among the titles presented as options for them to choose from are smart farming, flood detection/rescue mission, in-car child safety alert, smart sajadah/prayermat, fitness and health monitoring app, and school run app.

Figure 1: Hardware (controller and sensors) for In-car child safety kit

RESULTS

Through this collaborative coding experience, students learn to design and implement innovative solutions using assembly language, while also becoming familiar with the MIPS ISA. The group-based approach reinforces their technical skills and provides a platform for meaningful, community-driven development.

Positive feedback from students is obtained from this exercise, whereby there is an increased engagement and understanding of MIPS ISA (the architecture, the instructions) and the MARS simulator. They are also excited about the opportunity to work on meaningful projects with visible outcomes.

CONCLUSION

In conclusion, the CSCI 3301 Group Project emphasises collaborative coding in assembly language, empowering students to develop community-driven applications that address real-world challenges. Through teamwork and hands-on experience with the MIPS ISA, students not only improve their technical skills but also learn the importance of creating solutions that have a positive impact on society. This approach nurtures a sense of responsibility and innovation, enabling students to use their programming expertise to contribute meaningfully to society - rahmatan lil 'Alamin.

KICT TALE NEWSLETTER

NURHAFIZAH MAHRI
DEP. OF INFORMATION SYSTEMS
nurhafizahm@iim.edu.my

Crafting a Compelling Business Plan: A Technopreneur's Essential Tool

A Compelling Business Plan

In our Technopreneurship course INFO4303, students are taught the importance of developing a strong business plan. A well-crafted plan serves as their roadmap, guiding them through the complex landscape of entrepreneurship. It's not just a document; it's a powerful tool that attracts investors, inspires teams, and helps students navigate challenges with confidence.

This newsletter highlights the key tools used in our course—Canva for stunning presentations, Microsoft Project for project management, and Microsoft Excel for financial analysis. These tools empower students to craft impactful and results-driven plans.

CREATIVITY IS ESSENTIAL.

By mastering the art of business plan creation, students will gain a deeper understanding of their venture, identify potential pitfalls, and make informed decisions. And with the right tools, the process can be both efficient and enjoyable.

The Implementation Process

STRUCTURED CREATIVITY

Students begin by brainstorming and exploring innovative business ideas, followed by conducting in-depth market research to understand their target audience, competitors, and industry trends. Using a structured, step-by-step approach, they then develop comprehensive business plans, covering key components such as the executive summary, market analysis, and financial projections.

ENGAGING VISUALS & CONFIDENCE

To enhance their presentations, students utilize Canva to create visually appealing and professional designs. They practice pitching their ideas to build confidence and refine their communication skills. Feedback from peers and instructors guides them through multiple iterations, ensuring continuous improvement and a polished final business plan. The submission, which utilizes the milestone-based system instils effective time management and communication skills, preparing students for real-world entrepreneurial challenges.

THE OUTCOME

By the end, students gain a strong understanding of business plan components, showcasing creativity with visually compelling designs. They confidently pitch their ideas, supported by market research and financial projections, with some even presenting product prototypes. The milestone-based system also builds time management and communication skills, preparing them for real-world entrepreneurial challenges.

By mastering business plan creation and using tools like Canva, Microsoft Project, and Microsoft Excel, students in our Technopreneur course are well-prepared to launch successful ventures. This approach enhances their skills and prepares them for future challenges in the dynamic world of business.

KICT TALE NEWSLETTER

KICT TALE 2024
IIUM

IOT IOTEAMS KICT INTERNET OF THINGS

TS. DR AHMAD ANWAR ZAINUDDIN
MUHAMMAD HAFIZ FARUQI MD SAIFUDDIN
NURAMIRATUL AISYAH RUZAIDI
NUR ZAFIRAH ADIRA AHMADZAMANI
MUHAMMAD IRFAN ZAKI MOHD RAZALI

Email: anwarzain@iium.edu.my

IOTEAMS

SECURITY FIRST:
EMPOWERING NETWORK PROTOCOL

Many students face challenges in early research involvement, which can lead to disengagement and missed academic and professional opportunities. To combat this, IoTeams was established as an experimental club offering structured programs that introduce students to established research projects. This initiative helps students master research methodologies and project sustainability principles, sparking a deeper interest in exploration.

The Impact of Early Research Engagement

Strategies for Success
The Establishment of IoTeams

Explore how IoTeams transforms research potential into remarkable academic and career success stories.

The Remarkable Journey of IoTeams

IoTeams gives students the opportunity to dive into IoT research, where they gain both technical expertise and valuable skills such as critical thinking, teamwork, and problem-solving. With expert guidance, students turn their ideas into real-world solutions, addressing complex challenges along the way.

This approach has been highly successful, with many participants achieving notable academic and professional milestones, significantly enriching their resumes with impressive accomplishments.

IoTeams in Action:
MILESTONES & RECOGNITION

The IoTeams Club has been a beacon of hands-on technological education, consistently engaging students with practical and collaborative learning experiences.

Some of the developments have been achieved through many international competitions based on IoT and Science/Technology.

- Participation in multiple international IoT and science/technology competitions
- Significant contributions to the development of real-world IoT solutions
- Recognized for outstanding research and innovation by industry leaders

The Role of Trainers in IoTeams

IoTeams thrives thanks to its dedicated trainers, who mentor students throughout their research journey. They provide essential guidance to ensure projects stay on course while fostering a deeper understanding of IoT. This mentorship boosts students' confidence and equips them to face future challenges.

NOTABLE ACHIEVEMENTS

IoTeams has consistently engaged in innovative projects, transforming students through research and hands-on experiences. The following recognitions from international competitions highlight the club's achievements.

GOLD

- **Gold Award** at Virtual Innovation Competition (VIC 2024), Universiti Teknologi MARA (UiTM) Kelantan: IoT-Powered Protection: Smart Door Access System
- **Gold Award** at International Invention, Innovation, and Design Expo (INoDEx 2023), Universiti Sains Malaysia: "Intelligent Car Rental Services for Optimized Resources and Safety in IIUM Community."

SILVER

- **Silver Award** at Open International Innovations Challenge (OPIIC 2024), Universiti Teknologi MARA (UiTM) Pulau Pinang: Early Flood Detection system using IoT.
- **Silver Award** at International Innovation & Invention Competition (IIICe 2024), Universiti Tun Hussein Onn Malaysia (UTHM) Johor: COBOT: IoT-Enhanced 3D Printed Car with Facial Recognition for Smart Classroom Attendance.
- **Silver Award** at CREATIONs de UiTM, International Mega Innovation Carnival 2024 (CDU 2024), Universiti Teknologi MARA (UiTM) Dungun: "IoT-Powered Door Entry System: NodeMCU ESP 8266 and HiveMQ Integration."
- **Silver Award** at The International Borneo Innovation, Exhibition & Competition (IBIEC 2023), Politeknik Jambi, Indonesia: "Integration of a Car Rental System with Mobile App Management and IoT for Enhanced Services and Safety in IIUM."
- **Silver Award** at International Final Year Project Competition & Exhibition (ICPEX 2023), Universiti Kuala Lumpur (UniKL).
- **Silver Award** at International Virtual Students' Business Idea and Product Innovation Competition (IVISBIPIC 2023), Universiti Teknologi MARA (UiTM) Pahang.

NOTABLE ACHIEVEMENTS

BRONZE

- **Bronze Award** at International Industrial Revolution 4.0 Exposition (IREX 2024), Universiti Teknologi MARA (UiTM) Kedah: Recognition for efforts in "Smart Water Management System."

The achievements of IoTeams reflect the dedication, creativity, and innovative spirit of its members. By continuously striving for excellence in IoT and Science/Technology, IoTeams not only elevates the reputation of the club but also serves as an inspiration for future students. Looking ahead, exciting opportunities await as further advancements are made through collaboration, research, and a passion for technological innovation.

KICT TALE NEWSLETTER
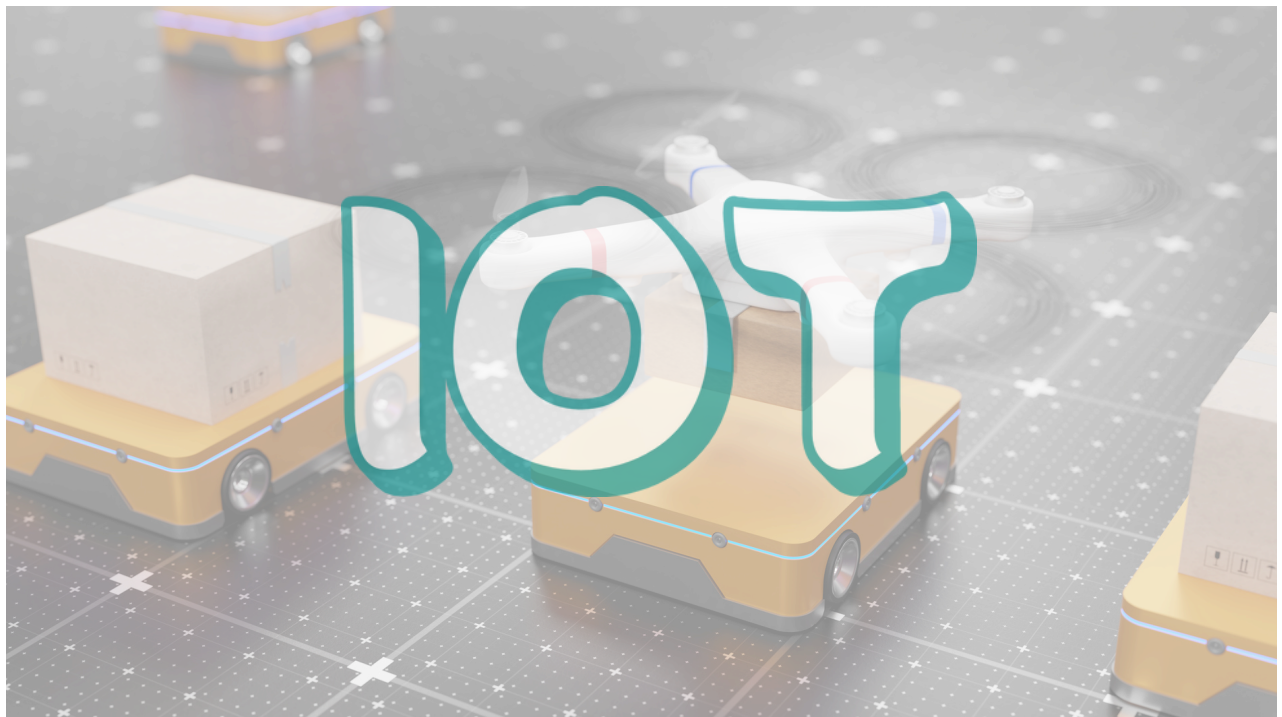
MARINI OTHMAN
DIS
OMARINI@IIUM.EDU.MY

From "Code Autocomplete" to "AI Code Generators":

Programming tools & resources for a web development course

The programming assistance tool is not new. For example, the use of IDEs has expedited many aspects of web development such as code editing and autocompletion, debugging, building and version controls.

The proliferation of web APIs, coding libraries, and web frameworks that support full stack web development has not only increased the richness of web content and application delivery but has also introduced complexities and increased frustrations for learners.

THE POTENTIAL OF AI IN WEB DEVELOPMENT

In the future, thoughtful integration of AI in design-focused evaluation is expected to enhance personalized learning experiences, promote learners' adaptability and supports lifelong learning.
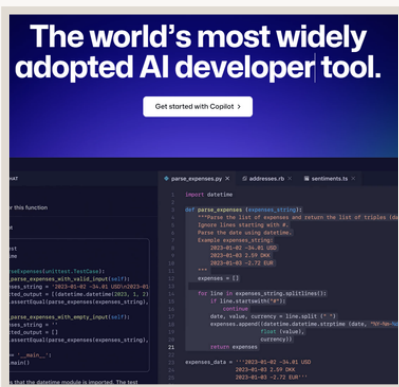
WEB TECHNOLOGIES

BACKGROUND

The upcoming implementation of the new BIT curriculum in Semester 1, 2024/25 has simplified the delivery of web programming courses from three distinct components of client-side, server-side and framework-based web development to a single full stack development using web framework technologies to create efficient and secure web systems. The new curriculum provides an exciting opportunity for enhancing learners' experiences by introducing new programming assistance tools such as AI code generators.
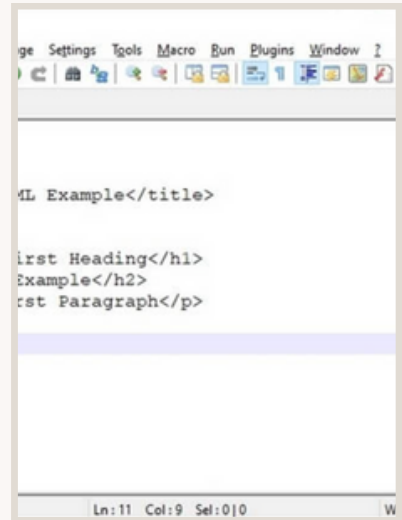
PAST PRACTICES

Teaching resources for Web Technologies have shifted from using traditional hard copy textbooks to online repositories and learning resources, namely the MDN Web Docs. Basic code editors such as Notepad++ were abandoned for MS Visual Code, with Github being utilized as a platform for group work and code sharing.

FUTURE WORKS

At present, there is a short-term ban imposed on learners for the use of AI tools in Web Technologies. Given sufficient time to adapt these tools, it is proposed that AI code generators be utilized as a useful starting point for solving open-ended, problem-based assignments in web development.

As learners progressed into professional roles, challenging software engineering-related tasks such as coding to documentation generation, and cross-programming language translation could also be automated. To defuse additional barriers to embracing AI, ethical considerations must be firmly established and implemented in such courses, in accordance with the IIUM Sejahtera Academic Framework (SAF).
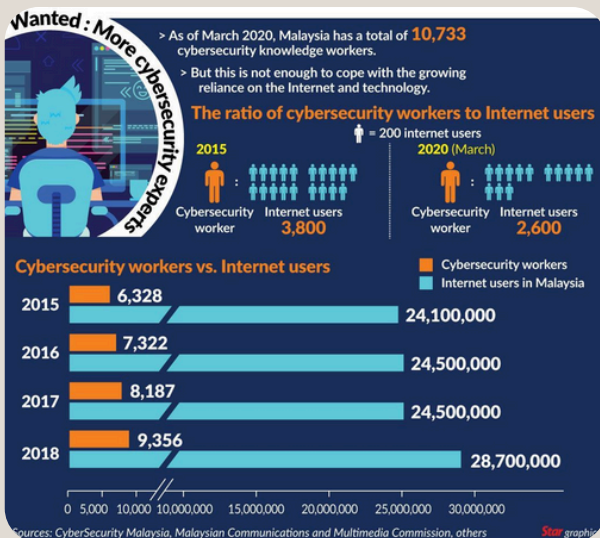
NURUL NUHA ABDUL MOLOK
DEPT OF INFORMATION SYSTEMS
NURULNUHA@IIUM.EDU.MY

CYBERSECURITY EDUCATION: DEVELOPING MALAYSIA'S CYBER RESILIENCE

INFO 4341 RISK MANAGEMENT

> As of March 2020, Malaysia has a total of **10,733** cybersecurity knowledge workers.

> But this is not enough to cope with the growing reliance on the Internet and technology.

The ratio of cybersecurity workers to Internet users

= 200 internet users

2015
Cybersecurity worker : Internet users 3,800

2020 (March)
Cybersecurity worker : Internet users 2,600

Cybersecurity workers vs. Internet users

- Cybersecurity workers
- Internet users in Malaysia

Year	Cybersecurity workers	Internet users
2015	6,328	24,100,000
2016	7,322	24,500,000
2017	8,187	24,500,000
2018	9,356	28,700,000

0 5,000 10,000 10,000,000 15,000,000 20,000,000 25,000,000 30,000,000

Sources: CyberSecurity Malaysia, Malaysian Communications and Multimedia Commission, others   *Star* graphic

As Malaysia and the rest of the world are moving towards digitalization and becoming more interconnected than before, the need for cybersecurity experts is on the rise. Hence, Malaysia aims for 30,000 cybersecurity knowledge workers by 2030.

To me, this is a calling to all cybersecurity academics to help Malaysia develop its cybersecurity capacity. Thus, INFO 4341 Risk Management and other related courses such as Management of Information Security, Business Continuity & Disaster Recovery, Control and Audit of IS, and the rest of other BIT specialization in Cybersecurity (formerly known as Information Assurance & Security) courses are designed to develop Malaysia's cyber resilience.

Empower the next generation of cyber defenders

UNDERSTANDING CYBER THREAT LANDSCAPE

To understand the students better, they are asked to introduce themselves face-to-face during the class (5 students per class until everyone has done so) and write on Padlet about their short bio and why they registered for the Risk Management course. Then, they need to understand the course expectations such as the course flow, assessment and weightage, etc.

They are also expected to understand the current cyber threat landscape and how to address such threats. Statistics from local and global cyber industries are shared so that they know today's challenges in managing cyberspace.

For this course to have an impact of the students' career path, they need to understand cybersecurity profession is in demand in Malaysia and globally. This is important to spark their passion for cybersecurity and inspire them to pursue a career in the field.
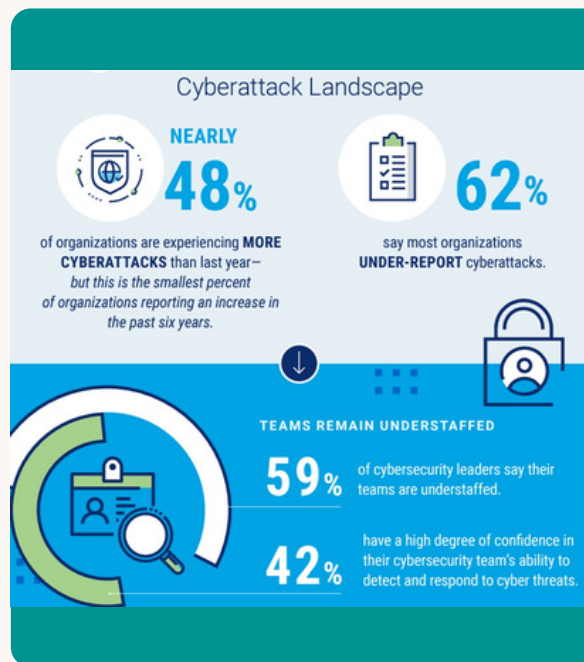
CONTENT BASED ON INTERNATIONAL STANDARDS

The right cyber risk management references are difficult to find hence I am developing a Cyber Risk Management textbook and it is currently under review. There are multiple schools of thought in this area, therefore, the content of this course is based on: (1) the International Standards i.e. ISO 31000, ISO/IEC 27005, the US NIST and the EU ENISA, and (2) Malaysian government standards. These standards are widely accepted in both the public and private sectors in Malaysia.

Following the ISO/IEC 27005 standards, this course covers: (1) context establishment, (2) risk assessment (which includes identification, analysis and evaluation), (3) risk treatment, (4) monitoring & review, (5) communication and (6) documented information.

OUTSIDE-OF-CLASS ACTIVITIES

EXPOSURE TO CYBERSECURITY EVENTS

Other than hands-on risk analysis techniques based on Malaysian government practices which follow the ISO standards, case studies and individual/group presentations, students are brought to cybersecurity programs done by local & international cyber experts and participate in cybersecurity competitions.

The most impactful and memorable event was when our students became the Champion for the PETRONAS capture-the-flag competition when we attended PETRONAS Global Cyber Month in 2023. The students also met with KICT alumni working at PETRONAS at the time.

HOPES AND DREAMS

I make dua for my students to excel in whatever they do especially in their cybersecurity career. I am keeping in touch with my former students on LinkedIn to know their chosen career path and their achievements. Another proud moment is when Malaysia's leading cybersecurity brand "Nexagate" is recruiting many KICT alumni, especially those from BIT Cybersecurity specialization which suits its Security Risk and Compliance division, providing ISO27001 consulting services.

INTEGRATING *KHAIR* IN USABILITY EVALUATION TO MEASURE THE EFFECTIVENESS OF A WEBSITE

PROF. DR. MURNI MAHMUD
DEPT OF INFO SYSTEMS, KICT
MURNI@IIUM.EDU.MY

INFO 3307: HUMAN COMPUTER INTERACTION (HCI)

USABILITY EVALUATION & METHODS

Usability evaluation is one of the central topics in learning **Human-Computer Interaction**. Usability is often associated with User Friendliness of a product or service. It is also concerned with how easy and enjoyable for users to achieve their goal in using a product or service. **Products and services** may include mobile applications or web applications in various domains, e.g. education, banking, e-commerce, oil and gas etc. Having good usability means users will be able to achieve a goal or task with effectiveness, efficiency, and satisfaction in their specified context of use.

As defined in **ISO/IEC 9241-11**: Usability is the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.
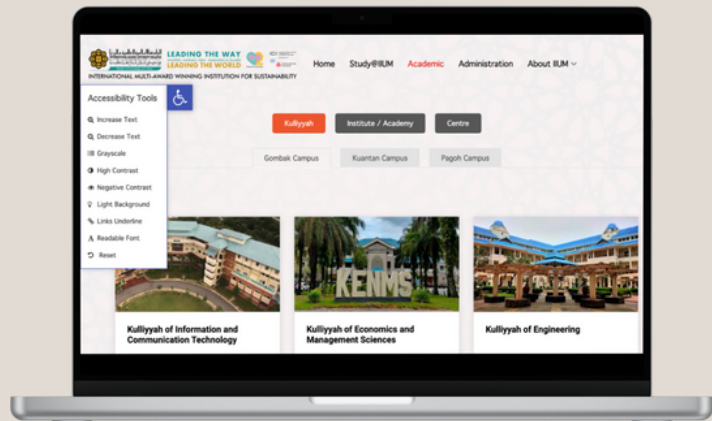
IIUM WEBSITE

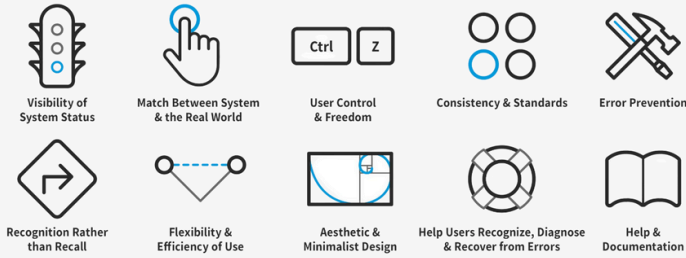Evaluation of usability can be conducted with three methods:

- **Usability testing** - observing users as they attempt to complete tasks.
- **Usability inquiry** - talking to users to find out what they expect and what they need.
- **Usability inspection** - expert assessments to find usability problems - commonly using **Heuristic Evaluation** (HE) to measure the usability of user interfaces of applications.

10 Usability Heuristics

| Visibility of System Status | Match Between System & the Real World | User Control & Freedom | Consistency & Standards | Error Prevention |
| Recognition Rather than Recall | Flexibility & Efficiency of Use | Aesthetic & Minimalist Design | Help Users Recognize, Diagnose & Recover from Errors | Help & Documentation |

HEURISTIC EVALUATION WITH *KhAIR*
REFERENCE: SEJAHTERA ACADEMIC FRAMEWORK (SAF)

In SAF, KhAIR is an acronym for IIUM graduates' attributes which are Khalifah, Amanah, Iqra' and Rahmatan Lil Alamin. These attributes are multifaceted and complicated. KhAIR attributes that are used in the usability evaluation are based on the basic interpretation of the words.

Integrating KhAIR in the usability evaluation is an attempt to explore the opportunity to enhance the method and reveal the characteristics and quality of IIUM website's design and content features.

One key question has been formulated with four sub questions to directly address each element of KhAIR.

- How do the content and design features of the IIUM websites embody the values of Khalifah, Amanah, Iqra', and Rahmatan lil Alamin?
  - How is the concept of Khalifah reflected in the website's mission, which promotes leadership, responsibility, and ethical governance?
  - How Amanah is manifested in the transparency, trustworthiness, and usability of the website's design, ensuring it serves the university community responsibly?
  - How the value of Iqra' is demonstrated through features promoting knowledge, education, and lifelong learning.
  - How the principle of Rahmatan lil Alamin influences the inclusive, welcoming, and compassionate design and content for all users, promoting global harmony and understanding.

Heuristic evaluation results have yielded that the IIUM website is **user-friendly with high-quality usability**. It also offers good user experience by offering several key features on the website:

- the design is **minimalist**, consistent, and flexible, combining efficiency with aesthetic appeal.
- users can **easily control navigation**, allowing for personalised interaction that meets their needs.
- website **status is always visible**, with strong support for accessibility and ensuring inclusivity e.g **accessibility tools** serve the need of users with various abilities.
- **comprehensive help and support** are readily available for users when needed.
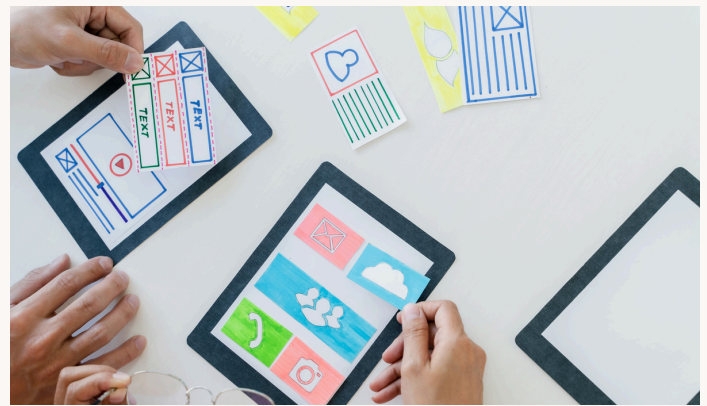
From the KhAIR perspective, the IIUM website is found to saliently embody the values of Khalifah, Amanah, Iqra', and Rahmatan lil Alamin. In brief, the IIUM website shows the following characteristics:

- **Khalifah**: Demonstrates leadership for various levels through a clear mission, vision, and philosophy of the University.
- **Amanah**: Provides reliable, up-to-date, and trustworthy content with credible resources. Activities are well described with interesting and captivating images and videos.
- **Iqra'**: Encourages learning and spread of Islamic teaching with reliable, informative, readable content and attractive presentation.
- **Rahmatan lil Alamin**: Ensures accessibility for all stakeholders, including less able users, reflecting inclusivity and compassion for the ummah.

KICT TALE NEWSLETTER

TALE NEWSLETTER

DR. AKEEM OLOWOLAYEMO
DEPT OF COMPUTER SCIENCE, KICT, IIUM.
AKEEM@IIUM.EDU.MY

Flipped Classroom

- How to Teach? Sage on Stage?

- Students learn better from **peers**
- Lecturer is a mentor, **facilitator**

Traditional Classroom

Flipped Classroom

Collaborative Flipped Classroom

Flip YOUR Classroom

Collaborative Flipped Classroom in Groups.

Background

PROBLEM IDENTIFICATION

Currently, less funding allocation for tutorial classes, coupled with a lack of interest as well as the unavailability of experienced students to serve as teaching assistants.
Again, traditional classroom teaching, or rather Sage on state has been shown to be less effective.

CREATIVE RESPONSE

Applying the TRIZ trimming method by combining the tasks of a professor and teaching assistance as well as enhancing my classes with better teaching methodologies. Removing the Sage on Stage and replacing it with a Guide on the Side instead while at the same time achieving better efficiency, making classes more fun, more relaxed, more engaging and less stressful for both educator and learners.

THERE MUST BE A BETTER WAY!

CFC Flow

STEP 1 : BRIEFING

The first most important step is to brief the students and make sure they understand how the classes will be run, be clear and about expectations and highlight the assessments (esp graded and ungraded)
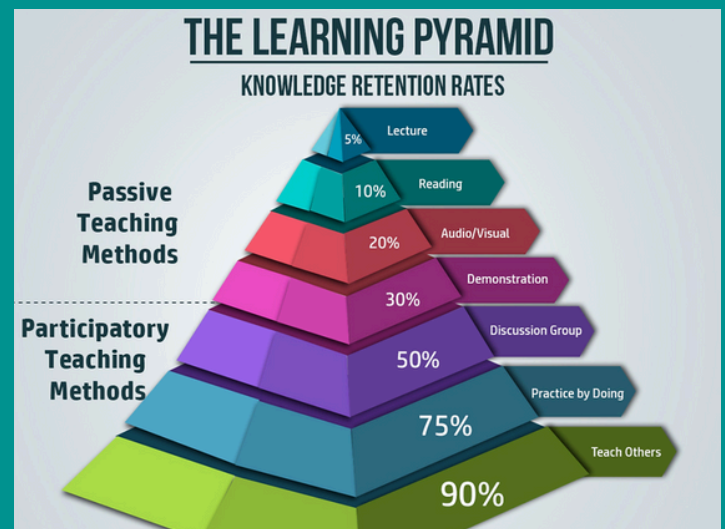
STEP 2 : GROUPS FORMATION

Divide students into teams of about 4-5 members to work together till the end of the semester. Mix top, average and weak students unless they find it difficult to work together, since most times, students want to be with their friends.

STEP 3: SHORT, PRECISE VIDEOS

Ahead of every class, prepare a short video, usually 10 minutes or less, to explain the entire topic for the class. Encourage additional contents from online sources. This is implemented by recording in MS Powerpoint

STEP 4: CATER FOR DIFFERENT LEARNING STYLES.

To cater for different learning styles, provide the short video, and the slides and specify the section/unit in the course required textbook for their reference.

THE LEARNING PYRAMID
KNOWLEDGE RETENTION RATES

Passive Teaching Methods

Participatory Teaching Methods

5% Lecture
10% Reading
20% Audio/Visual
30% Demonstration
50% Discussion Group
75% Practice by Doing
90% Teach Others

STEP 5: GROUP CLASSWORK

Ahead of class, prepare & provide the group classwork which they have to discuss, solve and submit before or during the early part of the class, before I debrief the questions. This is implemented using Google Quiz.

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STEP 8: PEER EVALUATION

Provide a peer-review at the end of the classwork, at midterm & end of the semester, to review those who made efforts before class or contributed as expected. Needed to ensure that they were collaborating, not just free-riding on the top students. This is implemented using Google Form

STEP 6: GAMIFY THE CLASSWORK

Display the performance of the groups and feedback on the progress of each group. Often, multiple submissions are allowed until the debriefing time commences. Once in a while, physical rewards such as cookie boxes are provided for the best groups, the fastest to finish and scoring maximum points.

STEP 7: DEBRIEF THE CLASSWORK

Provide a comprehensive debrief of the classwork, noting the difficult parts and providing extensive discussions & solutions where students have problems. Allow questions and clarifications from the students. Open up discussions for the applied problems.

STEP 9: RANDOMISED, REPEATED QUIZZES

 Provide randomised, repeated quiz online in class LMS, to access individual students on the topic, after class (available before class but reviewed after the group classwork). Chance to attempt different questions several times until they master the topic. Implementation: Pearson TestGen

STEP 10 : INTERMITTENT INDIVIDUAL CLASSWORK

Intermittent Individual Classwork is a review classwork encompassing all the subtopics in the previous group classworks in the chapter.
Needed to ensure that each student was actually progressing, not just free-riding on the top students.

FINAL STEP : FORMATIVE ASSESSMENTS GRADING

Select appropriately each component for formative assessments grading. Individual classwork is usually 25% of the overall weightage for Classwork.

GENERAL CHALLENGES

Most of our students are not used to working ahead before class, so most of them will do the classworks together in class. This is still fine since they would be busy in class and review the contents together, rather than sleeping while I stand and speak in front of the class.

INDIVIDUAL CHALLENGES

Preventing free-riders in a few cases is difficult especially when you have a very smart and hardworking student in a team, the rest of the team members might be relying too much on her/him to work ahead while all of them get the same mark. This is the reason I introduced intermittent individual review classwork to check individual progress.
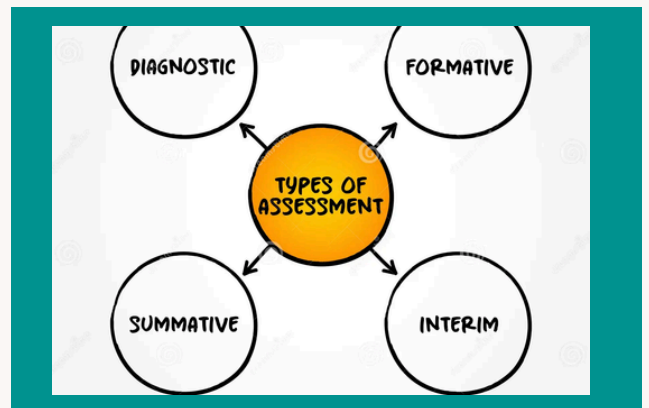
TECHNICAL CHALLENGES

Italeem Cloud makes it difficult for Testgen files to work effectively. Sometimes, in the display, many images and equations are not displayed properly. The previous italeem hosted in-house worked better for the randomised quizzes.

KICT TALE NEWSLETTER

ANDI FITRIAH ABDUL KADIR
DEPARTMENT OF COMPUTER SCIENCE
andifitriah@iium.edu.my

# HACKERS IN THE HALLWAY: HUMANISING CYBERSECURITY THROUGH ROLE PLAY

In today's digital world, it's easy to forget that behind every system and attack is a human element.

By bringing cybersecurity concepts to life, we can empower students to not just understand the theory, but experience it firsthand.

This bridges the gap between complex technical concepts and real-world situations, making learning more impactful.

Why Humanise Cybersecurity?

Humanising cybersecurity transforms passive learning into active and memorable experiences.
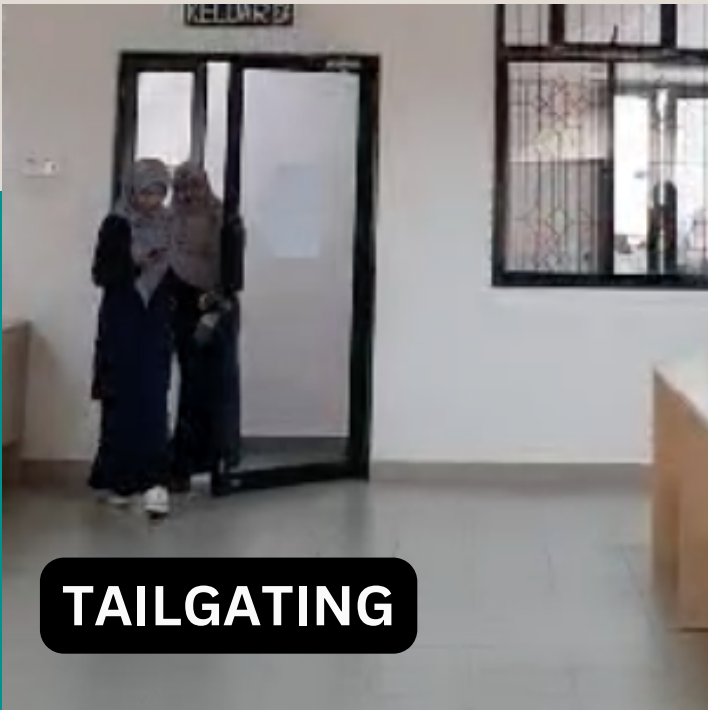
WHAT ARE THE FEATURED ROLE PLAYS?

TAILGATING

TAILGATING/PIGGYBACKING (PHYSICAL ATTACK)

Students act out the risks of unauthorized access by following someone through a secure entry.

MAN-IN-THE-MIDDLE ATTACK (MITM)

Students portray how attackers intercept and manipulate communication between two parties.

DISTRIBUTED DENIAL OF SERVICE (DDOS)

Students recreate how overwhelming traffic can cripple a network, showing how easily services can be disrupted.

PIGGYBACKING

MALWARE INFECTION

Students demonstrate how malware is installed through phishing or deception, emphasizing the risks of careless clicks.

SCAN ME

to watch role play

KICT NEWSLETTER │ SEEKING KNOWLEDGE THROUGH SHARING

WHAT ARE THE LEARNING OBJECTIVES?
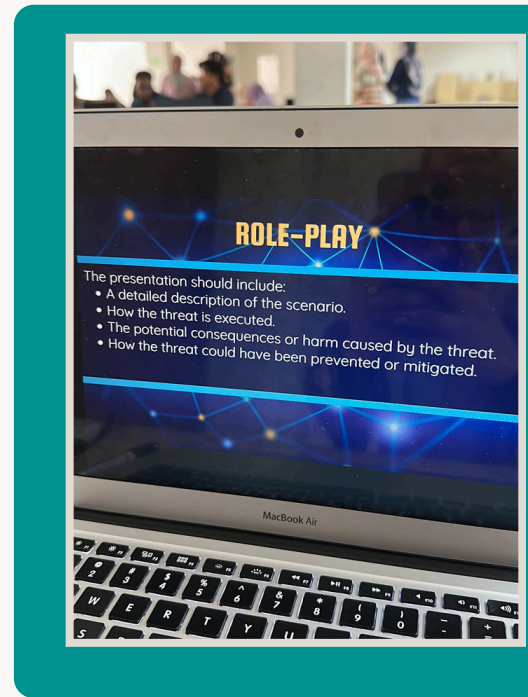
›› Enhance Engagement:
By acting out scenarios, students become more immersed in the topic.

›› Critical Thinking:
Understand the human factors behind technical vulnerabilities.

›› Teamwork and Communication:
Collaborate effectively to both demonstrate and explain complex attacks.

ROLE-PLAY

The presentation should include:
• A detailed description of the scenario.
• How the threat is executed.
• The potential consequences or harm caused by the threat.
• How the threat could have been prevented or mitigated.

STUDENT KEY TAKEAWAYS

- **Memorable Experiences**
- **Ethical Awareness**
- **Interactive Learning**
- **Human Vulnerabilities**
- **Defense Mechanisms**

By taking on the roles of both attackers and victims, students get a firsthand look at how human behavior, whether it's a simple mistake or deliberate action, can be used to exploit and weaken security systems.

This approach not only helps students grasp technical concepts but also makes them aware of the ethical, social, and psychological dimensions of cyber threats.

IT REMINDS US THAT CYBERSECURITY IS NOT JUST ABOUT SECURING DATA, IT IS ABOUT **SECURING PEOPLE**.

KICT TALE NEWSLETTER

SITI ASMA MOHAMMED
DEPT OF COMPUTER SCIENCE
siti_asma@iium.edu.my

COFFEE TEACH REPEAT

## WHEN IT IS TIME FOR CLASS AND THE TEACHER HASN'T HAD HER COFFEE

Teaching is challenging and rewarding. It involves not only imparting knowledge but also keeping students attentive. It is a chaotic whirlwind beneath educators. It is a demanding routine and the nature of such professions. Thus, a coffee is essential for starting the day. For students, part of learning is gaining skills and knowledge throughout the entire process. Students should design and lead their own learning experiences while the lecturer facilitates them. Students should analyze their work, not just the final outcome, but the entire learning process. It encourages acceptance of constructive feedback and continuous self-improvement throughout life.

LEARN DO REFLECT

IS A WAY OF ALLOWING STUDENTS TO FEEL THEY CAN FAIL, REVISE, AND TRY AGAIN, TAKES OFF SOME THE PRESSURE AND ENCOURAGES LEARNERS TO STRIVE TO IMPROVE.

ACTIVE INVOLVEMENT

Students are actively involved in the class and their group discussion. Makes learning more engaging and meaningful. Creating an environment where students feel comfortable asking questions
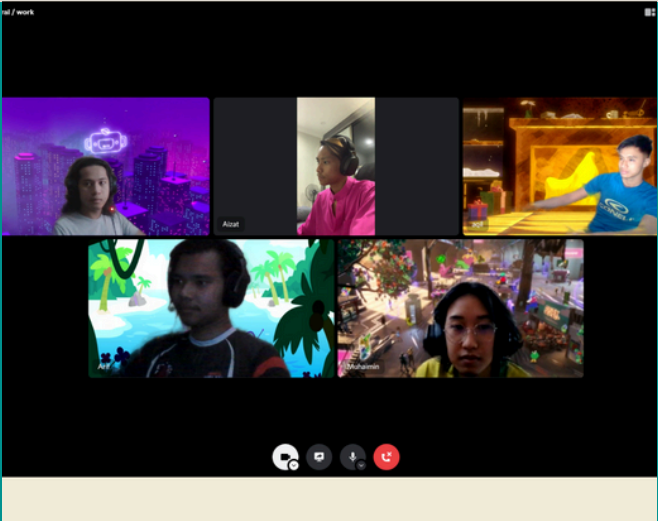
CLEAR PURPOSE AND REFLECT ON THE EXPERIENCE

Let the students write and reflect on their progress and achievements in every meeting. From here, students can have control and can see purpose in every activity and learning.

APPENDICE 2 -REFLECTIONS

عَلَيْكُمْ بِالتِّجَارَةِ فَإِنَّ فِيهَا تِسْعَةَ أَعْشَارِ الرِّزْقِ

"You should conduct business, for in it is 9 out of 10 livelihoods."

تِسْعَةُ أَعْشَارِ الرِّزْقِ فِي التِّجَارَةِ

"9 out of 10 of sustenance are from business."

In this hadith, we can clearly see that business is very important and necessary in our lives. Many important things cannot be done without it, including transactions, trades, selling, and buying. Individuals, societies, and the entire ummah rely on business. It is a way for people to help others while also earning money and developing a virtuous personality. It helps a society reduce the problem of unemployment while also encouraging a society to be more productive. Finally, for the entire ummah, business helps spread the message of Islam and strengthen the ummah's economy. As a result, creating business opportunities, such as our IIUM Transporter project, benefits many people and is a necessity for everyone.

The goal of this effort would be to improve access to transporters to assist with student commutes, food deliveries, and parcel deliveries. The internet increases the likelihood of this project's success. Not all students have the luxury of owning a car for commuting. As a result, with the assistance of this project, everyone will be able

CONNECT TO REAL WORLD

Show the students how their learning connects to real-world situations or future career paths. This helps them see the practical value of their studies.

KICT TALE NEWSLETTER

NURAZLIN ZAINAL AZMI
DEPARTMENT OF
INFORMATION SYSTEMS
NURAZLINAZMI@IIUM.EDU.MY

INFO 4326 – 3D MODELING

EXPLORE, CREATE & INNOVATE IN 3D

Equips students with hands-on skills and the opportunity to lead through self-driven learning initiatives. This course offers a blend of practical experience and theoretical understanding, preparing students to tackle the real-world demands of 3D modeling, whether in design, animation, or game development..

EMPOWERING CREATIVE MINDS

- Develop technical expertise in 3D modeling.
- Gain leadership and collaborative skills through team-based projects.
- Explore the vast dimensions of design in digital content creation.

OVERVIEW

A student-focused course that utilises Blender tool for students to engage in the creation of 3D models and basic animations, gaining a deep understanding of key concepts like scene composition, timeline, lighting, camera, and texturing.

Emphasises both individual and collaborative learning experiences, encouraging students to take initiative in practical assignments and team-based projects that focus on sustainable development.

LEARNING APPROACH

HANDS-ON

- *Practical Assignments*: Students lead their own learning through self-driven projects, experimenting with different techniques in Blender, including NURBS and box modeling.
- *Collaborative Group Projects*: With teamwork is the core aspect, students collaborate to design 3D applications aimed at solving real-world challenges.
- *Outcome-Based Education (OBE)*: Each assessment is guided by clear rubrics designed to measure skills in knowledge and understanding, practical application, and problem-solving in team settings.
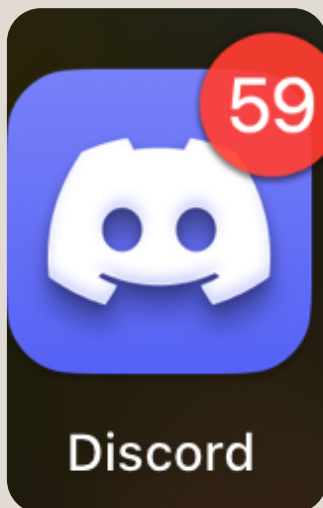

LEARNING PLATFORM

Utilising platforms such as MS Teams and ITaleem for flexible content delivery and continuous assessment.

NUR-ADIB MASPO
DEPT OF COMPUTER SCIENCE
NURADIBMASPO@IIUM.EDU.MY

## Empower Your Teaching with Discord: A Channel for Collaboration and Communication

I'm excited to share how Discord has transformed my classroom experiences, and for the upcoming semester, I have prepared for BICS 1302 - Introduction to Computer Organisation (Sections 3, 4, 5, and 6). By centralising communication, organising channels for announcements, assignments, and study groups, and utilising interactive features like voice chats and multimedia sharing, Discord has made our classroom more connected and dynamic. Students now have a streamlined platform for real-time discussions and easy access to course materials, which has significantly increased their engagement and participation.

Moreover, Discord's modern and intuitive interface aligns well with the digital habits of today's students, making it an easy tool for them to adopt. Its familiar environment, often used for social and gaming purposes, helps students transition smoothly into using it for educational purposes. This seamless integration has not only enhanced communication and collaboration but also simplified course management.

To assist in getting started with Discord, I recommend exploring resources such as Discord's Official Guide for a comprehensive overview of its features and functionalities. If you're interested in exploring how Discord could benefit your own courses, I'd be delighted to discuss my setup and share insights on its impact.

Key Features of a Discord Server for Classroom Use

Welcome to
BICS 1302-Intro to
Computer Organisation
Sem1 2024/2025
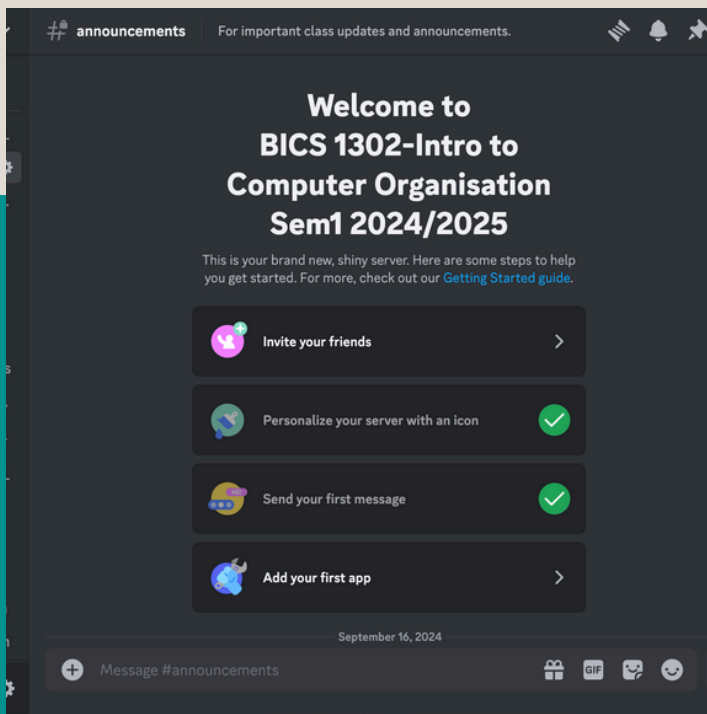
TEXT CHANNELS:
• Dedicated spaces for specific topics (e.g., discussions, assignments, study groups).
• Channels like Announcements, General Discussion, Assignments, and Q&A organize communication efficiently.

VOICE CHANNELS
• Dedicated spaces for specific topics (e.g., discussions, assignments, study groups).
• Channels like Announcements, General Discussion, Assignments, and Q&A organize communication efficiently.

REAL-TIME & ASYNCHRONOUS COMMUNICATION
• Live sessions using voice channels for real-time interaction.
• Asynchronous discussions in text channels for students to participate at their own pace.

PRIVATE CHANNELS FOR GROUP WORK
• Custom channels for specific groups, allowing focused collaboration.
• Encourages peer-to-peer learning and project work

NOTIFICATIONS AND ALERTS
• Push notifications for announcements, deadlines, and updates.
• Event reminders via bots or manual posts to keep students informed.
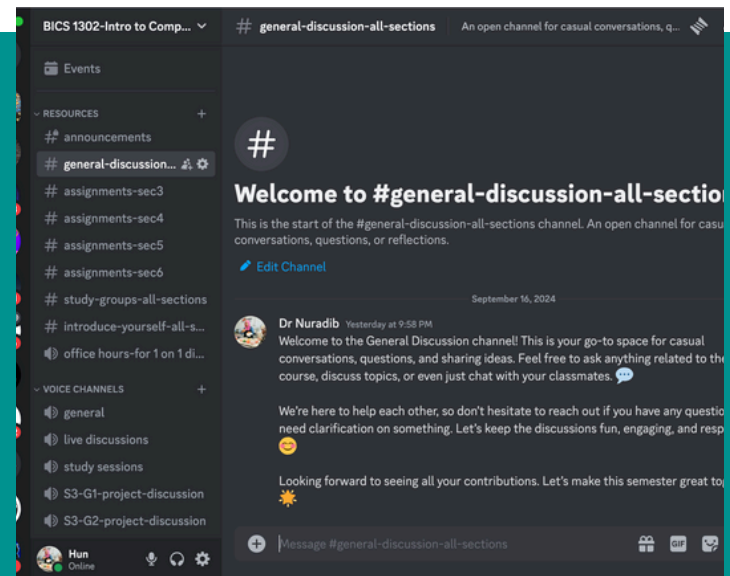
CROSS-PLATFORM ACCESSIBILITY:
• Access from any device (PC, smartphone, tablet) for flexibility.
• Ensures participation from anywhere, anytime.

BOTS AND GAMIFICATION
• Automate tasks like reminders and reward participation, making learning more interactive and fun.

KICT TALE NEWSLETTER

TALE NEWSLETTER

NORMI SHAM AWANG ABU BAKAR
DEPT OF COMPUTER SCIENCE
NSHAM@IIUM.EDU.MY

BlazeMeter

What is BlazeMeter?

BlazeMeter is a comprehensive, cloud-based performance testing platform that allows developers, testers, and engineers to simulate real-world traffic conditions. It helps identify bottlenecks, monitor response times, and assess the scalability of web applications, APIs, microservices, and mobile apps.
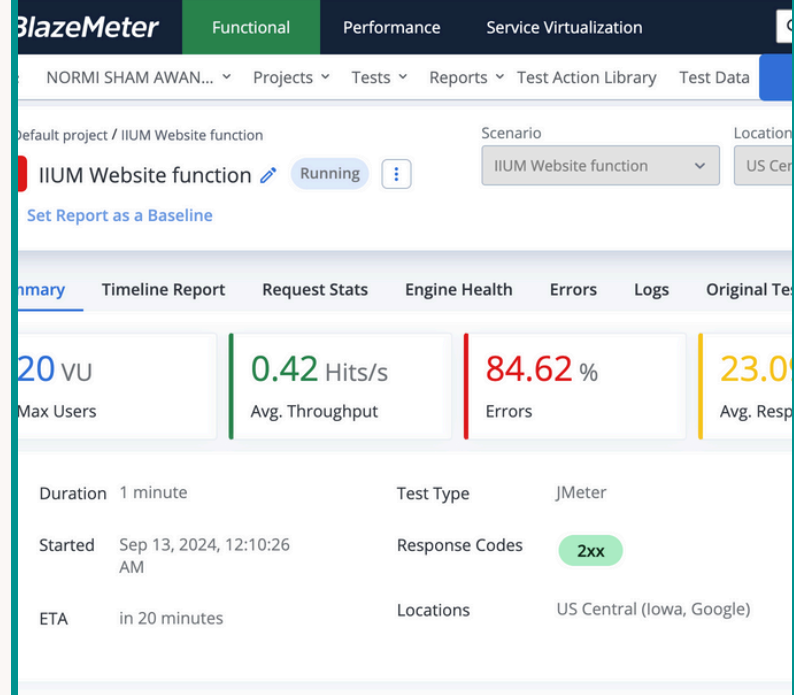
Key Features:

- Cloud-Scaling: Test with millions of concurrent users from different locations.
- Support for Multiple Protocols: HTTP, REST, WebSocket, SOAP, and more.
- Integration with CI/CD: Seamlessly works with Jenkins, Travis CI, and other CI pipelines.
- Real-Time Analytics: Provides detailed reports with actionable insights.
- JMeter Compatibility: Fully compatible with Apache JMeter, enhancing its flexibility for users familiar with this tool.

Software Testing Tool

BLAZEMETER
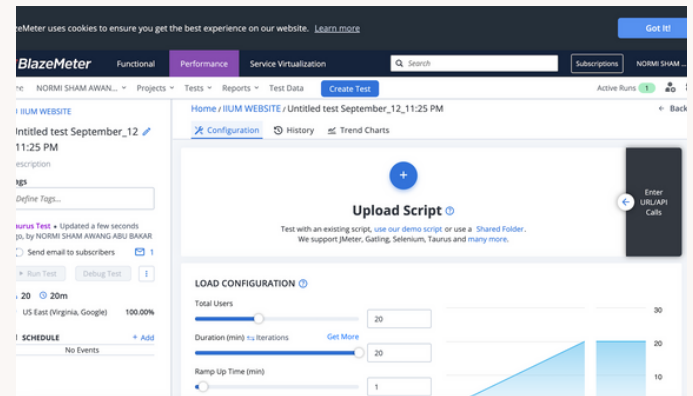
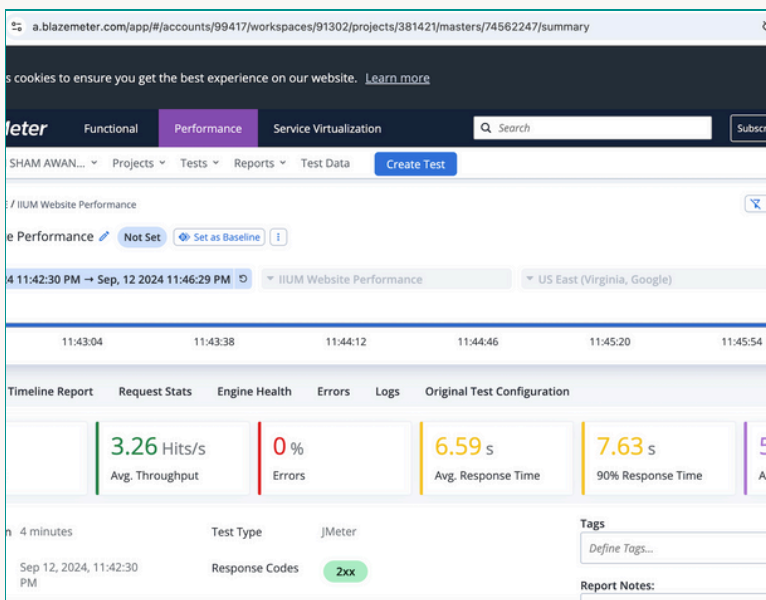## Functional vs Performance Testing

TEXT HERE

Functional Testing

Key Functional Testing Features in BlazeMeter:

- API Functional Testing: BlazeMeter allows users to create, run, and manage tests for REST, SOAP, and WebSocket APIs.
- Test Scenarios: Users can design end-to-end functional test scenarios using BlazeMeter's intuitive interface.
- Selenium Integration: BlazeMeter integrates with Selenium, a popular web application automation tool.

Performance Testing

Key Performance Testing Features in BlazeMeter:

- Load Testing: BlazeMeter simulates thousands or even millions of virtual users accessing an application simultaneously, helping to identify performance bottlenecks.
- Stress Testing: Stress tests are conducted to push the application to its limits by generating extreme loads to understand its breaking points.
- JMeter Compatibility: BlazeMeter fully supports Apache JMeter scripts, which allows for advanced performance test creation. Teams already using JMeter can import their scripts into BlazeMeter for cloud execution.
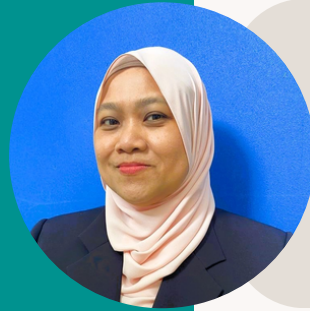

Conclusion

By combining functional and performance testing into one streamlined platform, BlazeMeter allows DevOps teams to deliver high-quality applications with confidence.

KICT TALE NEWSLETTER

DR. SHUHAILI TALIB
DEPT. OF INFORMATION SYSTEMS
EMAIL: SHUHAILI@IIUM.EDU.MY

ENHANCING LEARNING THROUGH REAL-WORLD APPLICATION:

Experiential Learning in the INFO 4342: Business Continuity and Disaster Recovery Course

Introduction

The Business Continuity and Disaster Recovery (BCDR) course is designed to equip students with the knowledge and skills necessary to ensure an organization can maintain operations despite disruptions caused by incidents or disasters. This course covers strategies and practices that organizations can adopt to prepare before, respond during, and recover after such events.

Throughout the course, students will engage in assignments and projects focused on key areas such as risk assessment. By the end of the semester, students are expected to apply the theoretical concepts learned to develop a comprehensive BCDR plan for an organization, demonstrating their ability to safeguard business operations in the face of potential threats.

Checking expiry date of fire extinguisher

Experiential Learning Approach

RISK ASSESSMENT ASSIGNMENT

Experiential learning is one of the teaching methods applied in this course, allowing students to engage directly with real-world scenarios and learn through hands-on activities. This approach immerses students in practical situations, facilitating learning by doing. In terms of learning styles, this method aligns with kinaesthetic learning, which emphasizes active, physical engagement as a key component of the learning process.

In this group assignment, students will walk around the KICT building to identify potential risks and capture photographs as evidence. These images will be included in their risk assessment table. Students will identify the sources of risk, assign ratings, and ultimately provide recommendations for improvement to KICT management. This assignment aims to enhance students' critical thinking and their ability to develop practical solutions.

Benefit of Experiential Learning

- Collaboration and Team Works
- Physical and Mental Refreshment
- Real world application via Field Exercise
- Ethical Responsibility as a Khalifah
- Critical Thinking and Problem Solving

Reflection on Experiential Learning

During the assignment, students expressed that they enjoyed the opportunity to walk around and refresh themselves after several lectures. They began to realize the numerous risks present in their surroundings, many of which are often overlooked or taken for granted. This hands-on experience not only heightened their awareness of these potential hazards but also increased their appreciation for the university's facilities, encouraging them to use them more responsibly. Moreover, the experiential nature of the assignment helped students retain key information, particularly regarding risk ratings, as they actively participated in the risk assessment process.

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OBJECT-ORIENTED PROGRAMMING

DINI HANDAYANI
COMPUTER SCIENCE
DINIHANDAYANI@IIUM.EDU.MY

Mastering Object-Oriented Programming with Oracle Academy: An Essential Course for Future Developers

Course Synopsis

This course is designed to be practical-oriented and laboratory-based, focusing on core object-oriented programming (OOP) concepts such as classes, objects, data abstraction, methods, method overloading, inheritance, and polymorphism. The course aims to provide students with both a theoretical understanding and practical application of these principles. Throughout the semester, students will engage in hands-on projects that reinforce these concepts, culminating in the development of a small to medium-scale application as part of their group project.

Additionally, this course is embedded with Oracle Academy (OA) materials to enhance the teaching and learning process, offering industry-standard resources and tools. By integrating Oracle Academy content, students gain exposure to professional-grade learning experiences, which align with current industry practices. Upon successfully completing the course, students will receive the "Java Fundamentals" certificate under Oracle Academy, validating their knowledge and skills in OOP and Java development.

Tools Used for the Class

In this course, students have the flexibility to choose between Eclipse or NetBeans as their preferred integrated development environment (IDE) for coding and project development. Both IDEs support Java development and offer robust tools for managing and debugging OOP applications.

Aligned with OA's curriculum, two class sessions will utilize Greenfoot, an educational tool designed to teach OOP concepts through interactive game development.

Greenfoot serves as a practical example of how OOP principles can be applied in real-world scenarios, particularly in game programming.

For user interface design and animation, the course also incorporates JavaFX, a powerful library for building modern, visually appealing interfaces. JavaFX provides students with hands-on experience in developing dynamic user interfaces, which is essential for creating fully functional and interactive applications. These tools equip students with a comprehensive understanding of OOP in various contexts.

Class Assessment

One of the class assessments will be sourced directly from the OA's final assessment. This assessment not only contributes to the overall course grade but also offers students the opportunity to earn the Java Fundamentals certificate from OA. Successfully completing this quiz provides students with an industry-recognized certification, adding value to their learning experience and enhancing their professional qualifications.

ORACLE Academy

INTERNATIONAL MULTI-AWARD WINNING INSTITUTION FOR SUSTAINABILITY

LEADING THE WAY
LEADING THE WORLD

AWARD of COURSE COMPLETION

Java Fundamentals

PRESENTED TO

Raushan Muazz Zaidi

FOR SATISFACTORY COMPLETION OF ALL COURSEWORK

3 July 2024

Dini Handayani
Oracle Academy Instructor

KICT TALE 2024
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INFORMATION VISUALIZATION

Rationales

DR MADIHAH SHEIKH ABDUL AZIZ

DEPT OF INFORMATION SYSTEMS

MADIHAHS@IIUM.EDU.MY

01 Integrate theories with practice: industry tool +tableau

02 Be confident through guidance

03 Emphasize technical proficiency

04 Ethical, Responsible & Accurate data representation

05 Create visualizations that have societal and professional impact

"In this course, students are encouraged to explore, create, and iterate, with a strong focus on integrating UI/UX principles into data visualization and storytelling. By incorporating UI/UX concepts, students learn to design visualizations that are not only informative but also intuitive and engaging for the end user, ensuring clarity, functionality, and impact in their data-driven narratives"

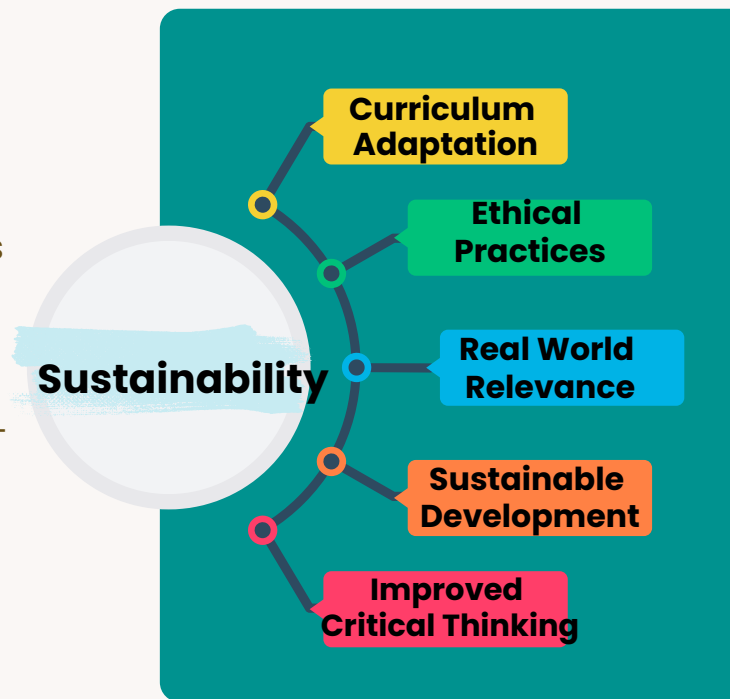# From Data to Insights: Crafting Visual Narratives

The teaching approach for this course is rooted in **active learning** and the **application of theory to practice**. It integrates several **pedagogical** strategies:

1. **Lecture-Based Learning**: Provides students with a solid foundation of theoretical principles, including human perception, design, and interaction.
2. **Problem-Based Learning (PBL):** Encourages students to apply their knowledge by solving real-world visualization challenges.
3. **Collaborative Group Work**: Fosters teamwork as students design interactive visualizations and dashboards.
4. **Hands-On Labs:** Students engage in practical sessions using leading industry tools like Tableau to create visual representations from raw data.
5. **Iterative Feedback & Critique**: Students participate in ongoing feedback sessions, learning to refine their work through peer critiques and instructor guidance.

About the course...

Course Learning Outcomes (CLOs)

1. CLO 1: Describe the underlying principles and techniques for effective data visualization and decision-making.
2. CLO 2: Demonstrate the ability to use a structured design process and industry-standard tools to create effective visualizations.
3. CLO 3: Develop interactive visualization systems using storytelling principles to design coherent and impactful visual narratives.

Sustainability

- Curriculum Adaptation
- Ethical Practices
- Real World Relevance
- Sustainable Development
- Improved Critical Thinking

Students explore key concepts such as human perception, visual design, and interactive systems. Through lectures and practical lab sessions, they learn how to develop visualizations that foster informed decision-making. The course also emphasizes ethical data representation, helping students create visualizations that are both insightful and responsible.

Approach + tableau

The course employs a range of pedagogical approaches, including **lecture-based learning** to introduce core visualization principles, **problem-based learning** to tackle real-world datasets, and **collaborative group work** to foster teamwork and diverse perspectives. Students actively use an industry-standard tool such as **Tableau,** allowing them to develop both the **technical skills and storytelling techniques** that enhance the clarity, impact, and ethical use of data.

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Assessment

Assessment is designed to reinforce the learning outcomes through a combination of **quizzes, assignments, lab tests, and a group project**. Quizzes assess theoretical understanding, while lab tests and assignments evaluate practical tool proficiency. The group project challenges students to develop interactive, real-world visualizations, integrating feedback through iterative critique sessions that foster continuous improvement and critical thinking.

Ultimately, my goal is **to inspire students to become adept data storytellers or data designers,** prepared to navigate and contribute meaningfully to a data-driven world.

Teaching Reflections and Future Vision

The success of the teaching approach is evident in the progress students make from conceptual understanding to mastery of data visualization tools. My commitment to continuous improvement in the classroom involves adapting the curriculum to the latest trends in information visualization and incorporating feedback from students to enhance learning outcomes.

Moving forward, I aim to:

- Integrate More Interactivity
- Expand Ethical Discussions
- Inspire Data Storytelling
- Engage with industries

Students' Involvement

Learning by doing (some examples):

1. **Class Discussion & Activities:** Choosing the right charts for the right data, in class/ via **Padlet**
2. **Assignments - Example: Data-driven Infographic Design Poster**
   a. **Iterative Feedback & Critique:** Students get to _redesign_ the poster, after receiving feedback through peer critiques and instructor guidance.
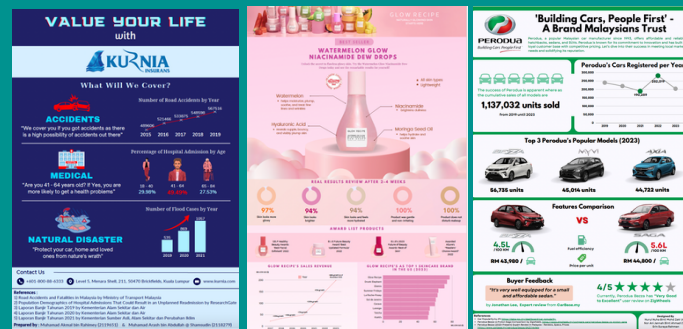
- **Group work - Example: Designing Interactive Dashboard for Business Decision Making**
  - **Iterative Feedback & Critique:** Students design and develop, present, getting peer critiques and instructor guidance to improve their projects.

KICT TALE NEWSLETTER
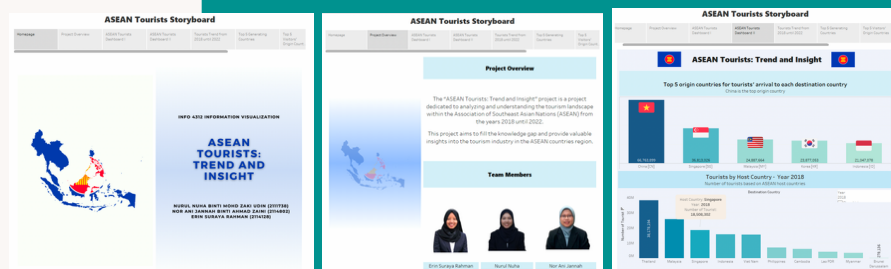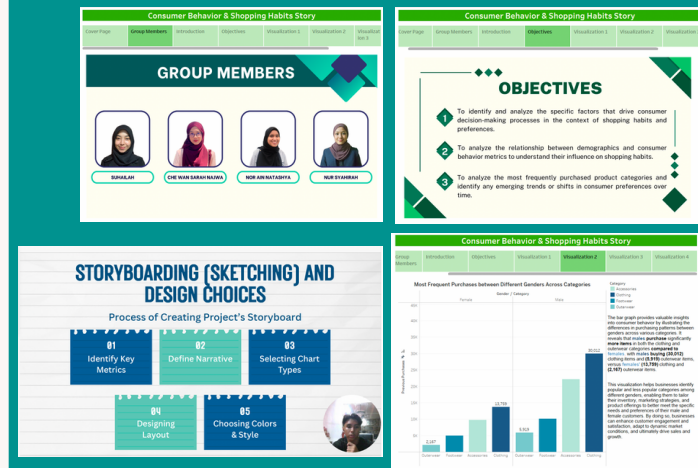
STEAM-BASED APPROACH FOR THE INTRODUCTION TO COMPUTER ORGANIZATION GROUP PROJECT

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NORLIA MD YUSOF
DEPARTMENT OF COMPUTER
norliayusof@iium.edu.my

INTRODUCTION

>>>

The Science, Technology, Engineering, Arts, and Mathematics (STEAM) approach was applied in the group project for the Introduction to Computer Organization (ICO) course during Semester II of the 2023/2024 academic session. However, the science discipline was excluded from this implementation.

The integration of a STEAM-based approach can follow two methods: either focusing on a single discipline or incorporating all disciplines simultaneously. In this course, the former method was adopted.

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METHOD

In essence, three tasks were designed in line with the STEAM-based approach: programming (aligned with the technology, engineering, and mathematics disciplines), multimedia (representing the arts discipline), and robotics (pertaining to the engineering discipline).

These tasks resulted in the development of a system, an animation, and a simulation, respectively. A list of suggested tasks for each topic or subtopic was provided to the students, although they were encouraged to propose their own ideas. For instance, the subtopic "gates" under the topic of digital logic could be explored through robotics, where students might create a circuit using Arduino.

RESULT

Out of the 20 groups, 15 opted to develop systems using programming, four groups chose to create animations, and one group selected a robotics task.

DISCUSSION

The majority of the groups preferred the programming task due to their strong interest and prior experience in programming, specifically in Java and C++. Similarly, the group that pursued the robotics task had prior knowledge of Arduino from their foundation programme and continued to develop their interest by joining the Robotic Club in the Kulliyyah of Engineering. Meanwhile, the groups working on animation projects demonstrated a passion for creative work, even though they had to learn multimedia skills independently.

CONCLUSION

In conclusion, allowing students to integrate their group projects with the STEAM framework offers a broader range of options, enabling them to tailor their projects according to their knowledge, expertise, and interests. For future works, the group project could explore the second method of STEAM integration, where a single project encompasses all the disciplines, providing a more comprehensive and holistic approach.

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LILI MARZIANA ABDULLAH
DEPT. OF INFORMATION SYSTEMS
lmarziana@iium.edu.my

Data Profiling: Helping to turn Raw Data into Business Intelligence (BI)

INFO 4311 DATA WAREHOUSING

Structure **Discovery**

Content **Discovery**

relationship DISCOVERY

Organizations can become so focused on collecting data and managing day-to-day operations that the effectiveness and quality of the data become compromised. Poor-quality data can lead to incorrect analysis, flawed reporting, and misguided decisions. Organisations should be able to know that their data is healthy when they can demonstrate that it is valid, complete and of sufficient quality to produce analytics that they can confidently rely on for decisions. The health of the organisation's data depends on how well the organisation profiles it. Data profiling enables organisations to organize and analyse their data so that it can yield its maximum value and give a clear, competitive edge in the market.

Data Profiling and its Relationship with Business Intelligence (BI)

Data profiling is a process that involves analysing and assessing the quality, structure, and content of data from multiple sources while creating meaningful summaries of the data. Its primary focus is on understanding, cleansing, and validating data before it can be used for further analytical purposes. Meanwhile, BI refers to the strategies, technologies, and tools used to collect, analyse, and present data to support decision-making. Data profiling serves as a foundational activity for BI by ensuring the quality, accuracy, and consistency of data before it is used in BI systems.

Exposure to Data Profiling

Due to data profiling immense importance to any BI project, students in INFO 4311 Data Warehousing are introduced to data profiling through hands-on group project and/or assignments. Before building a data warehouse in a BI system, students are required to perform data profiling to thoroughly understand the structure, quality, and content of the data. This step is essential for identifying any inconsistencies, errors, or patterns that need to be addressed, ensuring the data is fit for effective use in the data warehouse and subsequent analytics. Students are provided with raw datasets but are also encouraged to source publicly available open data from the internet. However, publicly available data is sometimes already in summarised and clean form, thus, it can be a challenge for the students to find data that they can profile extensively.
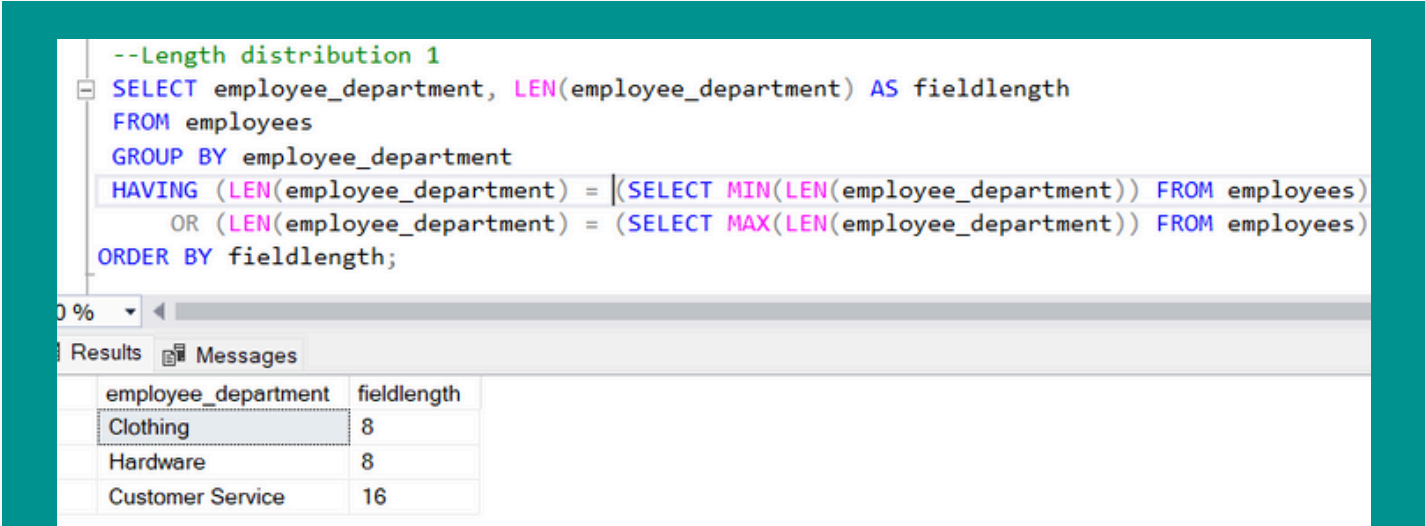
```
--Length distribution 1
SELECT employee_department, LEN(employee_department) AS fieldlength
FROM employees
GROUP BY employee_department
HAVING (LEN(employee_department) = (SELECT MIN(LEN(employee_department)) FROM employees)
    OR (LEN(employee_department) = (SELECT MAX(LEN(employee_department)) FROM employees)
ORDER BY fieldlength;
```

0 %   ▼ ◄

Results   Messages

employee_department	fieldlength
Clothing	8
Hardware	8
Customer Service	16

Figure 1: Maximum and minimum lengths of string values using SQL queries

Getting to know the data is an important step in building the data warehouse because students must understand the data that they must work with before they can leverage it as part of a solution.

To perform data profiling, a wide range of tools can be used depending on the scale and complexity of the data, from specialized data quality tools like Talend or Informatica to general-purpose tools like SQL queries. Students in the course use basic data profiling by writing SQL queries to analyse and summarize data, and the free tool used for the class.

An example of a data profiling technique that lists the minimum and maximum lengths of string values from a string column using SQL queries is shown in Figure 1. A similar question can be asked using a data profiling tool as shown in Figure 2 where the length distribution for every string value can be seen in the result.
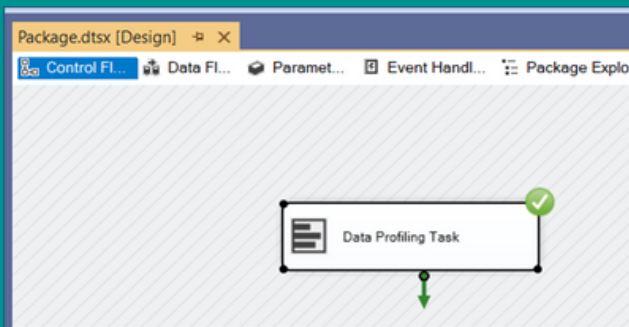
Figure 2: Length distribution of string values using a data integration tool
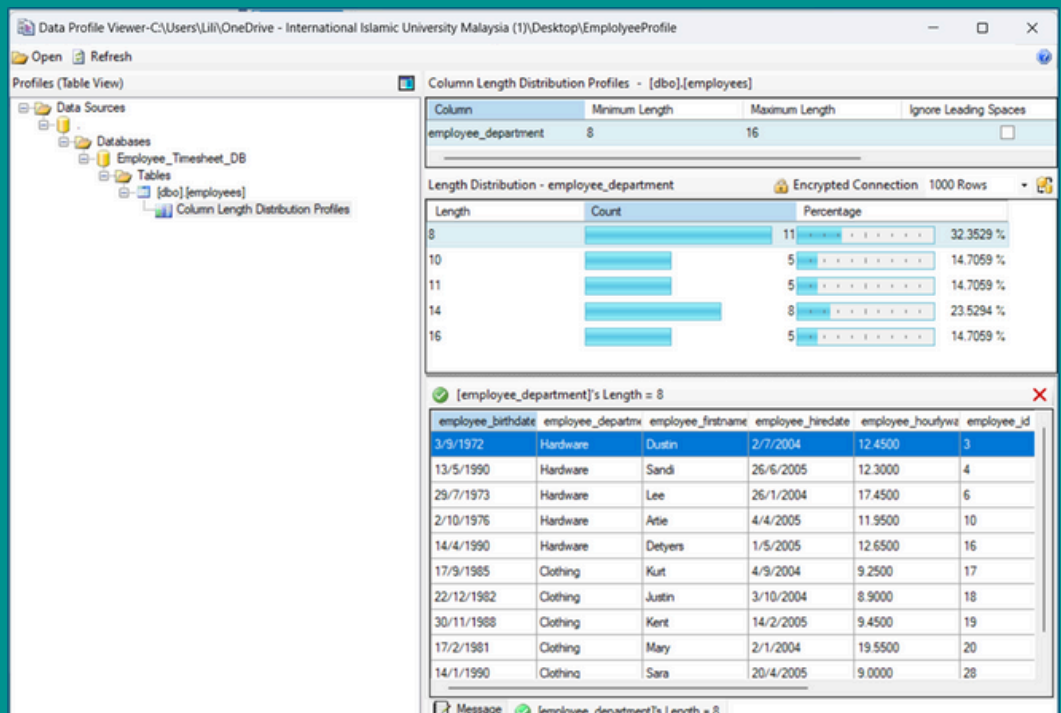
TALE NEWSLETTER

TS. ABDUL RAHMAN AHMAD DAHLAN
DEPT OF INFORMATION SYSTEMS
ARAD@IIUM.EDU.MY
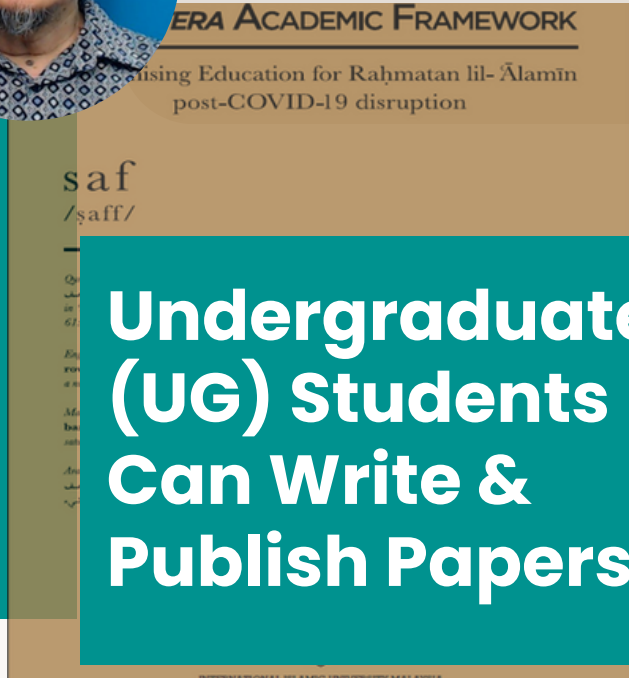
Undergraduate (UG) Students Can Write & Publish Papers

Abstract

UG students' project assignments are to engage and provide viable conceptual solutions to the real-world problems in the post-pandemic & digital era, relevant to Maqasid Ash-Shariahand UN Sustainable Development Goals (SDGs) for Rahmatan lil-'Alamin.

The methodology includes adapting the Learning Pyramid Framework (LPF) using the Design & System Thinking approach, leveraging on business modelling tools, and applying the knowledge acquired from lectures, reading & research, video/demonstrations, discussion in FGD with the course instructor, and working in developing business case papers.

The project outputs are the proposed conceptual solutions - in the form of business case papers, with Project, Business, or IT Strategic Plan reports (depending on the course taken) on how the conceptual solutions can be executed and delivered. As the final component of LPF (i.e. Teach/Share), the business case papers are submitted to academic journals for acceptance and publication, or/and are submitted as conference papers for acceptance and oral presentation. More than 200 papers were published in indexed journals or accepted for oral presentations at international conferences.

The project/business plan or IT Strategic Plan reports produced can be adopted/ adapted for actual implementation by the relevant organisations, involving a government-university-industry-public collaboration model.

IIUM 7 MISSIONS
FAST – LEADING THE WAY - KHAIR

Objectives

The project, as an assignment for UG students, is motivated by:

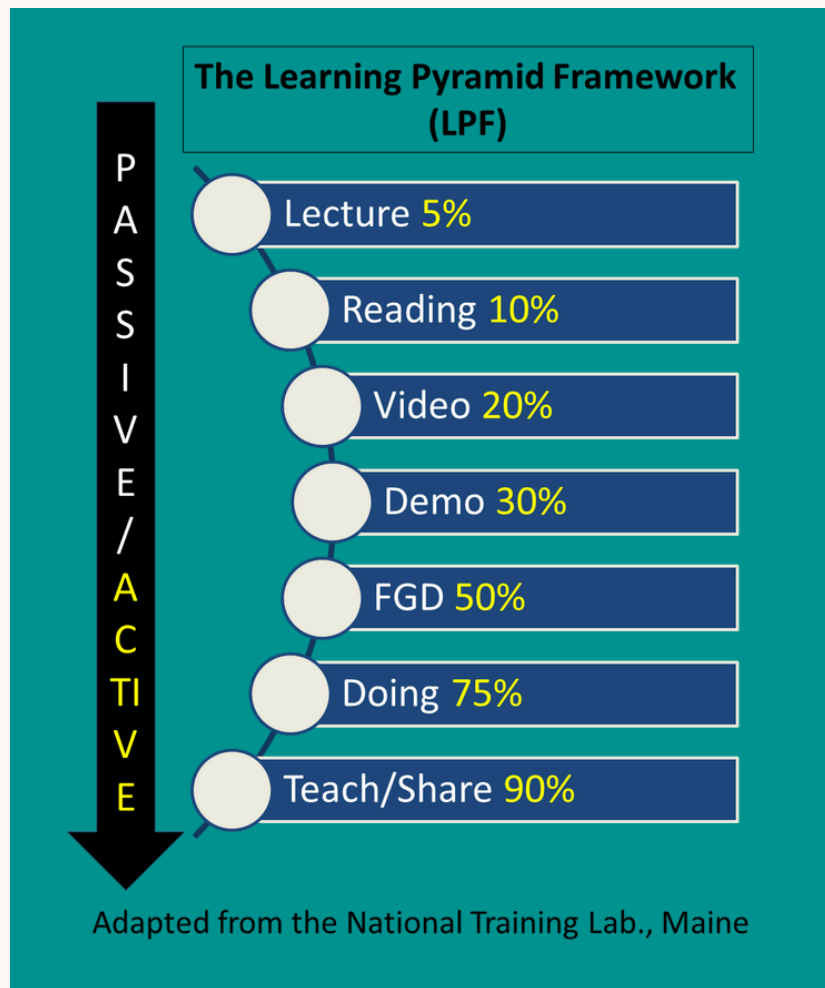- IIUM Roadmap, and
- Sejahtera Academic Framework (SAF),

i.e. Humanising Education through Maqasid Ash-Shariah& SDGs, and aimed at mercy for all the worlds (Rahmatanlil-'Alamin)

Methodology

Adapt the Learning Pyramid Framework (LPF) – Learn by attending Lectures, doing Reading & Research, watching Videos & Demo, participating in Focus Group Discussions (FGD)with the Course Instructor, and Doing as a project team in producing viable conceptual solutions in the form of Business Case Papers.

Conceptual solutions to real-world problems in the context of the post-pandemic & digital era, relevant to Maqasid Ash-Shariah and UN Sustainable Development Goals (SDGs), aimed at mercy for the worlds (Rahmatan lil-'Alamin).

As the final component of LPF (i.e. Teach/Share with others), the Business Case Papers are submitted to academic journals for acceptance and publication, or/and are submitted as conference papers for acceptance and oral presentation.

The Learning Pyramid Framework (LPF)

PASSIVE / ACTIVE

- Lecture 5%
- Reading 10%
- Video 20%
- Demo 30%
- FGD 50%
- Doing 75%
- Teach/Share 90%

Adapted from the National Training Lab., Maine

ARTICLES

A CONCEPTUAL ECOTHRIFT SECONDHAND BUSINESS MODEL: PROMOTES CIRCULAR ECONOMY AND WEALTH CREATION, AND NURTURING B40 THRIFT-PRENEURS
HAFSA MAHBUB, LAZEENA TARNIM RANAK, MUNTAHA ISLAM, ABDUL RAHMAN AHMAD DAHLAN
1-23
PDF

CRYPTOCURRENCY AS A SOLUTION FOR CROSS-BORDER FUND TRANSFER ISSUES IN AFGHANISTAN: A STUDY OF PUBLIC AWARENESS, ATTITUDES AND ADOPTION
QANDAGHA SAFI, RIZAL MOHD NOR
24-45
PDF

PROPOSED MODEL OF HEALTH INFORMATION SYSTEMS IN PAKISTAN
IMRAN ANWAR UJAN, ASADULLAH SHAH, MOHD. ADAM SUHAIMI
46-53
PDF

Results

UG students produced more than 200 Business Case Papers with Viable Solutions that have been accepted & shared:

a.Presentations at International Conferences
Publications in International Indexed-Journals

Benefits for UG Students

Academic Benefits: Enhanced Understanding; Research Skills Development; Critical Thinking; Academic Recognition; Graduate School Admissions.
(b) Professional Benefits: Networking Opportunities; Career Advancement; Credential Building; Interdisciplinary Collaboration; Problem-Solving Skills.

TRACK 1 : ICT & ISLAM

PARALLEL SESSION (TRACK 1)
Date: Tuesday, 15th August 2023 | Time: 2pm – 5pm | Venue: Room 1 (LR 9)
Moderator: Prof Dr Akram MZM Khedher

PID	PAPER TITLE	AUTHORS
5025	AN ASSESSMENT OF THE ISLAMIC PERSPECTIVES ON THE USAGE OF INFORMATION AND COMMUNICATION TECHNOLOGY	SHEEBA SHAHID, ASADULLAH SHAH, NAJHAN M IBRAHIM, MOHD KHAIRUL AZMI HASSAN AND AKRAM M. ZEKI
9805	ACCEPTANCE OF DAKWAH CONTENTS ON SOCIAL MEDIA AMONG THE GEN Z	HUSNA SALEHUDIN, ROSMAWATI MOHAMAD RASIT AND ZULKEFLI AINI
1068	INFECTIOUS DISEASE-RELATED APPLICATIONS: A DESCRIPTIVE REVIEW	RAFIDAH ISA, MOHAMMAD FAUZAN NORDIN, ROSLINA OTHMAN AND HAZWANI MOHD MOHADIS
4834	MTECH: A CONCEPTUAL BUSINESS MODEL TO PROVIDE COST-EFFECTIVE TECH REPAIR SERVICES AND NURTURING B40 TECH-PRENEURS	AHMA... YA... BAZ... HAR... ABDUL...
8582	A CONCEPTUAL CLEANSOLUTION BUSINESS MODEL: EMPOWERING LOW-INCOME B40 COMMUNITIES AS ENTREPRENEURS THROUGH HOUSEKEEPING AND SERTU CLEANING SERVICES	NURRI... SHAI... AI... SAYUT... KAMI... ABD...
9115	A CONCEPTUAL CLEANAGO PLATFORM BUSINESS MODEL: NURTURING B40 CLEANING-PRENEURS AND OFFERING JOB OPPORTUNITIES IN QUALITY & HYGIENIC SERTU CLEANING SERVICES	SAUF... MUHA... RA...
9391	A CONCEPTUAL EDUCONNECT PLATFORM BUSINESS MODEL: NURTURING THE B40s AND UNDEREMPLOYED GRADUATES AS DIGITAL-ENTREPRENEURS	MOHA... SARIF... MOH... IN... MUHA... SUHA...

2023 The 9th International Conference on Information & Communication Technology for Muslim World (ICT4M) 2023
"ICT for Sustainable Digital Identity and the Future of Social Good"

TRACK 2 : SEMANTIC BODY OF KNOWLEDGE & TECHNOLOGY

PARALLEL SESSION (TRACK 2)
Date: Tuesday, 15th August 2023 | Time: 2pm – 5pm | Venue: Room 2 (LR 10)
Moderator: Prof Datin Dr Roslina Othman

PID	PAPER TITLE	AUTHORS
3910	ONTOLOGY-BASED ANALYSIS FOR ISLAMIC FINANCE AND BANKING	ROSLINA OTHMAN, MOHAMAD FAUZAN NOORDIN, MOHD KHAIRUL NIZAM ABD LATIF AND SITI FATIMAH MOHD TAWIL
122	SEMANTIC SIMILARITY EXPLORATION IN HETEROGENEOUS SPARSE MULTIDIMENSIONAL NUMERIC SPACES: A CASE STUDY OF THE QURAN TEXT USING SEMSIM	ADEL SABOUR, ABDELTAWAB HENDAWI AND MOHAMED ALI
2895	A PRELIMINARY STUDY ON THE MECHANISM TRUSTWORTHINESS FRAMEWORK FOR MALAY TRADITIONAL MEDICINE DATA RETRIEVAL DATABASE	MUHAMMAD ALIF BASAR AND MUHAMAD SADIRY ABU SEMAN
2814	A CONCEPTUAL MASJIDCAST BUSINESS MODEL: ENHANCING DIGITAL SKILLS OF MASJID COMMUNITY AND NURTURING B40s AS BALANCED DIGITAL-PRENEURS	MUHAMMAD FIRDAUS BIN SHAHRUN, KHAIRUL AKMAL BIN NOORMAIZAN, FARIS FABHAN BIN AZLAN, MUHAMMAD HANEEF BIN SALIM AND ABDUL RAHMAN BIN AHMAD DAHLAN
6079	A CONCEPTUAL MFISHBANK BUSINESS MODEL: THE COMMUNITY CONNECTEDNESS BETWEEN MASJID, FISHERMEN AND THE CONSUMERS	HANI ARINAH BINTI HAIRUL AZAM, MOHD FAIZ HAFIZUDDIN BIN AHMAD YAZI, SHAHREEN SHAFIQ BIN SHAMSUL ASWADI, HANI NURSYAMIRA BINTI MUHAMAT HALIS AND ABDUL RAHMAN BIN AHMAD DAHLAN
9272	A CONCEPTUAL MFARM BUSINESS MODEL: MOSQUE AS A SUSTAINABLE FARMING CENTRE, RESKILLING AND NURTURING B40 AS AGRO-PRENEURS	NURUL IFFAH ALIA OMAR, ALFIN NAJEEHAH ZAHID, NURUL SHAHIRAH AHMAD FIGRI, AFIG AIMAN OTHMAN AND ABDUL RAHMAN AHMAD DAHLAN
2472	A CONCEPTUAL CAR2RENT BUSINESS MODEL: EMPOWERING RETRENCHED WORKERS AND LOWER-INCOME INDIVIDUALS THROUGH DIGITAL CAR RENTAL	MUHAMMAD AIMAN SYAHIRIN MOHD FAUZI, AZAMUDDEEN SHAHPUDIN, MUHAMAD HAZIM NOR AIZI, MUHAMAD ALIF IZZUMMY MOHAMAD RADHI AND ABDUL RAHMAN AHMAD DAHLAN

AZLIN BINTI NORDIN
DEPT OF COMPUTER SCIENCE
azlinnordin@iium.edu.my

EXPLORING ESCAPE ROOM FOR LEARNER ENGAGEMENT

WHAT IS ESCAPE ROOMS?

Escape rooms, traditionally designed for entertainment, have found a surprising niche in higher education, particularly in fields like software engineering. They offer a hands-on, immersive, and collaborative learning experience that can significantly enhance student engagement and understanding.

Escape rooms have been shown to significantly boost student engagement and motivation. In programming courses, students preferred these interactive activities over traditional laboratory sessions, highlighting the potential for escape rooms to create a more dynamic learning environment (López-Pernas et al., 2019). Similarly, in literature courses, escape rooms focused on human rights issues helped promote student ownership and civic engagement, demonstrating their versatility in various academic disciplines (Sendin, 2021).

ACTIVITY-1:

UNIFIED MODELLING LANGUAGE (UML) DIAGRAM

Learners are required to do a few missions as shown below. Upon completion of the missions, rewards will be given as accomplishment. All the missions are content related to the course.

MISSIONS

COMPLETION

Learners appreciate the diversity of puzzles of a problem-solving and discovery nature, and the need for physical attributes and collaboration (Veldkamp et al., 2020).

HOW ESCAPE ROOMS CAN BENEFIT LEARNERS?

- Problem-Solving and Critical Thinking
- Active Learning
- Motivation and Engagement
- Real-World Application
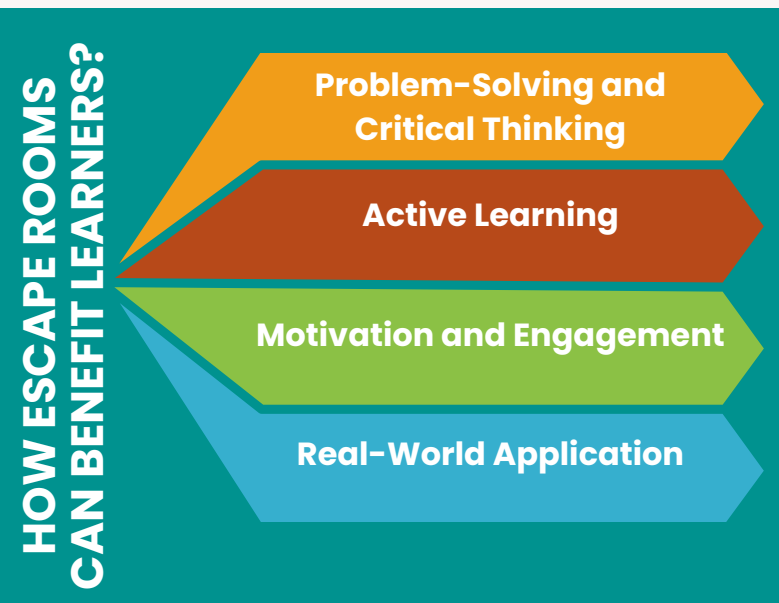
ACTIVE LEARNING

By engaging in problem-based and time-constrained activities, students learn to work under pressure, develop strategic planning skills, and enhance their problem-solving abilities (Veldkamp et al., 2020).

INNOVATIVE TEACHING METHODOLOGY

Escape rooms provide educators with a novel way to incorporate game-based learning into their teaching strategies. They can be used to create hybrid learning spaces that merge individual and collaborative learning, thereby increasing the effectiveness of the teaching process (Veldkamp et al., 2020).

ACTIVITY-2

USE CASE DIAGRAM

For this escape room, learners are expected to do six missions, and all missions are related to the use case diagram. Upon completion of all the missions, learners will be rewarded.

DESIGNING EFFECTIVE ESCAPE ROOMS

Articles recommended the following factors to be considered when designing escape rooms:

1. Difficulty level
2. Relevance to course material
3. Immersive experience
4. Feedback and de-briefing

SAMPLE ACTIVITY-2

MISSIONS
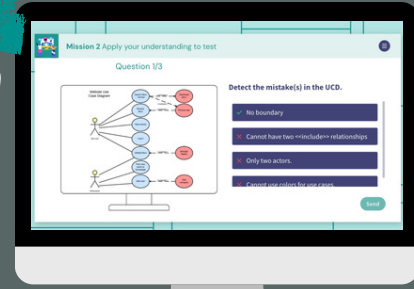
COMPLETION
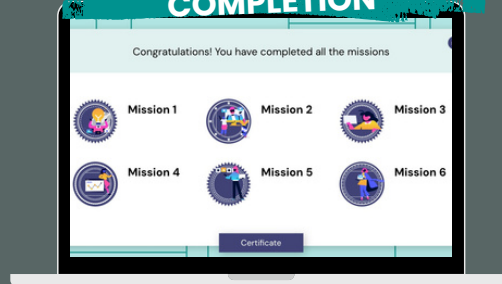
Designing effective educational escape rooms requires careful planning and a clear understanding of the learning outcomes. Misalignment between educators' needs and available tools can hinder the full potential of these activities. Educators must invest time and resources in creating puzzles and scenarios that align with the curriculum and student abilities (López-Pernas et al., 2021).

Escape rooms in higher education offer a dynamic and engaging way to enhance student learning, foster essential skills, and innovate teaching practices. However, their effective implementation requires careful planning and consideration of the challenges associated with design, adaptability, and technical requirements.

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López-Pernas, S., Gordillo, A., Barra, E., & Quemada, J. (2019). Examining the Use of an Educational Escape Room for Teaching Programming in a Higher Education Setting. IEEE Access, 7, 31718-31727. https://dx.doi.org/10.1109/ACCESS.2019.2902976

S. López-Pernas, A. Gordillo, E. Barra and J. Quemada, "Examining the Use of an Educational Escape Room for Teaching Programming in a Higher Education Setting," in IEEE Access, vol. 7, pp. 31723-31737, 2019, doi: 10.1109/ACCESS.2019.2902976

Sendin, E. (2021). Escaping Social Injustices: Changemaking Escape Rooms for Human Rights in the Literature Classroom. In D. Koyama (Ed.), Development of Innovative Pedagogical Practices for a Modern Learning Experience (pp 115-140). Jagadhri, HR: CSMFL Publications.https://dx.doi.org/10.46679/978819484836305

Veldkamp, A., Daemen, J., Teekens, S., Koelewijn, S., Knippels, M.-C., & Joolingen, W. (2020). Escape boxes: bringing escape room experience into the classroom (extended abstract). British Journal of Educational Technology, 51(3), 726-741. https://dx.doi.org/10.1111/bjet.12935

NURUL LIYANA MOHAMAD ZULKUFLI
DEPT. OF COMPUTER SCIENCE
LIYANAZULKUFLI@IIUM.EDU.MY

Nurturing Creator/Innovator Mentality vs User Mentality

Start with the Fundamentals

The algorithm design and analysis course commonly focus on understanding basic algorithms and analysing their efficiencies.

Although this course does not cover more advanced algorithms such as machine learning and parallel algorithms, it is better to start with fundamental algorithms first, to better understand these complex algorithms.

This is to avoid using them as only black boxes. Once we know the content, we can freely use it or modify it as per our needs.
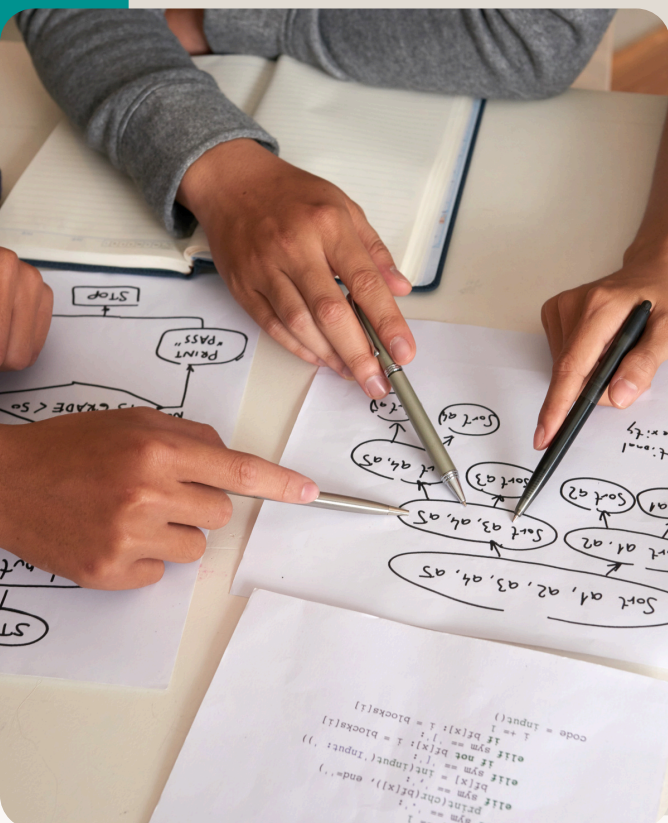
"Why do we go through boring things like theory, example calculations, and pseudocodes?"

"We want to do cool and practical stuff, not boring stuff like these."

Those cool people also started with basics in the beginning, in my humble opinion. When their basics are strong, they have the freedom to change things to their liking during the practical. However, each person might have different styles of learning or doing things. Let's find what works best for you.

Is it really wrong for us to learn how to reinvent the wheel?

In the midst of the popularity of artificial intelligence (AI), even before this AI era, many tools and libraries have been created by other innovative people around the world, to make analysis and development much faster and smoother in terms of development time.

This is very welcomed, especially in projects focused on bigger schemes and grand outcomes. However, we tend to undermine the importance of learning to develop these tools and libraries. As the famous saying goes, "Don't reinvent the wheel."

Blacksmiths vs Swordsmen

The argument is: do we think we can do much better than those who have greater funding, expertise, and experience in making these tools and libraries, which already have many people around the world benefitting from them?

Of course, if we're from the user side of perspective, we would prefer the ones with more expertise and stability in their products. However, we always forget that there ARE people who made these tools and libraries. It is akin to **blacksmiths**; they're not the swordsmen who use the sword, but they are the makers of the swords.

Now, let's think about it: is it really wrong, at least for a student, to learn how to reinvent the wheel? Why don't we think that we or our students might be the people who need to invent/innovate these in the future?

Open the **Black Box** or not?

In a smaller scope such as making libraries, for example: a sorting algorithm, we need to understand how the algorithms are being made, not only about how to code it. If we just use it as a black box without understanding it, it's difficult to modify its content.

An algorithm at its fundamental usually includes some calculations or equations. Hence, it is useful to think through the theory and calculations. For example, we can write down some examples, even on a piece of paper or screen, at least in the beginning, to better understand its content. Unfortunately, this is always deemed as boring and impractical for most people; and maths always ends up being skipped.

Can we change the content inside the black box without opening it?

KICT TALE NEWSLETTER

ICSI

Bridging the Arabic Cataloguing Gap Between Academic and Industry

A case study of LISC 7021 Arabic Cataloguing Course

NOR SAADAH MD NOR

DLIS

norsaadahnor@iium.edu.my

INTRO

Exploring Arabic cataloguing:
A blend of tradition and innovation

At the Library and Information Science department, our postgraduate course, LISC 7021 Arabic Cataloguing, is designed to equip students with essential knowledge and skills to address these challenges and excel in cataloguing Arabic materials.

KEY AREA FOCUS

Students are trained in several key areas to ensure they can accurately and efficiently catalogue Arabic materials. One of the fundamental aspects of the course is **Descriptive Cataloguing**, where students learn to provide detailed descriptions of Arabic information packages, ensuring meticulous documentation of each resource. This skill is essential for creating comprehensive and accessible records.

>>> EXPLORING ARABIC CAT

In today's rapidly evolving library environment, the need for skilled cataloguers who can expertly handle diverse language materials has never been more important. One such critical area is the cataloguing of Arabic resources, which presents unique challenges due to its linguistic and cultural intricacies.

The course comprehensively introduces the theoretical and practical aspects of cataloguing Arabic resources, including books, serials, and electronic materials. A core element of this course is applying the Machine-Readable Cataloging (MARC) standard to describe various Arabic materials, enabling students to learn how to create accurate and accessible bibliographic records.

THE COURSE

Another critical component is **Name and Title Entry**, which addresses the complexities of entering names and uniform titles. This ensures consistency across records, a vital task when working with Arabic resources that may have variant transliterations or titles.

Students also focus on **Authority Control**, where they are taught how to manage authority records for names and titles. Authority control is crucial for maintaining the integrity and uniformity of cataloguing systems, particularly in libraries with large and diverse collections.

In addition to descriptive and authority control skills, the course provides a comprehensive understanding of **Classification Systems**. Students are introduced to major classification schemes, including the Dewey Decimal Classification (DDC) and the Library of Congress Classification (LCC). These systems help students organize materials systematically for easy retrieval.

Moreover, the course delves into specialized classification resources such as the **Library of Congress Subject Headings for Islamic Resources** and the **IIUM Library Classification System for Knowledge Resources on Islam (ICSI)**, ensuring that students are well-versed in classifying and organizing materials specifically related to Islamic and Arabic studies. These components equip students with the necessary skills to handle the bibliographic control of Arabic information resources effectively.

Success Factor 1
HANDS-ON PROJECTS FOR REAL-WORLD LEARNING

Students engage in various cataloguing projects throughout the course, providing them with hands-on experience. These projects involve the classification of actual Arabic resources, including rare manuscripts and digital items. This practical engagement not only reinforces their understanding of theoretical concepts but also exposes them to the nuanced challenges of cataloguing complex Arabic works.

Success Factor 2
BUILDING EXPERTISE IN ARABIC BIBLIOGRAPHIC CONTROL

Ultimately, this course equips students with the specialized knowledge and hands-on experience they need to operate bibliographic control systems confidently. By fostering a deep understanding of both the traditions and innovations in Arabic cataloguing, the course prepares students to contribute to the preservation and accessibility of Arabic cultural heritage in libraries and archives around the world.

Success Factor 3
FOSTERING INNOVATION WHILE PRESERVING AUTHENTICITY

A unique aspect of this course is its focus on both tradition and innovation. While students gain proficiency in applying existing cataloguing standards, they are also encouraged to propose new enhancements to Islamic headings and classifications. This ensures that catalogued records remain authentic to their original sources, while also evolving to meet contemporary needs. By the end of the course, students are able to manage all major bibliographic control tasks for Arabic information resources, making them well-prepared to contribute to Arabic collections worldwide.

We are proud to offer this course, which not only enriches students' learning experiences but also contributes to the broader field of Arabic and Islamic studies. Our graduates leave the course with the ability to engage with diverse Arabic resources, applying their knowledge to ensure that these important materials are accessible to future generations.

KICT TALE 2024
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INITIATIVES

In the second session, students participated in a hands-on experience using the ICSI Web platform. This practical segment allowed them to apply the principles learned in the first session by properly describing specific books. Through this interactive session, students gained valuable skills in utilizing the ICSI Web, preparing them to efficiently catalogue Arabic and Islamic materials in real-world settings. The workshop reinforced traditional cataloguing knowledge and introduced modern tools to support effective information management in Arabic collections.

Workshop ⋘

HANDS-ON WITH EXPERT

The ICSI Web Workshop, attended by Library and Information Science (LIS) students, was an insightful two-session event designed to enhance their skills in cataloguing Arabic and Islamic collections. The first session introduced the traditional practices of cataloguing books on Islam, offering a comprehensive overview of the unique challenges and methodologies in maintaining the integrity and accessibility of Arabic and Islamic resources. This session laid the foundation by highlighting the importance of accuracy and consistency in bibliographic control.

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Industrial Talk ►►►

ISLAMIC LIBRARIANSHIP

Madam Norazzah Momin, the Chief Librarian of Universiti Sains Islam Malaysia (USIM), delivered the talk to expose students to key aspects of Islamic librarianship. The session provided a comprehensive overview of the historical development of Islamic librarianship, tracing its roots through time and highlighting the contributions of prominent Islamic scholars and their invaluable collections. It also addressed the library management processes and procedures specific to Islamic libraries, as well as the challenges and strategies for acquiring invaluable collections from around the world.

A key focus of the talk was the relationship between Islamic librarianship and mosque libraries, emphasizing the need to strengthen and advocate for these partnerships as centres of knowledge within the community. Finally, the talk offered insights on how to sustain the spirit of Muslim librarians, sharing motivational methods and best practices to inspire and maintain a strong sense of purpose in the profession. The talk was an invaluable opportunity for students to gain deeper insights into Islamic librarianship's historical and practical dimensions.

ABSTRACT

This article examines the challenges in cataloguing Arabic collections in Jabatan Kehakiman Syariah Malaysia (JKSM), where it has a special library called Bahagian Pusat Sumber Maklumat dan Penerbitan (BPSMP), containing 70% Arabic materials of its collection since Arabic language has their own characteristics that one has to focus on when cataloguing. The following research questions were proposed: What is the current cataloguing workflow in BPSMP, JKSM Library? What strategies can be implemented to improve the cataloguing process in BPSMP, JKSM Library? The authors have chosen to do a case study design with a qualitative approach by collecting data through an interview with a BPSMP, JKSM librarian. Findings showed that the librarian is facing challenges when translating the Arabic language to Ma-lay and vice versa as the librarian does not have an Arabic education back-ground and Arabic language has different pronunciation for the same word which require for diacritical marks. Another thing was mentioned that the library practices copy cataloguing from the National Library of Malaysia and WorldCat. The librarian later figured that to improve the cataloguing experience in BPSMP, JKSM Library, it is recommended for the staff and future staff to attend cataloguing training especially the Arabic cataloguing training and to have staffs that are expert in Arabic language too, other than gaining knowledge from experts in other institutions. The study recommends the use of IIUM Library Classification System for Knowledge Resources on Islam (ICSI) as one of the cataloguing tools in BPSMP, JKSM Library.

INITIATIVES

Research Project & Publication ⋘

PROJECT OUTPUT

Holding to the ICSI as the main standard in shaping the Arabic and Islamic cataloguing skills among LIS students, two main projects were successfully executed, proposing changes in the cataloguing practice in Jabatan Kehakiman Syari'ah Malaysia (JKSM) and Al-Madinah International University library (MEDIU) respectively based on ICSI. Both projects were accepted for journal publications.

Academic Visit ⋙

EXPLORING ARABIC COLLECTION

The academic visit to the National Centre of Malay Manuscripts (NCMM) was closely aligned with the objectives of the Arabic Cataloguing course, providing students with valuable insights into cataloguing and preserving non-traditional library materials such as manuscripts. During the visit, the NCMM representative presented key points regarding the documentation of Malay manuscripts, focusing on the guidelines, types of descriptions, and specific aspects requiring attention during the cataloguing process.

Students observed how Malay manuscripts are catalogued and preserved at NCMM, which was reinforced during a hands-on session. The visit provided a practical understanding of manuscript handling and cataloguing, further enriching their cataloguing knowledge in the context of Arabic and Islamic resources.

KICT TALE NEWSLETTER

NUR LEYNI NILAM PUTRI JUNURHAM
DEPARTMENT OF LIBRARY AND
INFORMATION SCIENCE
NURLEYNI@IIUM.EDU.MY

Engage, Collaborate, Learn: Miro in the Classroom

Abstract

Miro offers significant benefits for teaching and learning, enhancing both engagement and collaboration. As a real-time collaborative platform, Miro allows multiple users to work together on the same board, fostering interactive sessions that actively involve students in this case the postgraduate students. Its visual and multimedia capabilities cater to various learning styles, enabling the creation of diagrams, mind maps, and other visual aids that simplify complex concepts.

Introduction

The integration of Miro into classroom activities has proven to be an effective tool for enhancing student engagement and promoting active learning. Miro's interactive features captivate students' interest, encouraging them to participate more actively in discussions and contribute ideas in real-time. This fosters a more dynamic and engaging learning environment, as students can collaborate and share perspectives without the pressure of presenting in front of the class. This level of interaction empowers students to express their ideas and opinions freely, which can enhance the overall learning experience.

CASE STUDY

In my recent experience, I utilized Miro in a postgraduate course, Application of Information Technology in Library (LISC 7421), which consists of six master students. The lesson focused on the history of information technology (IT) in libraries. After providing an overview of the development and use of technology in libraries, I tasked the students with discussing topics such as, "How do you define technology, and describe the impact of information technology that you observed in your library" Miro facilitated these discussions effectively, allowing students to engage with the content in an interactive and meaningful way as shown in the figures here.

BENEFITS AND LIMITATION

Miro's flexibility is another key advantage, with customizable templates that suit various teaching methods and subjects. It's ideal for both synchronous and asynchronous learning. For example, in my case, the student use Miro to brainstorm idea and critically think about various solutions or approaches that IT brings to the libraries. Instructors can track student progress in real-time, provide instant feedback, and facilitate group discussions.

Despite the benefits, Miro's free plan has certain limitations. Many advanced features, such as timers, voting, video chat, and dependencies, require a subscription upgrade. These features could significantly enhance the learning experience but are restricted to paid versions.

CONCLUSION

Miro is an excellent tool for postgraduate education, where active participation and idea exchange are essential. Based on my own observation, it fosters an interactive and engaging learning environment, enhancing both in-class and online learning. Additionally, integrating such interactive platforms into the teaching process allows educators to diversify their instructional methods, thereby improving the quality of education and aligning with the evolving educational landscape in Malaysia.

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ELIN ELIANA ABDUL RAHIM
DEPARTMENT OF INFORMATION SYSTEMS
ELIN@IIUM.EDU.MY

INFO 3307 HUMAN COMPUTER INTERACTION

This course emphasizes on the importance of good user interface design and interaction between the human (users) and computers (e.g. mobile application, robotic, visualization). Knowledge of designing user interaction with high usability is grounded in fundamental theory and practice of the User Centered Design (UCD), implementation and evaluation for interactive system. By applying design approaches such as design thinking, persona, user journey and design rational thus this course will lead to achieving good products and services with positive user experience. *Source: Course Outline.*

What is Human-Computer Interaction (HCI)?

Human-computer interaction (HCI) is a multidisciplinary field of study focusing on the design of computer technology and, in particular, the interaction between humans (the users) and computers. While initially concerned with computers, HCI has since expanded to cover almost all forms of information technology design.

Source: https://www.interaction-design.org

Applying Design Thinking in Real World Problems (INFO 3307- HUMAN COMPUTER INTERACTION)

Design Thinking

Empathize   Define   Ideate   Prototype   Test

Interaction Design Foundation
interaction-design.org

Design Thinking in INFO 3307

GROUP PROJECT

n INFO 3307 (Human-Computer Interaction), students were asked to use the Design Thinking process to solve problems they are currently facing at IIUM. Students were expected to go through all the above processes and produce a prototype based on the proposed solution.

DESIGN THINKING

Design thinking is a non-linear, iterative process that teams use to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test. It is most useful to tackle ill-defined or unknown problems and involves five phases: Empathize, Define, Ideate, Prototype and Test.
Source: https://www.interaction-design.org
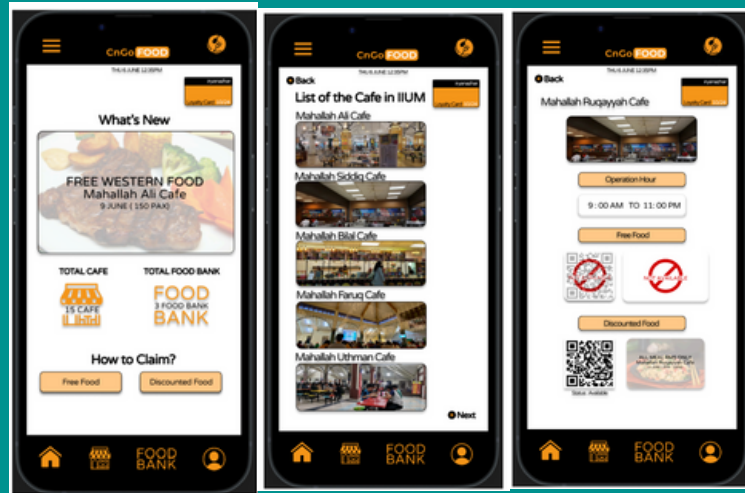
Example of students' work

CNGO FOOD APP

CnGo Food App is an app proposed to solve issues related to finding free and discounted food options around the campus. Currently, students only receive news about free and discounted food via WhatsApp.

Credit to the students for their project:
AMMAR HAZIQ BIN ZAINAL (2217763) | IRYAN SYAUQI BIN AZHAR (2213601) |
MUHAMMAD HARIZ BIN MOHD APANDI (2216455) | AHMAD SOLIHIN BIN YA OMAR (2217849)

AMELIA RITAHANI ISMAIL
COMPUTER SCIENCE DEPT
AMELIA@IIUM.EDU.MY

datacamp

INTRODUCTION

DataCamp Classroom is a free online learning platform provided by DataCamp for educators and their students. It offers interactive courses and resources focused on machine learning, and programming languages like Python, R, SQL, and more. With DataCamp Classroom, educators can create virtual classrooms, assign courses, track student progress, and access various teaching tools. DataCamp Classrooms improve student engagement in online learning by offering interactive content and hands-on coding exercises. Focusing on real-world applications, particularly in machine learning, students develop essential skills through personalized learning paths. These features foster active participation and enhance learning outcomes, empowering students to excel in areas like data analysis and machine learning within a dynamic digital classroom environment

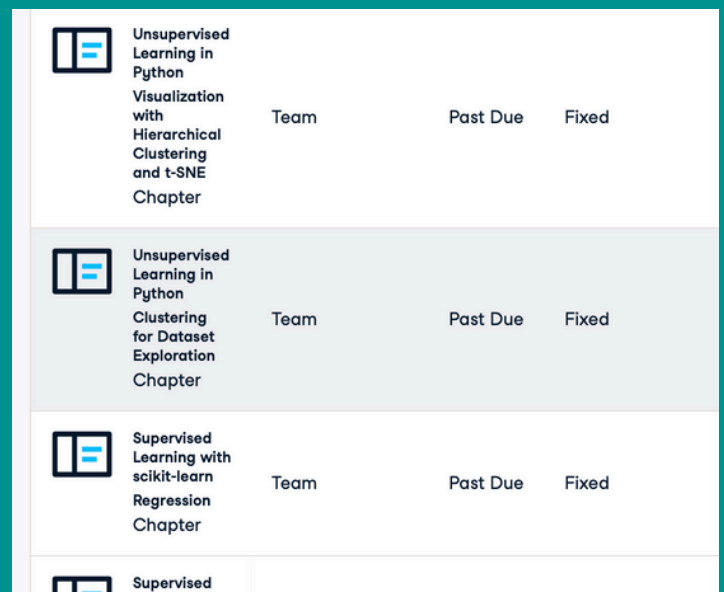## Enhancing Engagement with DataCamp Classrooms

Transforming Online Learning Experiences

- **Personalized Learning:** Educators can customize courses and paths for students, enhancing their learning experience in data analysis and machine learning.
- **Interactive Exercises:** Hands-on coding tasks help students apply concepts, improving engagement and practical skills.
- **Progress Tracking:** Educators can track student progress, assign tasks, and give feedback to ensure learning success.

Why Datacamp for Students?

- Interactive Learning: Offers hands-on coding exercises and interactive content to actively engage students.
- Real-World Applications: Focuses on practical, real-world scenarios, particularly in data science and machine learning.
- Personalized Learning Paths: Allows students to follow tailored learning paths that suit their skill level and pace.
- Skill Development: Builds essential skills in data analysis, programming, and machine learning.
- Active Participation: Encourages students to actively participate, leading to better retention and understanding.
- Improved Learning Outcomes: Promotes deeper learning, resulting in stronger academic and career outcomes.
- Flexibility: Supports self-paced online learning, making it accessible to students with different schedules.
- Career-Relevant Skills: Prepares students for future careers in data science, analytics, and related fields.
- Progress Tracking: Allows students to monitor growth and performance effectively.
- Certification: Provides certificates upon course completion to enhance resumes and career profiles.

DataCamp positively impacts students by enhancing their learning experience through interactive, hands-on exercises and real-world applications. Its personalized, flexible approach allows students to learn at their own pace, improving retention and understanding. By earning certifications, students can showcase their skills, boosting their competitiveness in the job market. Overall, DataCamp helps students develop essential, career-relevant skills in data science, programming, and machine learning, positioning them for future success.

|			
Unsupervised Learning in Python Visualization with Hierarchical Clustering and t-SNE Chapter	Team	Past Due	Fixed
Unsupervised Learning in Python Clustering for Dataset Exploration Chapter	Team	Past Due	Fixed
Supervised Learning with scikit-learn Regression Chapter	Team	Past Due	Fixed
Supervised			

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Tracking Student Engagement and Progress

The DataCamp dashboard is used to track student engagement and assignment progress. It can highlight key metrics, such as the number of invites sent, the number of platform usage, and XP earned by students. It also outlines assignment details, allowing educators to monitor student progress, track due dates, and assess task completion. This dashboard provides educators with valuable insights to support student success and enhance engagement. Offering real-time data and trends, it enables educators to intervene promptly when students fall behind. Ultimately, this tool helps create a more responsive and adaptive learning environment, leading to improved learning outcomes.
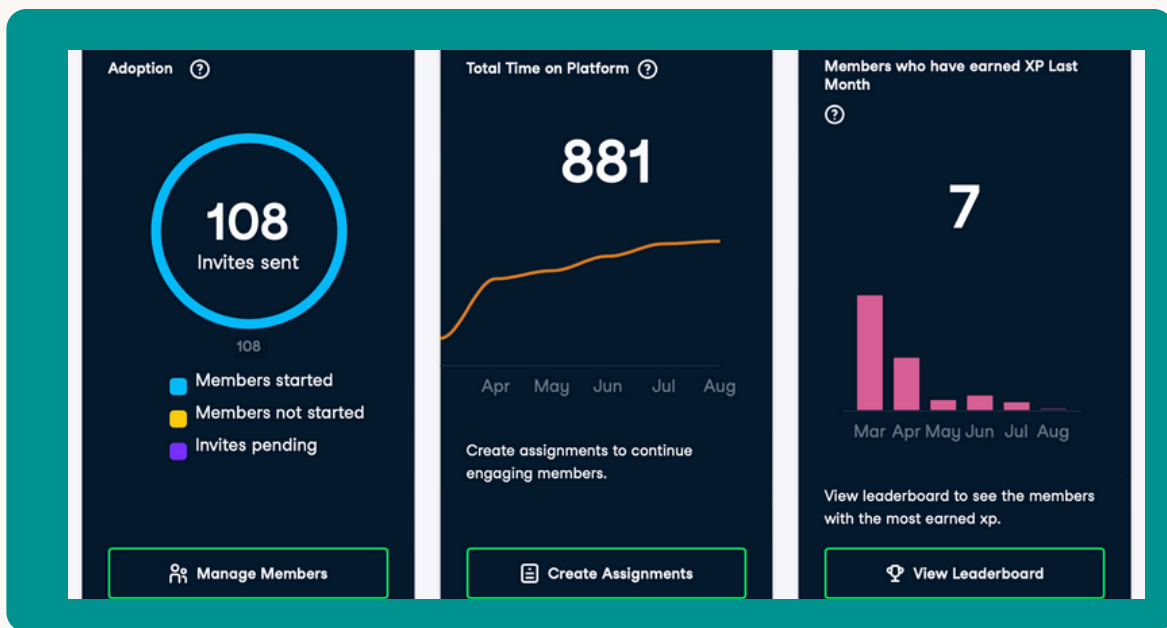

Earning Certificates
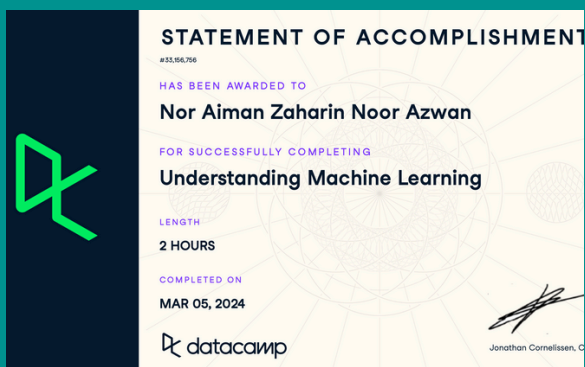
DataCamp provides certificates to learners upon successfully completing courses, skill tracks, or career tracks offered on the platform. These certificates serve as proof of the skills and knowledge gained in subjects like data science, machine learning, programming (Python, R, SQL), and more. Upon finishing a course or track, learners can download and share their certificates, which can be added to resumes or LinkedIn profiles to showcase their expertise to potential employers. While these certificates demonstrate achievement within DataCamp's platform, they may not carry the same weight as formal academic degrees but are valuable for highlighting technical skills in the job market

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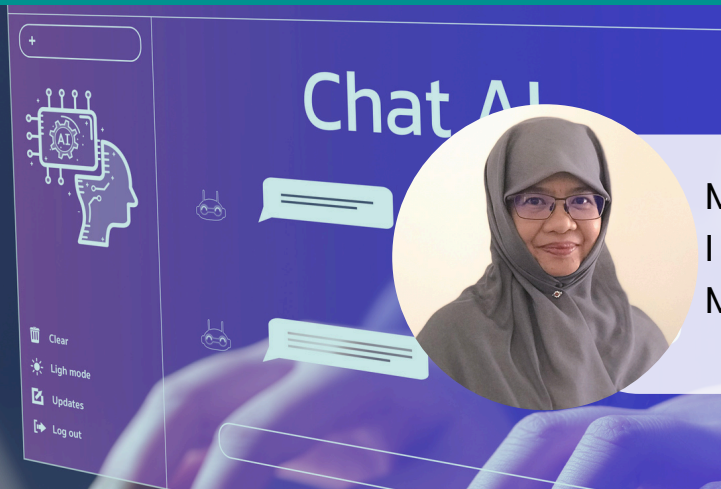
MIRA KARTIWI
INFORMATION SYSTEMS DEPT
MIRA@IIUM.EDU.MY

ExPlORe: A Guided Learning Activity using Text-based Generative Artificial Intelligence Platform

Embracing AI in Education

The integration of generative AI tools in education has sparked a mix of excitement and apprehension among many educators at higher education institutions. While there is huge potential for the transforming power of AI in teaching and learning, educators are often skeptical about its disruptive nature.

Among the frequently expressed concerns are about ethical issues involved, general misuse of the tool, and impact on traditional teaching methodologies. These fears are rooted in the anxiety of becoming outdated, the complexity of new technologies, and the perceived loss of control over the learning process.

Recognising and addressing these concerns is crucial for a smooth transition to AI-enhanced education. This involves understanding the capabilities and limitations of AI, as well as its ethical implications. Courses and assignments need to be redesigned to include AI literacy components, helping students comprehend and critically engage with AI technologies.

Why ExPlORe?

ExPlORe (**Extract, Plan, Organise, Reflect**) is a guided learning activity using generative AI platforms, which can be applied across various domains of knowledge. Its primary purpose is to enhance students' digital literacy by helping them extract meaningful information and develop critical thinking skills to evaluate AI-generated outputs. A secondary aim is to integrate AI platforms into the learning process in a way that enhances the experience without overwhelming students, allowing educators to prioritise student needs and improve overall learning outcomes.

How to Implement ExPlORe?

STEP 1: EDUCATOR'S PREPARATION

- List the class concepts that are relevant and critical for achieving the learning outcome.
- Group the class concepts into the Must-know and Good-to-know categories.
- Organize the concepts in a table based on these categories and share it with the students. Ask the students to use ExPlORe technique to fill the table.

STEP 2: STUDENT'S MAIN ACTIVITY

Extract phase: Review the list of class concepts. Check the box in the 'Pre-activity' column for the concepts the student is already familiar with.

Plan phase: Create a prompt for any class concept the student has yet to explore and learn. Prioritise the 'Must-know' concepts before addressing the 'Good-to-know' ones. Students need to record the prompts he/she used in the corresponding column of the table.

Organise phase: Review the results generated by the AI platform and evaluate the accuracy of the information. If needed, flag any information that requires further clarification from the lecturer.

STEP 3: DEBRIEFING PHASE

Reflect phase: This is the debriefing session, ideally conducted in a face-to-face classroom setting. Identify the most common 'Must-know' class concepts that students were unfamiliar with before the ExPlORe activity. Provide necessary clarification to support their learning.

Any course requires a deeper understanding of the concepts researched by students using AI platforms in the previous phase, implementing the Socratic method in debriefing phase would make this session more engaging and effective. Here are some examples of initial questions that can encourage students to reflect on how this activity has enhanced their learning and prepared them for more complex topics:

- "How did the AI tool influence your understanding of the concepts?"
- "Is the information provided consistent with what you know about the topic?"
- "How would you approach a similar research question differently after this experience?"
- "How reliable do you think the information provided by the AI was?"

Do you need more information on ExPlORe?

SAMPLE EXPLORE TEMPLATE

PROF. TS. DR. MIRA KARTIWI

Department of Information Systems
Kulliyyah of Information and Communication Technology

mira@iium.edu.my

03- 6421 5652

KICT TALE NEWSLETTER

NOOR AZURA ZAKARIA
DEPARTMENT OF
COMPUTER SCIENCE
azurazakaria@iium.edu.my

AHSIAH ISMAIL
DEPARTMENT OF
COMPUTER SCIENCE
ahsiah@iium.edu.my

Leveraging Student Creativity in Computer Organization Through Project Mini Showcase

Encouraging creativity in students is not just about promoting innovation, but also about engaging them deeply with the subject matter. For the Computer Organization course, one effective way to achieve this is through a Project Mini Showcase. This approach not only enhances their understanding of theoretical concepts but also allows them to apply these concepts in a practical way and hands-on manner. This approach fosters creativity among students and nurture innovative thinkers and problem solvers
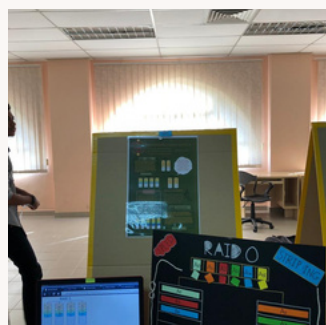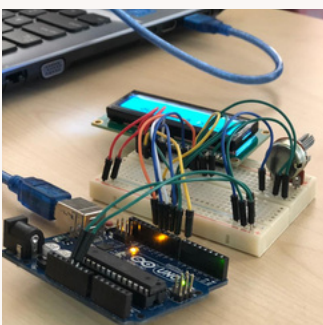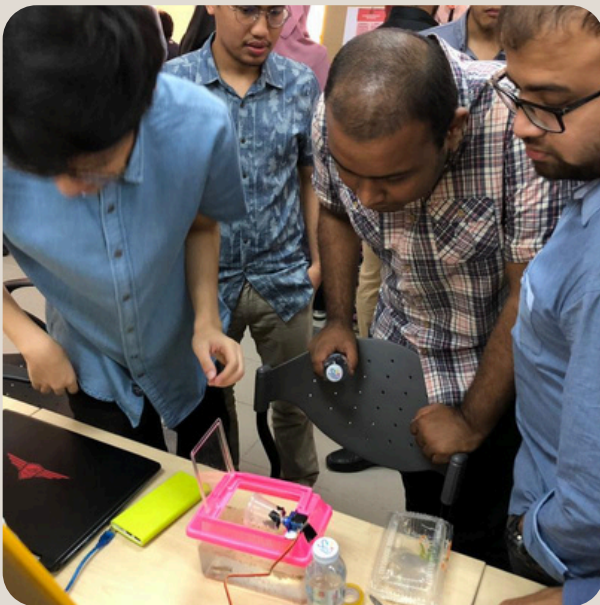
Objective of Project Mini Showcase

The main objective of a Project Mini Showcase lies in its ability to transform a traditional classroom into an interactive learning environment. Students are tasked with creating mini-projects that demonstrate their understanding of computer organization principles. Students actively solve problems and develop their critical thinking abilities as they work on these projects, moving beyond memorizing facts only.

Implementation of Project Mini Showcase

A few steps are involved in implementing the Project Mini Showcase:

Clear Guidelines: Provide students with clear expectations regarding project scope, presentation format, and evaluation criteria. This clarity helps them focus their efforts and output that they are going to produce during the showcase. The evaluation criteria used for the showcase are knowledge, creativity, delivery and project demonstrations.

Diverse Project Topics and Output: These projects can be of different types, such as producing a prototype, creating multimedia content, designing a simple digital circuit, and running simulations. Various topics in computer organization can be chosen, including program execution, structure and function, cache memory, internal memory, external memory, computer arithmetic, digital logic, instruction sets, addressing modes, and many more.

Feedback Opportunity: The showcase provides an opportunity to receive constructive feedback from peers, course instructors, and examiners. This process helps students identify any gaps in their projects and fosters a culture of continuous improvement. This platform also promotes a collaborative environment where students can learn from each other's projects, gaining new insights and ideas.

Celebrate Achievements: Recognize outstanding projects and creativity through awards. This approach can motivate students but also creates a positive atmosphere around learning.

Leveraging student creativity through a Project Mini Showcase in Computer Organization offers a comprehensive educational experience. It stimulates engagement, caters to various learning styles, and connects classroom learning with practical application. By encouraging an environment that values creativity and hands-on learning, students can develop a deeper understanding of computer organization and a passion for innovation.

PROJECT EXAMPLE

HAMMING CODE

DIGITAL LOGIC

NUMBER SYSTEM

CACHE MAPPING

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BRIDGING THEORY & PRACTICE IN SYSTEM ANALYSIS DESIGN

DR. MIMI LIZA ABDUL MAJID
DEPT OF INFORMATION SYSTEMS
MIMILIZA@IIUM.EDU.MY

Innovative Teaching through Real-world Engagement: Inviting System Analysts to Classrooms for Student Interviews

Abstract

This newsletter explores how System Analysis Design is taught with a focus on humanizing ICT education. By integrating educational technology, encouraging student-led initiatives, and incorporating interviews with system analysts, students gain practical, real-world insights while developing both technical and soft skills. These innovative approaches bridge the gap between theory and practice, aligning with the goal of designing technology solutions that prioritize human needs.

Introduction:

In the System Analysis Design course, students engage directly with professionals by interviewing real-world system analysts. This approach brings practical insights and human experience into the theoretical framework.

Learning Through Engagement:

Students are not only learning how to analyze and design systems; they're also learning soft skills like communication, active listening, and professional interaction by conducting these interviews.

Topics Covered in the Interviews:

- Real-life challenges faced by system analysts in various industries.
- Ethical considerations and the impact of system design on end users.
- The importance of human-centered design, where the needs and experiences of users shape system functionalities.

Reflection and Application:

After the interview, students work in teams to analyze the discussion, draw parallels between theory and practice, and propose system design improvements based on user-centric approaches.

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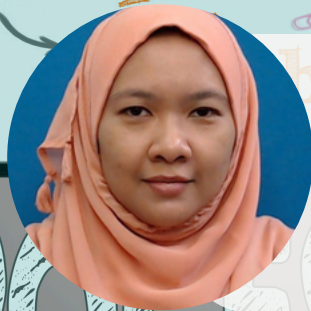
MUNA AZUDDIN
DEPARTMENT OF INFORMATION SYSTEMS
munaazuddin@iium.edu.my

INNOVATIVE TEACHING METHODS AND STRATEGIES

Creative Design Technique Project

This assignment is project-based learning and experience learning for students. Students participated in the creative process of brand identity and promotion from conception to final print, by researching multiple design concepts, drawing up sketches, and comprehensive design using graphic design software, up until printing and production.

INFO 4321 Creative Design Technique
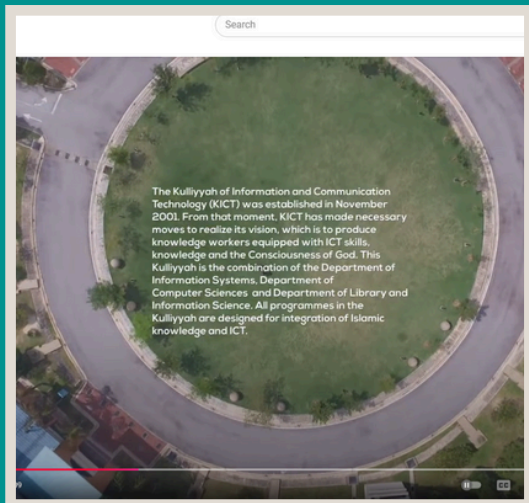
Semester 2 2023/2024 Group Project Assignment

Group Project Details

In this group project, students are required to design products for four clients which are: KICT General office, Postgraduate office, Research and Innovation office and Neurocoach Digital Lab.

The output from the projects are Brochures, E-books and promotional Videos. The design products are expected to be used by the clients for promotional purposes.

E-book for Postgraduate Office

Project-based Learning

Students learn by working on real-world projects that require research, creativity, and problem-solving. Instead of passively receiving information, students actively explore a subject by working on practical projects over an extended period.

It encourages critical thinking, collaboration, and the application of knowledge to solve real problems, making learning more meaningful.

Promotional Video for general Office:
https://www.youtube.com/watch?v=GO27CLgT6PM

Experiential Learning

Students learn by doing. Experiential learning involves activities like simulations, field trips, internships, role-playing, and hands-on experiments.

It provides students with real-world experiences that help them connect theoretical knowledge with practical applications, fostering deeper understanding.
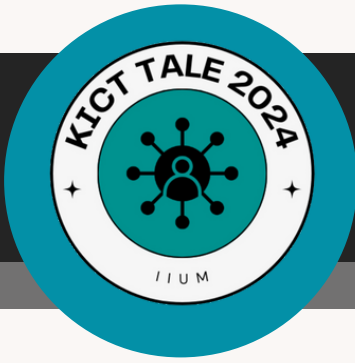

Brochure for Research and Innovation Office

KICT TALE NEWSLETTER

HUMANISING ICT IN EDUCATION

Special thanks to the KICT TALE 2024 committee:

DR. HAFIZAH MANSOR
DR. AZLIN NORDIN
DR. ANDI FITRIAH ABDUL KADIR
DR. ELIN ELIANA ABDUL RAHIM
DR. MIMI LIZA ABDUL MAJID
BR. AHMAD ZURAIRI 'ANIF AMRI
SR. JUNAIDA ZAINUDDIN

Thank You!