Document details

Back to results | 1 of 1

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A Framework for Evaluating Skyline Queries over Incomplete Data (Conference Paper)

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View references (18)

Abstract

Research interest in **skyline queries** has been significantly increased over the years, as **skyline queries** can be utilized in many contemporary applications, such as multi-criteria decision-making system, decision support system, recommendation system, **data** mining, and personalized systems. **Skyline queries** return **data** item that is not dominated by any other **data** items in all dimensions (attributes). Most of the existing **skyline** approaches assumed that database is complete and values are present during the **skyline** process. However, such assumption is not always to be true, particularly in a real world database where values of **data** item might not be available (missing) in one or more dimensions. Thus, the incompleteness of the **data** impacts negatively on **skyline** process due to losing the transitivity property which leads into the issue of cyclic dominance. Therefore, applying **skyline** technique directly on an **incomplete** database is prohibitive and might result into exhaustive pairwise comparison. This paper presents an approach that efficiently evaluates **skyline queries** in **incomplete** database. The approach aims at reducing the number of pairwise comparisons and shortens the searching space in identifying the skylines. Several experiments have been conducted to demonstrate that our approach outperforms the previous approach through producing a lower number of pairwise comparisons. Furthermore, the result also illustrates that our approach is scalable and efficient. © 2016 The Authors.

Author keywords

Incomplete data; Preference **queries**; Query processing; **Skyline**; **Skyline queries**

Indexed keywords

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