

# Materialized View Generation and Its Applications

## ABSTRACT

The modern era is entirely data driven. Different applications demand accessing big data for optimizing their performances. Text based data and image based data are two types based on which a substantial amount of researchers has been putting their efforts at least for the last two decades. The challenge of data processing and subsequent analysis become gruesome specifically in the domains which are query intensive in nature. Different end users have different types of requirements and the challenge lies in accessing those data in an optimal time. The present research work has mainly highlighted two aspects regarding this. The first aspect is about storing the frequently accessed data in such a way that they can be accessed in minimal time for satisfying customers' requirements. For this purpose, the usefulness of a database object called materialized view has been analyzed in the research work. But it is computationally complex to choose the sets of views to be materialized. Different methodologies have been proposed here regarding this. For the generation of materialized view which is used for physically storing the result set of a query or a series of queries as a separate database object, two principal algorithms have been explored and utilized and these are genetic algorithm and Apriori algorithm. Two different techniques based on genetic algorithm have been proposed and subsequently comparative studies have been done with some existing methodologies. The effectiveness of Boolean Association rules has been investigated to optimally choose views to be materialized based on Apriori algorithm. The second aspect of the research work is about utilization of materialized views in two domains – one in the field of text based data and another in the field of image classification. The former application has immense influence in the areas of incremental data mining and the later one is based on content based image retrieval. The efficacy of content based image retrieval for image classification has also been elaborately done as well in the research.

FULL SIGNATURE: 