A Model for Skyline Query Processing in a Partially Complete Database

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Abstract

In the recent years, skyline queries become one of the predominant and most frequently used queries among preference queries in the database system. Its main theme is to identify and return those data items that are not dominated by any other data item in the database. In the past decade, a tremendous number of researches have been conducted emphasized on skyline queries by proposing many variations of skyline techniques for different type of database. Most of these techniques claimed that a database has complete data and values are always present when process skyline queries. However, this is not necessary to be always the case, particularly for large databases with a high number of dimensions as some values may be missing. Thus, existing techniques cannot be easily tailored to derive skylines in a database with missing values. Two significant issues might be raised, the issue of losing transitivity property which thus lead to the issue of cyclic dominance. Finding skylines in a database with partially complete data has not received enough attention. This paper proposes an efficient model to identify skylines over a database with partial complete data. Experimental results on various types of datasets demonstrate that the proposed approach outperforms the previous approach in terms of the number of pairwise comparison.

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