Abstract

Multidimensional analysis requires the computation of many aggregate functions over a large volume of collected data. To provide the various viewpoints for the analysts, these data are organized as a multi-dimensional data model called data cubes. Each cell in a data cube represents a unique set of values for the different dimensions and contains the metrics of interest. The different abstraction and concretization associated with a dimension may be represented as lattice. The focus is to move up and drill down within the lattice using an algorithm with optimal space and computation. In the lattice of cuboids, there exist multiple paths for summarization from a lower to an upper level of cuboid. The alternate paths involve different amounts of storage space and different volume of computations. Thus objective of this paper is to design an algorithm for formal analysis leading towards detection of an optimal path for any two given valid pair of cuboids at different levels. Algorithm is proposed based on branch and bound method for selection of optimal path. Experimental results in the last show that the solution obtained by the algorithm gives the optimal solution in terms of space and time computation.

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Space and Time Analysis on the Lattice of Cuboid for Data Warehouse

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Index Terms

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Keywords
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