

# Java Programming Lab Manual

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IIUM PRESS

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

# **JAVA PROGRAMMING LAB MANUAL**

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**Editors**

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**January 2011**



**IIUM Press**

Published by:  
IIUM Press  
International Islamic University Malaysia

First Edition, **2011**.  
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Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Bibliography p.  
Includes Index  
ISBN

ISBN: 978-967-418-086-7

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM  
(Malaysian Scholarly Publishing Council)

Printed by :  
**IIUM PRINTING SDN. BHD.**  
No. 1, Jalan Industri Batu Caves 1/3  
Taman Perindustrian Batu Caves  
Batu Caves Centre Point  
68100 Batu Caves  
Selangor Darul Ehsan

**TABLE OF CONTENTS**

Dedication	v
Preface	xi
Acknowledgement	xiii
Chapter 1: Introduction to Java	15
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 2: Compiling and Executing Java Code	21
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 3: Introduction to Data Types in Java	27
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 4: Arithmetic and Relational Operators	33
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 5: Relational and Logical Operators	39
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 6: Bitwise Operators and Type Casting	45
- Asadullah Shaikh	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 7: Conditional Statements	51
- Asadullah Shaikh	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 8: If-Else Statements	55
- Asadullah Shaikh	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 9: The If-Else-If Statements	61
- Asadullah Shaikh	
- Zeeshan Bhatti	
- Asadullah Shah	

Chapter 10: Switch Statement	67
- Asadullah Shaikh	
- Zeeshan Bhatti	
- Asadullah Shah	
	73
Chapter 11: Loops	
- Agha Javed Phatan	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 12: Do-While Loops	79
- Agha Javed Phatan	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 13: For Loops	85
- Agha Javed Phatan	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 14: Loop Pitfalls and Exercise	93
- Agha Javed Phatan	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 15: Nested Loops	99
- Agha Javed Phatan	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 16: Arrays in Java	105
- Waseem Javaid Soomro	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 17: Two Dimensional Arrays	111
- Waseem Javaid Soomro	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 18: Strings	119
- Waseem Javaid Soomro	
- Zeeshan Bhatti	
- Asadullah Shah	

Chapter 19: Methods of String Class	127
- Waseem Javaid Soomro	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 20: Object and Classes	135
- Waseem Javaid Soomro	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 21: Constructors	141
- Dil Nawaz Hakro	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 22: User defined Methods	147
- Dil Nawaz Hakro	
- Zeeshan Bhatti	
- Asadullah Shah	viii
Chapter 23: Arguments Passing	155
- Dil Nawaz Hakro	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 24: Return Statement	163
- Dil Nawaz Hakro	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 25: Working with Classes	169
- Dil Nawaz Hakro	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 26: Multiple Classes	177
- Muniba Shaikh	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 27: Method Overloading and Overriding	185
- Muniba Shaikh	
- Zeeshan Bhatti	
- Asadullah Shah	

Chapter 28: Modifiers for class data	191
- Muniba Shaikh	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 29: Inner Classes	199
- Muniba Shaikh	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 30: Comparison between different class types	207
- Muniba Shaikh	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 31: Exception Handling	215
- Kamran Khowaja	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 32: Throw & Throws Keyword	223
- Kamran Khowaja	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 33: Local Block and Static Block	231
- Kamran Khowaja	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 34: Abstract Classes	237
- Dini Oktarina Dwi	
- Zeeshan Bhatti	
- Asadullah Shah	
Chapter 35: Interfaces	245
- Dini Oktarina Dwi	
- Zeeshan Bhatti	
- Asadullah Shah	

## Chapter 6

### Bitwise Operators and Type Casting

Asadullah Shaikh, Zeeshan Bhatti, Asadullah Shah

#### Abstract

Bitwise operators are not so frequently used in Java but they play a vital role when you need to save storage spaces or do the comparison on integer data. The use of bitwise operators will be discussed in this chapter along with the short circuit operators which are greatly beneficial specially to save the execution time of a program. Finally type casting will be explained and its various types.

#### 6.1 The Bitwise Operators

- The Bitwise operators provide bitwise AND (&), XOR (^) and OR(|) operations.
- They are applicable to integer types, which are sometimes used to save storage space,
- The bitwise operations calculate each bit of their results by comparing the corresponding bits of the two operands on the basis of these three rules:
  - For AND operations, 1 AND 1 produces 1, any other combination produces 0.
  - For XOR operations, 1 XOR 0 produces 1, as does 0 XOR 1.
  - For OR operation, 0 OR 0 produces 0, any other combination produces 1.

To further understand the rules of Bitwise operators let us consider the truth table for each given below in tables 6.1 to 6.3.