Performance evaluation of preference queries techniques over a high multidimensional database

ABSTRACT

In recent years, there has been much focus on the design and development of database management systems that incorporate and provide more flexible query operators that return data items which are dominating other data items in all attributes (dimensions). This type of query operations is named preference queries as they prefer one data item over the other data item if and only if it is better in all dimensions and not worse in at least one dimension. Several preference evaluation techniques for preference queries have been proposed including top-k, skyline, top-k dominating, k-dominance, and k-frequency. All of these preference evaluation techniques aimed at finding the ñbestò answer that meet the user preferences. This paper evaluates these five preference evaluation techniques on real application when huge number of dimensions is the main concern. To achieve this, a recipe searching application with maximum number of 60 dimensions has been developed which assists users to identify the most desired recipes that meet their preferences. Two analyses have been conducted, where execution time is the measurement used.

Keyword: Preference queries; Preference evaluation techniques; Skyline; Top-k; Query processing