DBMS Assignment 1: Basic SQL

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Div: 2   Batch: T1

Statement: Write the simple SQL queries on the given schema.

A. Write the following simple SQL Queries on the University Schema.

- Find the names of all the students whose total credits are greater than 100.

```
mysql> SELECT NAME FROM STUDENT WHERE (TOT_CRED > 100);
+--------+
| NAME   |
+--------+
| Zhang  |
| Chavez |
| Tanaka |
+--------+
3 rows in set (0.00 sec)
```

- Find the course id and grades of all courses taken by any student named 'Tanaka'.

```
mysql> SELECT COURSE_ID,GRADE FROM TAKES WHERE ID=(SELECT ID FROM STUDENT WHERE NAME="TANAKA");
+-----------+-------+
| COURSE_ID | GRADE |
+-----------+-------+
| BIO-101   | A     |
| BIO-301   | NULL  |
+-----------+-------+
2 rows in set (0.00 sec)
```

- Find the courses which are offered in both 'Fall' and 'Spring' semester (not necessarily in the same year).

```
mysql> SELECT TITLE FROM COURSE WHERE COURSE_ID IN (SELECT COURSE_ID FROM SECTION WHERE SEMESTER IN ("FALL", "SPRING"));
+--------------------------+
| TITLE                    |
+--------------------------+
| Intro. to Computer Science |
| Game Design              |
| Robotics                 |
| Image Processing         |
| Database System Concepts |
| Intro. to Digital Systems |
| Investment Banking       |
| World History            |
| Music Video Production   |
| Physical Principles      |
+--------------------------+
10 rows in set (0.00 sec)
```

- Find the names of all the instructors from Comp. Sci. department.

```
mysql> SELECT NAME FROM INSTRUCTOR WHERE DEPT_NAME="COMP. SCI.";
+------------+
| NAME       |
+------------+
| Srinivasan |
| Katz       |
| Brandt     |
+------------+
3 rows in set (0.00 sec)
```

- Find the course id and titles of all courses taught by an instructor named 'Srinivasan'

```
mysql> SELECT COURSE_ID,TITLE FROM COURSE WHERE COURSE_ID IN (SELECT COURSE_ID FROM TEACHES WHERE ID
IN (SELECT ID FROM INSTRUCTOR WHERE NAME="SRINIVASAN" ));
+-----------+--------------------------+
| COURSE_ID | TITLE                    |
+-----------+--------------------------+
| CS-101    | Intro. to Computer Science |
| CS-315    | Robotics                 |
| CS-347    | Database System Concepts |
+-----------+--------------------------+
3 rows in set (0.00 sec)
```

- Find the names of instructors who have taught at least one course in Spring 2009.

```
mysql> SELECT NAME FROM INSTRUCTOR WHERE ID IN (SELECT ID FROM
TEACHES WHERE SEMESTER="SPRING" AND YEAR="2009");
+--------+
| NAME   |
+--------+
| Brandt |
| Kim    |
+--------+
2 rows in set (0.00 sec)
```

B. Create the Railway schema using the commands in the Railway DDL script; The DDL script also contains a description of the railway Schema. Insert sample data using the command in the file SampleRailwayData.

Write the following Queries for Railway Schema.

- Find pairs of stations (station codes) that have a track (direct connection) with distance less than 20Kms between them.

```
mysql> USE RAILWAY;
Database changed
mysql> SELECT STCODE1,STCODE2 FROM TRACK WHERE DISTANCE<20;
+---------+---------+
| STCODE1 | STCODE2 |
+---------+---------+
| BYC     | DR      |
| BYC     | KRL     |
| CST     | BYC     |
| CST     | DR      |
| CST     | KRL     |
| GRP     | TNA     |
+---------+---------+
6 rows in set (0.00 sec)
```

- Find the IDs of all the trains which have a stop at THANE

```
mysql> SELECT ID FROM TRAINHALTS WHERE STCODE IN (SELECT STCODE FROM STATION WHERE NAME="THANE");
+------+
| ID   |
+------+
| A65  |
| KP11 |
+------+
2 rows in set (0.00 sec)
```

- Find the names of all trains that start at MUMBAI.

```
mysql> SELECT NAME FROM TRAIN WHERE ID IN (SELECT ID FROM TRAINHALTS WHERE TIMEIN=NULL OR STCODE IN
(SELECT STCODE FROM STATION WHERE NAME="MUMBAI"));
+---------------+
| NAME          |
+---------------+
| CST-AMR_LOCAL |
| CST-KYN       |
+---------------+
2 rows in set (0.00 sec)
```

- List all the stations in order of visit by the train 'CST-AMR_LOCAL'.

```
mysql> SELECT NAME FROM STATION WHERE STCODE IN (SELECT STCODE FROM TRAINHALTS WHERE SEQNO IN
(SELECT SEQNO FROM TRAINHALTS WHERE ID IN (SELECT ID FROM TRAIN WHERE NAME="CST-AMR_LOCAL")));

+-----------+
| NAME      |
+-----------+
| MUMBAI    |
| BYCULLA   |
| DADAR     |
| KURLA     |
| GHATKOPAR |
| THANE     |
| DOMBIVALI |
| KALYAN    |
| AMBARNATH |
+-----------+
9 rows in set (0.00 sec)
```