Department of Computer Engineering
University of Peradeniya
CO226 – Database Systems

Tutorial Number	:	1
Topic	:	SQL
Posted on	:	2014-08-25
Due date	:	2014-09-08
Submission	:	Submit your answers as a handwritten hard copy to the department.

Question 1

1. Define the following terms:
   Data definition language, data manipulation language, primary key, foreign key, referential integrity, correlated subquery, natural join, view, trigger
2. Explain the differences in ON UPDATE RESTRICT/CASCADE/SET NULL clauses.
3. What happens if the ON DELETE CASCADE clause is set?

Question 2

Consider a MySQL table containing drink information.

DRINKS (ID, Drink_Name, Cost, Color, Ice, Calories)

Perform the following operations on the table DRINKS.

1. Display the average calorie amount of a drink as Avg_Cal.
2. Display the table according to the alphabetical order of the names and the increasing order of the prices.
3. Display only the information from third row to sixth row.
4. Display the names, calories and cost of drinks that contain no more than 30 calories and cost more than Rs. 3.00.
5. Display the name and cost of drinks that start with the letter 'B' or that cost less than Rs. 3.00.
6. Display the first two letters of each drink as First_Two_Letters.
7. A person wants to buy one bottle from each drink. Display the total cost for the bottles.
8. Rename the table to 'DRINK_INFO' and then change the column Drink_Name to Dname.
9. Change drink color values from ‘yellow’ to ‘gold’.
10. Make all the drinks that cost Rs. 2.50 to be Rs. 3.50, and make all the drinks that cost Rs. 3.50 to be Rs. 4.50.

Question 3

Consider the following database schema.

CLIENTS(CID, Cname)
BRANCHES(BID, Bdesc, Bloc, Cid)
SERVICES(SID**,** Sname, Sfee)
BRANCHES_SERVICES(BID,SID)

Definitions for attributes are as follows.

CID,Cid : Client ID, **Cname**: Client name
BID: Branch id, **Bdesc**: Branch description, **Bloc**: Branch location,
SID: Service ID, **Sname**: Service name, **Sfee**: Service fee

Perform the following queries using both joins and subqueries. You may use the subqueries as specified.

1. Joins or Subqueries within WHERE or HAVING Clause or both.
   a) List all branch offices belonging to the client, “Rabbit Foods”.
   b) List all services offered by the client “SED Agency”.
   c) List all clients having exactly two branch offices.
   d) Find all clients charging a service fee that is the maximum service fee.

2. Joins or Subqueries with Logical and Comparison Operators or both.
   a) Find all branches offering more than 50% of all available services.
   b) Find all clients which are offering all available services across their branch offices.

3. Joins or Subqueries with IN Membership Test or both.
   a) List all services offered by N Region HO branch office.
   b) List all branches offering the Accounting service.
   c) List all branches with their customer name offering the accounting service.
   d) List all clients offering the Accounting services.
   e) List all branches that do not offer the Accounting service.

4. Joins or Subqueries with the EXISTS operator or both
   a) Check whether there are clients whose branches offering 5 or more services.

5. Joins or Subqueries in the FROM Clause or both
   a) List average number of services offered by each branch.
   b) List all branches offering services which is above the average number of services

6. Both Joins and Subqueries
   a) List all clients, those do not have any branch, using a Left join and a subquery

7. Subqueries and Other DML Statements (UPDATE and DELETE)
   a) All branches located in California have decided to offer the security service instead of the administration service. Implement this change.
   b) Find out the services that are used by three or more branch offices and then increase the fee for those services by 25 percent.

c) Delete all branches using the Recruitment service.
d) Delete all clients any of whose branch offices generate service fee revenues of $500 or less.