DBMS Lab 2017-18 Spring Semester

Lab Day 7 (March 6, 2018) – 50 Marks

Consider the following business scenario.

A credit card issuing bank (for example, Citibank) wants to build a data warehouse for analyzing purchase behavior of its customers. It may issue one or more cards to the same customer. They would like to track how a customer is behaving as well as how he is using each of the cards issued to him (Credit card company will capture suitable data about each customer at the time of issuing the card). Cards issued by the bank can be of several "partnership" types. For example, Citibank issues Indian Oil card which gives some discount on purchases of petrol from Indian Oil petrol pumps. In this case, Indian Oil is a partner of Citibank. Similarly, Citibank also issues Big Bazar Card which gives some discount when used for purchases from Big Bazar. In this case, Big Bazar is a partner of Citibank. It is important to see the performance of these partnerships. A given type of partnership card may, however, be used for purchases from any other shops or from another partnership shop as well. We will use the terms "type" and "partnership type" interchangeably.

For any on-line purchase transaction made on the card, the issuing bank gets to know the credit card number, the name and other details of the merchant (i.e., the shop/establishment where it was used) like its location, type of business, whether national or multi-national company, etc., the partnership type of merchant (i.e., which partnership type it is and "not applicable" if it is not of any partnership type), the date of purchase, the time of purchase and the total rupee amount of purchase. Note, item details are not available.

One of the goals of the issuing bank data warehouse is to find the comparative amount of purchases made on the different types of cards during different periods of time at various merchant locations. The time period could be day, week, month, quarter and year. They would also like to see how the cards are being used during different hours of the day. It is also important to analyze the behavior of customers, both individual as well as based on their age groups, marital status, income group, % literacy of the states to which they belong, male/female ratio of the states to which they belong, etc. Other important considerations for analysis are sales for customers for various types of merchants

Design an efficient data warehouse schema that satisfies the above business scenario. Clearly identify the fact table(s), dimension table(s), primary key(s) and foreign key(s). Design an OLAP cube containing various combinations of dimensions.   **[20+30=50]**

Through Moodle, submit a file containing screenshots of your database schema and OLAP cube. (Name it as Lab7_<Roll_no>.sql).

[Penalty for plagiarism/copying: You will be awarded 0 for all the problems for the lab day and an additional 5 marks will be deducted out of the total of 40 in Lab. All persons involved will be awarded the same penalty irrespective of who has copied from whom]