ASSIGNMENT-7
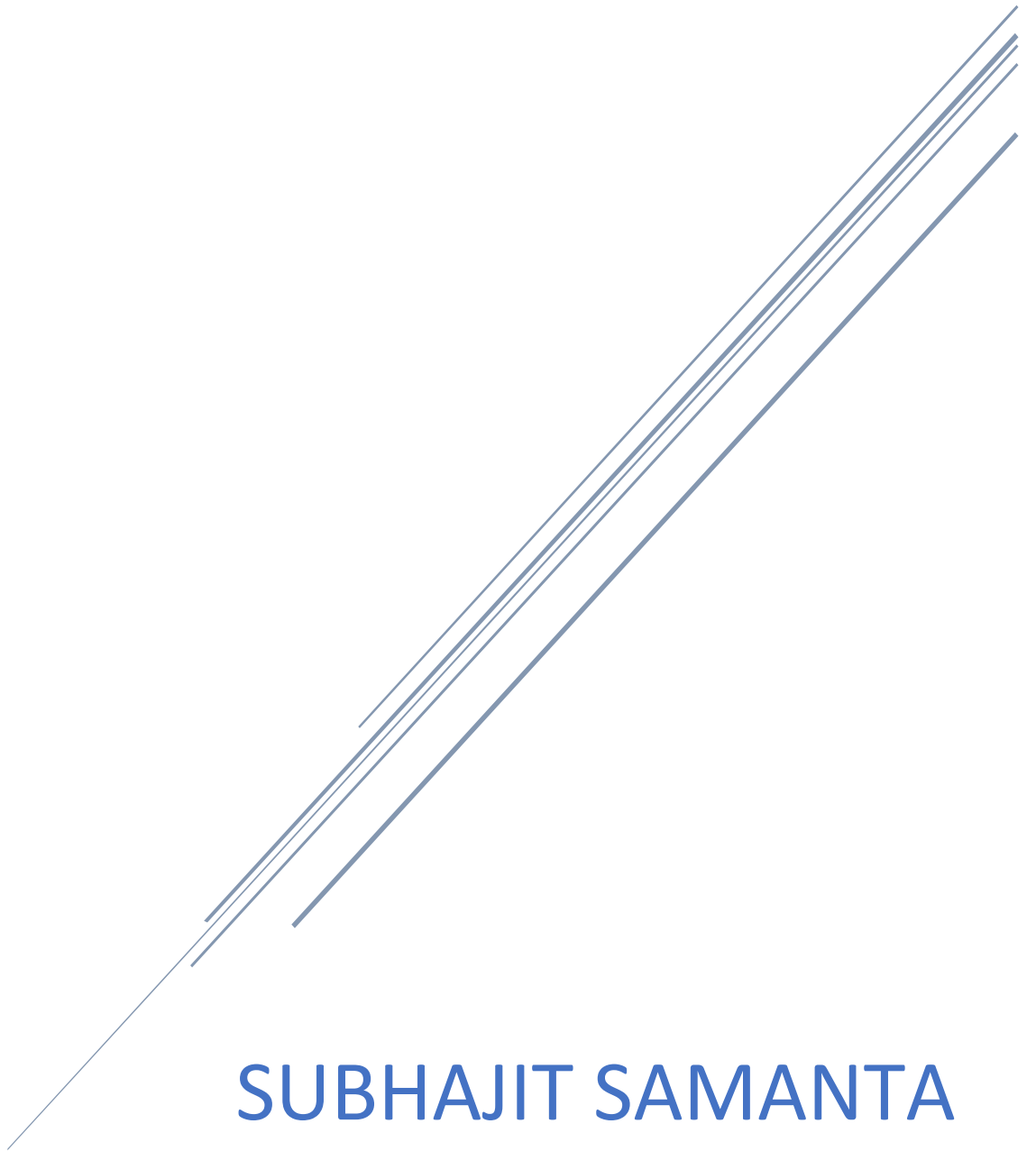
DBMS ASSIGNMENT

SUBHAJIT SAMANTA

2020CSB046

1. DEPTS TABLE-

```
mysql> SELECT *
    -> FROM DEPTS;
+----------+------------------------------+
| deptcode | deptname                     |
+----------+------------------------------+
| CE       | Civil Engineering            |
| CST      | Computer Science & Technology |
| EE       | Electrical Engineering       |
| ME       | Mechanical Engineering       |
| PHY      | Physics                      |
+----------+------------------------------+
5 rows in set (0.00 sec)
```

2. STUDENTS TABLE-

```
mysql> SELECT *
    -> FROM STUDENTS;
+--------+----------+------------+----------+--------+------------+
| rollno | name     | bdate      | deptcode | hostel | parent_inc |
+--------+----------+------------+----------+--------+------------+
|    121 | SUBHAJIT | 1995-12-21 | CST      |      5 |    10000.0 |
|    122 | ANUBHAV  | 1994-11-01 | CST      |      7 |    20000.8 |
|    123 | VICKY    | 1993-05-30 | CST      |      5 |    60000.4 |
|    124 | VIJAY    | 1995-03-15 | ME       |      5 |    99999.0 |
|    125 | SINGA    | 1992-08-28 | CE       |      1 |    10000.7 |
|    126 | MALAY    | 1996-12-30 | ME       |      4 |  2000000.9 |
|    127 | RAJESH   | 1995-05-17 | PHY      |      2 |   500000.0 |
|    128 | MOHIT    | 1996-09-21 | CE       |      7 |  9900000.0 |
|    129 | ROHIT    | 1994-02-22 | EE       |      9 |    90000.5 |
+--------+----------+------------+----------+--------+------------+
9 rows in set (0.00 sec)
```

3. FACULTY TABLE-

```
mysql> SELECT *
    -> FROM FACULTY;
+----------+----------------+----------+
| fac_code | fac_name       | fac_dept |
+----------+----------------+----------+
| F10      | MALAY KULE     | CST      |
| F11      | JAYA SIL       | CST      |
| F12      | SKM            | EE       |
| F13      | MANAS HIRA     | PHY      |
| F14      | BKS            | CE       |
| F15      | NIRNAY GHOSH   | CST      |
| F16      | SURAJEET GHOSH | PHY      |
| F17      | ATANU SAMANTA  | CE       |
+----------+----------------+----------+
8 rows in set (0.00 sec)
```

4. CRS_OFFRD TABLE-

```
mysql> SELECT *
    -> FROM CRS_OFFRD;
+----------+------------+-------------+------------+
| crs_code | crs_name   | crs_credits | crs_fac_cd |
+----------+------------+-------------+------------+
| C1       | TOC        |         4.2 | F11        |
| C2       | COA        |         3.0 | F10        |
| C3       | GRAPH ALGO |         4.1 | F13        |
| C4       | DBMS       |         3.6 | F10        |
| C5       | C LANGUAGE |         2.0 | F17        |
| C6       | JAVA       |         3.9 | F15        |
+----------+------------+-------------+------------+
6 rows in set (0.00 sec)
```

```
mysql> SELECT *
    -> FROM CRS_REGD;
+------------+--------+--------+
| crs_rollno | crs_cd | marks  |
+------------+--------+--------+
|        121 | C1     |  95.30 |
|        121 | C2     |  90.00 |
|        122 | C1     |  99.00 |
|        123 | C5     |  70.00 |
|        125 | C4     |  60.00 |
|        128 | C6     |  95.90 |
+------------+--------+--------+
6 rows in set (0.00 sec)
```

Task-1:

- Create a view of all students in dept CSE.

```
mysql> CREATE VIEW CST_STUDENTS AS
    -> (SELECT *
    -> FROM STUDENTS
    -> WHERE DEPTCODE='CST');
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT *
    -> FROM CST_STUDENTS;
+--------+----------+------------+----------+--------+------------+
| rollno | name     | bdate      | deptcode | hostel | parent_inc |
+--------+----------+------------+----------+--------+------------+
|    121 | SUBHAJIT | 1995-12-21 | CST      |      5 |    10000.0 |
|    122 | ANUBHAV  | 1994-11-01 | CST      |      7 |    20000.8 |
|    123 | VICKY    | 1993-05-30 | CST      |      5 |    60000.4 |
+--------+----------+------------+----------+--------+------------+
3 rows in set (0.00 sec)
```

- Create a view named as cse_stud for 'CSE' dept students having attributes rollno, name, hostel.

```
mysql> CREATE VIEW CSE_STUD AS
    -> (SELECT ROLLNO,NAME,HOSTEL
    -> FROM STUDENTS
    -> WHERE DEPTCODE='CST');
Query OK, 0 rows affected (0.01 sec)

mysql>
mysql> SELECT *
    -> FROM CSE_STUD;
+--------+----------+--------+
| ROLLNO | NAME     | HOSTEL |
+--------+----------+--------+
|    121 | SUBHAJIT |      5 |
|    122 | ANUBHAV  |      7 |
|    123 | VICKY    |      5 |
+--------+----------+--------+
3 rows in set (0.00 sec)
```

- Insert a new student of CSE. Analyse the result.

```
mysql> INSERT INTO STUDENTS
    -> VALUES
    -> (130,'ATANU','1996-12-01','CST',8,90000.9);
Query OK, 1 row affected (0.00 sec)

mysql> SELECT *
    -> FROM CST_STUDENTS;
+--------+----------+------------+----------+--------+------------+
| rollno | name     | bdate      | deptcode | hostel | parent_inc |
+--------+----------+------------+----------+--------+------------+
|    121 | SUBHAJIT | 1995-12-21 | CST      |      5 |    10000.0 |
|    122 | ANUBHAV  | 1994-11-01 | CST      |      7 |    20000.8 |
|    123 | VICKY    | 1993-05-30 | CST      |      5 |    60000.4 |
|    130 | ATANU    | 1996-12-01 | CST      |      8 |    90000.9 |
+--------+----------+------------+----------+--------+------------+
4 rows in set (0.00 sec)

mysql> SELECT *
    -> FROM CSE_STUD;
+--------+----------+--------+
| ROLLNO | NAME     | HOSTEL |
+--------+----------+--------+
|    121 | SUBHAJIT |      5 |
|    122 | ANUBHAV  |      7 |
|    123 | VICKY    |      5 |
|    130 | ATANU    |      8 |
+--------+----------+--------+
4 rows in set (0.00 sec)
```

Remark- When I inserted a student's data in STUDENTS table the data is also gets updated in CST_STUDENTS and CSE_STUD views.

```
mysql> insert into CST_STUDENTS values
    -> (10,"JEEVA","1996-07-20","CST",1,900100.9);
Query OK, 1 row affected (0.06 sec)

mysql> SELECT *
    -> FROM CSE_STUD;
+--------+----------+--------+
| ROLLNO | NAME     | HOSTEL |
+--------+----------+--------+
|     10 | JEEVA    |      1 |
|    121 | SUBHAJIT |      5 |
|    122 | ANUBHAV  |      7 |
|    123 | VICKY    |      5 |
|    130 | ATANU    |      8 |
+--------+----------+--------+
5 rows in set (0.04 sec)

mysql> SELECT *
    -> FROM STUDENTS;
+--------+----------+------------+----------+--------+------------+
| rollno | name     | bdate      | deptcode | hostel | parent_inc |
+--------+----------+------------+----------+--------+------------+
|     10 | JEEVA    | 1996-07-20 | CST      |      1 |   900100.9 |
|    121 | SUBHAJIT | 1995-12-21 | CST      |      5 |    10000.0 |
|    122 | ANUBHAV  | 1994-11-01 | CST      |      7 |    20000.8 |
|    123 | VICKY    | 1993-05-30 | CST      |      5 |    60000.4 |
|    124 | VIJAY    | 1995-03-15 | ME       |      5 |    99999.0 |
|    125 | SINGA    | 1992-08-28 | CE       |      1 |    10000.7 |
|    126 | MALAY    | 1996-12-30 | ME       |      4 |  2000000.9 |
|    127 | RAJESH   | 1995-05-17 | PHY      |      2 |   500000.0 |
|    128 | MOHIT    | 1996-09-21 | CE       |      7 |  9900000.0 |
|    129 | ROHIT    | 1994-02-22 | EE       |      9 |    90000.5 |
|    130 | ATANU    | 1996-12-01 | CST      |      8 |    90000.9 |
+--------+----------+------------+----------+--------+------------+
11 rows in set (0.00 sec)
```

<u>Remark-</u> When I inserted a student's data in CST_STUDENTS view the data is also gets updated in and CSE_STUD view and STUDENTS table.

```
mysql> insert into cse_stud values
    -> (11,"JAYANTH",2);
Query OK, 1 row affected (0.04 sec)

mysql> SELECT *
    -> FROM CST_STUDENTS;
+--------+----------+------------+----------+--------+------------+
| rollno | name     | bdate      | deptcode | hostel | parent_inc |
+--------+----------+------------+----------+--------+------------+
|     10 | JEEVA    | 1996-07-20 | CST      |      1 |   900100.9 |
|    121 | SUBHAJIT | 1995-12-21 | CST      |      5 |    10000.0 |
|    122 | ANUBHAV  | 1994-11-01 | CST      |      7 |    20000.8 |
|    123 | VICKY    | 1993-05-30 | CST      |      5 |    60000.4 |
|    130 | ATANU    | 1996-12-01 | CST      |      8 |    90000.9 |
+--------+----------+------------+----------+--------+------------+
5 rows in set (0.00 sec)

mysql> SELECT *
    -> FROM STUDENTS;
+--------+----------+------------+----------+--------+------------+
| rollno | name     | bdate      | deptcode | hostel | parent_inc |
+--------+----------+------------+----------+--------+------------+
|     10 | JEEVA    | 1996-07-20 | CST      |      1 |   900100.9 |
|     11 | JAYANTH  | NULL       | NULL     |      2 |       NULL |
|    121 | SUBHAJIT | 1995-12-21 | CST      |      5 |    10000.0 |
|    122 | ANUBHAV  | 1994-11-01 | CST      |      7 |    20000.8 |
|    123 | VICKY    | 1993-05-30 | CST      |      5 |    60000.4 |
|    124 | VIJAY    | 1995-03-15 | ME       |      5 |    99999.0 |
|    125 | SINGA    | 1992-08-28 | CE       |      1 |    10000.7 |
|    126 | MALAY    | 1996-12-30 | ME       |      4 |  2000000.9 |
|    127 | RAJESH   | 1995-05-17 | PHY      |      2 |   500000.0 |
|    128 | MOHIT    | 1996-09-21 | CE       |      7 |  9900000.0 |
|    129 | ROHIT    | 1994-02-22 | EE       |      9 |    90000.5 |
|    130 | ATANU    | 1996-12-01 | CST      |      8 |    90000.9 |
+--------+----------+------------+----------+--------+------------+
12 rows in set (0.00 sec)
```

<u>Remark</u>- When I inserted a student's data in CSE_STUD view the data is gets updated in STUDENTS table but the data doesn't get updated in the CST_STUDENTS view because the foreign key (deptcode) of STUDENTS table is not an attribute of CSE_STUD view.

- Increment parental income by Rs. 5000 (HRA).

```
mysql> update students
    -> set parent_inc=parent_inc+5000;
Query OK, 11 rows affected (0.04 sec)
Rows matched: 12  Changed: 11  Warnings: 0

mysql> SELECT *
    -> FROM CST_STUDENTS;
+--------+---------+------------+----------+--------+-----------+
| rollno | name    | bdate      | deptcode | hostel | parent_inc |
+--------+---------+------------+----------+--------+-----------+
|     10 | JEEVA   | 1996-07-20 | CST      |      1 |   905100.9 |
|    121 | SUBHAJIT| 1995-12-21 | CST      |      5 |    15000.0 |
|    122 | ANUBHAV | 1994-11-01 | CST      |      7 |    25000.8 |
|    123 | VICKY   | 1993-05-30 | CST      |      5 |    65000.4 |
|    130 | ATANU   | 1996-12-01 | CST      |      8 |    95000.9 |
+--------+---------+------------+----------+--------+-----------+
5 rows in set (0.00 sec)
```

Remark- When I update the parent income (parent_inc) in STUDENTS table the parent_inc also gets updated in CST_STUDENTS view but CST_STUD view does not get updated as there is no attribute parent_inc in CSE_STUD view.

- Delete the view.

```
mysql> DROP VIEW CSE_STUD;
Query OK, 0 rows affected (0.04 sec)

mysql> SELECT *
    -> FROM CSE_STUD;
ERROR 1146 (42S02): Table 'assignment_7.cse_stud' doesn't exist
```

Task-2:

- Create another view of all students in dept Mechanical Engineering (department Name). The view will contain attributes namely Roll-No, Name, Department Name, Age.

```
mysql> create view me_students as
    -> (select s.rollno as "Roll-No",s.name as "Name",d.deptname as "Department Name",
    -> TIMESTAMPDIFF(YEAR, s.bdate, CURDATE())  as Age
    -> from depts d,students s
    -> where d.deptcode=s.deptcode and d.deptname="MECHANICAL ENGINEERING");
Query OK, 0 rows affected (0.01 sec)

mysql> SELECT *
    -> FROM ME_STUDENTS;
+---------+-------+------------------------+------+
| Roll-No | Name  | Department Name         | Age  |
+---------+-------+------------------------+------+
|     124 | VIJAY | Mechanical Engineering |   27 |
|     126 | MALAY | Mechanical Engineering |   25 |
+---------+-------+------------------------+------+
2 rows in set (0.00 sec)
```

- Attempt the following:
1. Insert a new student of Mechanical Engineering Department.
2. Delete a student (for a given Name) of the same department
3. Shift a student (for a given Name) from Mechanical to Computer Science.

For each of the above cases, analyse the result.

1.

```
mysql> insert into me_students values
    -> (12,"RAHUL","MECHANICAL ENGINEERING",25);
ERROR 1394 (HY000): Can not insert into join view 'assignment_7.me_students' without fields list
mysql>
```

Remark- I tried to insert a new student data into the view(me_students) but its showing error because this view is created by taking cartesian product of two tables,so the insertion is not possible.Hence this is a non-updatable view. The view should be created from a single table. If the view is created using multiple tables, then we will not be allowed to insert the data in the view.

2.

```
mysql> delete from me_students
    -> where Name="VIJAY";
ERROR 1395 (HY000): Can not delete from join view 'assignment_7.me_students'
mysql>
```

**Remark**- We cannot delete a student data(row) from the view(me_students) because this view is created by using two tables i.e, students and depts table. The view should be created from a single table. If the view is created using multiple tables, then we will not be allowed to delete the data(row) from the view.

3.

**Remark**- We cannot change a student from mechanical to Computer Science because It causes anomalies in data.