1 Stored Procedures

Create a table course(cno, dno, maxSeats, currentEnrolled) where maximumSeats is the maximum number of students allowed to enroll in the course, currentEnrolled is the number of students currently enrolled in the course. Your procedure should go through the course table, one line at a time, using sql cursor, and produce the following report:

Text of the first line should be the following:

"Title of the report: Student Enrollement for CSE courses"

Each of the following lines of the report should have the following text:

"Course number" cno "has" currentEnrolled "currently enrolled students" and print "it is full" if (maximumSeats-currentEnrolled)=0 else print "it is not full"

For example, a line may look like:

Course number cse320 has 40 currently enrolled students and it is not full

2 Triggers and Views

1. Datawarehousing applications deal with a huge amount of data for On-Line Analytic Processing (OLAP) for decision support systems. For example, companies such as WalMart may like to store all of it’s sales transactions over all stores around the world in it’s datawarehousing database for decision making at various levels. The following problem is to create a view, do a query on the view and implement a materialized view for datawarehousing applications. In data-warehousing the schema is called a star schema as shown below:

(a) (10 points) Create a view TotalSalesbyRegion (break up total sales by some smaller time intervals like by month) in MySQL where it gives the Total Sales for each product by Regions in USA.

You may use only those tables and attributes of the star schema given that are needed to answer the next question and the question on materialized view.

View: TotalSalesbyRegion( productID, REGION, YEAR, MONTH, MONTHLYSALES)
(b) (10 points) When the following query is applied on this view, what will be the resulting SQL statement that will be applied to the base tables to implement this query.
Get total sales of all those products that were sold in 2012 in the eastern region of USA.

SQL statement on the view:

```
SELECT productID AS ProductID, SUM(MONTHLYSALES) AS SALES
FROM TotalSalesbyRegion
WHERE year=2012 AND region="Eastern"
```

Resulting SQL that is going to be run by the system working on the base tables (i.e., the stored tables in the database, i.e., SALES, LOCATIONS and TIMES:

YOU PUT YOUR ANSWER HERE

2. (20 points) Most database systems provide commands to define materialized views. In datawarehousing applications it is common to use materialized views for OLAP at various levels. However, in actual datawarehousing applications all inserts, deletes and updates are separately collected for a period of time (say a day) in tables called the delta tables and data from these delta tables are applied to materialized views for updating the views at the end of the period, say end of the day. Implement a materialized view for the view described above (question 2a) using MySQL trigger to see trigger functions in action. You
will use incremental approach of updating materialized views, similar
to that given in lecture note on trigger, page 32-33

NOTE: only the changes in the SALES table needs to be incor-
porated in this homework problem to update the materialized
view to keep it current. In general, changes in the other ta-
bles, LOCATIONS, TIMES, etc. will also affect the currency
of the materialized view.

For this problem, you first create a table called:

TotalSalesbyRegion( productID, REGION, YEAR, MONTH, 
MONTHLYSALES)

This is a regular table not a view and can be created by
CREATE TABLE SQL. This table will act as your materi-
alized view but table has to be updated when the SALE table
is changed by INSERT, DELETE and UPDATE SQL state-
ments. Following is a trigger which does most of the issues
for INSERT on SALES table. You need to implement similar
triggers to handle DELETE and UPDATE on SALES.

NOTE: only the changes in the SALES table needs to be in-
corporated in the materialized view for this homework prob-
lem. In general, changes in the other tables, LOCATIONS,
TIMES, etc. will also affect the currency of the materialized
view but we are ignoring that for this homework problem.