Sheet No : 03
Assignment No : 07

1. **Create a view of all students in dept CSE:**

   Query:
   create view cse_stud as
   select *
   from students s
   where s.deptcode = 'CSE';

```
MySQL  localhost:33060+ ssl  assignment1  SQL > show tables;
+-----------------------+
| Tables_in_assignment1 |
+-----------------------+
| crs_offrd             |
| crs_regd              |
| cse_stud              |
| depts                 |
| faculty               |
| students              |
+-----------------------+
6 rows in set (0.0013 sec)
```

```
MySQL  localhost:33060+ ssl  assignment1  SQL > select * from cse_stud;
+----------+----------------+------------+----------+--------+------------+
| rollno   | name           | bdate      | deptcode | hostel | perent_inc |
+----------+----------------+------------+----------+--------+------------+
| 92005101 | Oishika Dutta  | 1996-07-22 | CSE      |      4 |   370000.0 |
| 92005104 | Soumi De       | 1995-09-30 | CSE      |      4 |   330000.0 |
| 92005116 | Bhawuk Kaushik | 1994-10-31 | CSE      |      5 |   250000.0 |
| 92005132 | Chandra Shekhar| 1996-11-11 | CSE      |      7 |   108630.0 |
| 92005148 | Arnab Nath     | 1994-12-07 | CSE      |      6 |   420000.0 |
| 92005190 | Priya Samanta  | 1995-03-19 | CSE      |      3 |   240000.0 |
| 92005201 | Anish Banerjee | 1995-08-03 | CSE      |      7 |   500000.0 |
| 92005205 | Fardeen Hossain| 1995-08-10 | CSE      |      7 |   420000.0 |
| 92005224 | Vinita Yadav   | 1995-06-23 | CSE      |      3 |    70000.0 |
| 92005281 | Sourik Saha    | 1994-03-26 | CSE      |      2 |    84000.0 |
+----------+----------------+------------+----------+--------+------------+
10 rows in set (0.0011 sec)
```

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

Query:
create or replace view cse_stud as
select s.rollno, s.name, s.hostel
from students s
where deptcode = 'CSE';

Output:

```
+----------+----------------+--------+
| rollno   | name           | hostel |
+----------+----------------+--------+
| 92005101 | Oishika Dutta  |      4 |
| 92005104 | Soumi De       |      4 |
| 92005116 | Bhawuk Kaushik |      5 |
| 92005132 | Chandra Shekhar|      7 |
| 92005148 | Arnab Nath     |      6 |
| 92005190 | Priya Samanta  |      3 |
| 92005201 | Anish Banerjee |      7 |
| 92005205 | Fardeen Hossain|      7 |
| 92005224 | Vinita Yadav   |      3 |
| 92005281 | Sourik Saha    |      2 |
+----------+----------------+--------+
10 rows in set (0.0014 sec)
```

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

Query:
insert into cse_stud values (92005169, 'Anudeep', 7);

```
+----------+----------------+--------+
| rollno   | name           | hostel |
+----------+----------------+--------+
| 92005101 | Oishika Dutta  |      4 |
| 92005104 | Soumi De       |      4 |
| 92005116 | Bhawuk Kaushik |      5 |
| 92005132 | Chandra Shekhar|      7 |
| 92005148 | Arnab Nath     |      6 |
| 92005190 | Priya Samanta  |      3 |
| 92005201 | Anish Banerjee |      7 |
| 92005205 | Fardeen Hossain|      7 |
| 92005224 | Vinita Yadav   |      3 |
| 92005281 | Sourik Saha    |      2 |
+----------+----------------+--------+
10 rows in set (0.0014 sec)
```

The new inserted value is not present in cse_stud view. However, this is present in students table but bdate, deptcode and perent_inc are NULL.

```
MySQL  localhost:33060+ ssl  assignment1  SQL > select *
                                       -> from students
                                       -> where rollno = 92005169;
+----------+--------+-------+----------+--------+------------+
| rollno   | name   | bdate | deptcode | hostel | perent_inc |
+----------+--------+-------+----------+--------+------------+
| 92005169 | Anudeep | NULL  | NULL     |      7 |       NULL |
+----------+--------+-------+----------+--------+------------+
1 row in set (0.0006 sec)
```

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

We created a new view named cse_stud_inc to increment the parental income as we cannot alter the parental income from cse_stud table as perent_inc column is absent there.

```
+----------+----------------+------------+
| rollno   | name           | perent_inc |
+----------+----------------+------------+
| 92005101 | Oishika Dutta  |   370000.0 |
| 92005104 | Soumi De       |   330000.0 |
| 92005116 | Bhawuk Kaushik |   250000.0 |
| 92005132 | Chandra Shekhar|   108630.0 |
| 92005148 | Arnab Nath     |   420000.0 |
| 92005190 | Priya Samanta  |   240000.0 |
| 92005201 | Anish Banerjee |   500000.0 |
| 92005205 | Fardeen Hossain|   420000.0 |
| 92005224 | Vinita Yadav   |    70000.0 |
| 92005281 | Sourik Saha    |    84000.0 |
+----------+----------------+------------+
10 rows in set (0.0006 sec)
```

Query:
update cse_stud_inc
set perent_inc = perent_inc + 5000;

Before:

```
MySQL  localhost:33060+ ssl  assignment1  SQL > select * from cse_stud;
+----------+----------------+------------+----------+--------+------------+
| rollno   | name           | bdate      | deptcode | hostel | perent_inc |
+----------+----------------+------------+----------+--------+------------+
| 92005101 | Oishika Dutta  | 1996-07-22 | CSE      |      4 |   370000.0 |
| 92005104 | Soumi De       | 1995-09-30 | CSE      |      4 |   330000.0 |
| 92005116 | Bhawuk Kaushik | 1994-10-31 | CSE      |      5 |   250000.0 |
| 92005132 | Chandra Shekhar| 1996-11-11 | CSE      |      7 |   108630.0 |
| 92005148 | Arnab Nath     | 1994-12-07 | CSE      |      6 |   420000.0 |
| 92005190 | Priya Samanta  | 1995-03-19 | CSE      |      3 |   240000.0 |
| 92005201 | Anish Banerjee | 1995-08-03 | CSE      |      7 |   500000.0 |
| 92005205 | Fardeen Hossain| 1995-08-10 | CSE      |      7 |   420000.0 |
| 92005224 | Vinita Yadav   | 1995-06-23 | CSE      |      3 |    70000.0 |
| 92005281 | Sourik Saha    | 1994-03-26 | CSE      |      2 |    84000.0 |
+----------+----------------+------------+----------+--------+------------+
10 rows in set (0.0011 sec)
```

After:

```
+----------+----------------+------------+----------+--------+------------+
| rollno   | name           | bdate      | deptcode | hostel | perent_inc |
+----------+----------------+------------+----------+--------+------------+
| 92005101 | Oishika Dutta  | 1996-07-22 | CSE      |      4 |   375000.0 |
| 92005104 | Soumi De       | 1995-09-30 | CSE      |      4 |   335000.0 |
| 92005116 | Bhawuk Kaushik | 1994-10-31 | CSE      |      5 |   255000.0 |
| 92005132 | Chandra Shekhar| 1996-11-11 | CSE      |      7 |   113630.0 |
| 92005148 | Arnab Nath     | 1994-12-07 | CSE      |      6 |   425000.0 |
| 92005190 | Priya Samanta  | 1995-03-19 | CSE      |      3 |   245000.0 |
| 92005201 | Anish Banerjee | 1995-08-03 | CSE      |      7 |   505000.0 |
| 92005205 | Fardeen Hossain| 1995-08-10 | CSE      |      7 |   425000.0 |
| 92005224 | Vinita Yadav   | 1995-06-23 | CSE      |      3 |    75000.0 |
| 92005281 | Sourik Saha    | 1994-03-26 | CSE      |      2 |    89000.0 |
+----------+----------------+------------+----------+--------+------------+
10 rows in set (0.0005 sec)
```

This also makes changes in the students table.

```
+----------+------------------+------------+----------+--------+------------+
| rollno   | name             | bdate      | deptcode | hostel | perent_inc |
+----------+------------------+------------+----------+--------+------------+
| 92005101 | Oishika Dutta    | 1996-07-22 | CSE      |      4 |   375000.0 |
| 92005102 | Lasiewdor Rapsang| 1996-12-05 | IT       |      4 |   450000.0 |
| 92005104 | Soumi De         | 1995-09-30 | CSE      |      4 |   335000.0 |
| 92005108 | Debargha Ghosh   | 1996-09-09 | ELE      |      5 |    88630.0 |
| 92005116 | Bhawuk Kaushik   | 1994-10-31 | CSE      |      5 |   255000.0 |
| 92005132 | Chandra Shekhar  | 1996-11-11 | CSE      |      7 |   113630.0 |
| 92005147 | Anik Banerjee    | 1996-02-02 | MEC      |      6 |   500000.0 |
| 92005148 | Arnab Nath       | 1994-12-07 | CSE      |      6 |   425000.0 |
| 92005154 | Samit Das        | 1995-04-27 | MEC      |      5 |   340000.0 |
| 92005169 | Anudeep          | NULL       | NULL     |      7 |       NULL |
| 92005190 | Priya Samanta    | 1995-03-19 | CSE      |      3 |   245000.0 |
| 92005201 | Anish Banerjee   | 1995-08-03 | CSE      |      7 |   505000.0 |
```

5. **Delete the view.**

Query:
Drop view cse_stud;

```
+----------------------+
| Tables_in_assignment1 |
+----------------------+
| crs_offrd            |
| crs_regd             |
| depts                |
| faculty              |
| students             |
+----------------------+
5 rows in set (0.0012 sec)
```

Observation :
cse_stud view is deleted. students table retains the update.

Part – 2
1. **Create another view of all students in dept Mechanical Engineering (department Name).**
   The view will contain attributes namely Roll-No, Name, Department Name, Age.

Query:
create or replace view me_stud as
select s.rollno, s.name, s.deptcode, s.bdate
from students s where s.deptcode = 'MEC';

Output:

```
+----------+----------------+----------+------------+
| rollno   | name           | deptcode | bdate      |
+----------+----------------+----------+------------+
| 92005147 | Anik Banerjee  | MEC      | 1996-02-02 |
| 92005154 | Samit Das      | MEC      | 1995-04-27 |
| 92005208 | Rahul Hansda   | MEC      | 1994-12-16 |
| 92005222 | Ayush Yadav    | MEC      | 1995-10-18 |
| 92005227 | Ishika Sarkar  | MEC      | 1995-06-02 |
| 92005234 | Tanmoy Paul    | MEC      | 1996-01-12 |
| 92005250 | Arko Ghosh     | MEC      | 1994-01-01 |
| 92005262 | Debasmita Banik | MEC     | 1996-05-05 |
| 92005290 | Ustav Kumar    | MEC      | 1994-09-26 |
+----------+----------------+----------+------------+
9 rows in set (0.0013 sec)
```
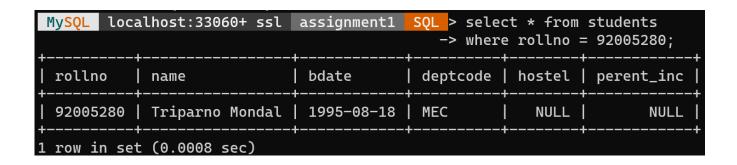
2. Insert a new student of Mechanical Engineering Department.

Query:
insert into me_stud values (92005280, 'Triparno Mondal', 'MEC', '1995-08-18');

```
+----------+----------------+----------+------------+
| rollno   | name           | deptcode | bdate      |
+----------+----------------+----------+------------+
| 92005147 | Anik Banerjee  | MEC      | 1996-02-02 |
| 92005154 | Samit Das      | MEC      | 1995-04-27 |
| 92005208 | Rahul Hansda   | MEC      | 1994-12-16 |
| 92005222 | Ayush Yadav    | MEC      | 1995-10-18 |
| 92005227 | Ishika Sarkar  | MEC      | 1995-06-02 |
| 92005234 | Tanmoy Paul    | MEC      | 1996-01-12 |
| 92005250 | Arko Ghosh     | MEC      | 1994-01-01 |
| 92005262 | Debasmita Banik| MEC      | 1996-05-05 |
| 92005280 | Triparno Mondal| MEC      | 1995-08-18 |
| 92005290 | Ustav Kumar    | MEC      | 1994-09-26 |
+----------+----------------+----------+------------+
10 rows in set (0.0009 sec)
```

No record shows in the view me_stud. However, it is added in the students table with hostel and perent_inc having null values.

```
MySQL  localhost:33060+ ssl  assignment1  SQL > select * from students
                                         -> where rollno = 92005280;
+----------+----------------+------------+----------+--------+------------+
| rollno   | name           | bdate      | deptcode | hostel | perent_inc |
+----------+----------------+------------+----------+--------+------------+
| 92005280 | Triparno Mondal| 1995-08-18 | MEC      |  NULL  |       NULL |
+----------+----------------+------------+----------+--------+------------+
1 row in set (0.0008 sec)
```

3. Delete a student (for a given Name) of the same department.

Query:
delete from me_stud
where rollno = 92005234;

Before:

```
+----------+----------------+----------+------------+
| rollno   | name           | deptcode | bdate      |
+----------+----------------+----------+------------+
| 92005147 | Anik Banerjee  | MEC      | 1996-02-02 |
| 92005154 | Samit Das      | MEC      | 1995-04-27 |
| 92005208 | Rahul Hansda   | MEC      | 1994-12-16 |
| 92005222 | Ayush Yadav    | MEC      | 1995-10-18 |
| 92005227 | Ishika Sarkar  | MEC      | 1995-06-02 |
| 92005234 | Tanmoy Paul    | MEC      | 1996-01-12 |
| 92005250 | Arko Ghosh     | MEC      | 1994-01-01 |
| 92005262 | Debasmita Banik| MEC      | 1996-05-05 |
| 92005280 | Triparno Mondal| MEC      | 1995-08-18 |
| 92005290 | Ustav Kumar    | MEC      | 1994-09-26 |
+----------+----------------+----------+------------+
10 rows in set (0.0009 sec)
```

After:

```
+----------+----------------+----------+------------+
| rollno   | name           | deptcode | bdate      |
+----------+----------------+----------+------------+
| 92005147 | Anik Banerjee  | MEC      | 1996-02-02 |
| 92005154 | Samit Das      | MEC      | 1995-04-27 |
| 92005208 | Rahul Hansda   | MEC      | 1994-12-16 |
| 92005222 | Ayush Yadav    | MEC      | 1995-10-18 |
| 92005227 | Ishika Sarkar  | MEC      | 1995-06-02 |
| 92005250 | Arko Ghosh     | MEC      | 1994-01-01 |
| 92005262 | Debasmita Banik| MEC      | 1996-05-05 |
| 92005280 | Triparno Mondal| MEC      | 1995-08-18 |
| 92005290 | Ustav Kumar    | MEC      | 1994-09-26 |
+----------+----------------+----------+------------+
9 rows in set (0.0005 sec)
```

Tuple also got deleted from the students table.

```
MySQL  localhost:33060+ ssl  assignment1  SQL > select *
                                          -> from students
                                          -> where rollno = 92005234;
Empty set (0.0005 sec)
```

4. **Shift a student (for a given Name) from Mechanical to Computer Science.**

Query:
update me_stud
set deptcode = 'CSE'
where rollno = 92005154;

Before:

```
+----------+----------------+----------+------------+
| rollno   | name           | deptcode | bdate      |
+----------+----------------+----------+------------+
| 92005147 | Anik Banerjee  | MEC      | 1996-02-02 |
| 92005154 | Samit Das      | MEC      | 1995-04-27 |
| 92005208 | Rahul Hansda   | MEC      | 1994-12-16 |
| 92005222 | Ayush Yadav    | MEC      | 1995-10-18 |
| 92005227 | Ishika Sarkar  | MEC      | 1995-06-02 |
| 92005250 | Arko Ghosh     | MEC      | 1994-01-01 |
| 92005262 | Debasmita Banik| MEC      | 1996-05-05 |
| 92005280 | Triparno Mondal| MEC      | 1995-08-18 |
| 92005290 | Ustav Kumar    | MEC      | 1994-09-26 |
+----------+----------------+----------+------------+
9 rows in set (0.0005 sec)
```

After:

```
+----------+----------------+----------+------------+
| rollno   | name           | deptcode | bdate      |
+----------+----------------+----------+------------+
| 92005147 | Anik Banerjee  | MEC      | 1996-02-02 |
| 92005208 | Rahul Hansda   | MEC      | 1994-12-16 |
| 92005222 | Ayush Yadav    | MEC      | 1995-10-18 |
| 92005227 | Ishika Sarkar  | MEC      | 1995-06-02 |
| 92005250 | Arko Ghosh     | MEC      | 1994-01-01 |
| 92005262 | Debasmita Banik| MEC      | 1996-05-05 |
| 92005280 | Triparno Mondal| MEC      | 1995-08-18 |
| 92005290 | Ustav Kumar    | MEC      | 1994-09-26 |
+----------+----------------+----------+------------+
8 rows in set (0.0006 sec)
```

```
+----------+-----------+------------+----------+--------+-----------+
| rollno   | name      | bdate      | deptcode | hostel | perent_inc |
+----------+-----------+------------+----------+--------+-----------+
| 92005154 | Samit Das | 1995-04-27 | CSE      |      5 |  340000.0 |
+----------+-----------+------------+----------+--------+-----------+
1 row in set (0.0005 sec)
```

Inferences:

1. I noticed that when attempting to insert new students directly into the cse_stud view, the inserted data did not appear in the view. This is because views in MySQL are typically read-only and do not store data. To have the data reflected in the view, it needed to be inserted into the underlying table (students).

2. I successfully updated the cse_stud_inc(another view which has perent_inc as a column) view to increment parental income by Rs. 5000, and this update also affected the underlying students table. This illustrates that views are closely tied to the base tables and changes in views propagate to the base tables.

3. Deleting the cse_stud view was straightforward, and it did not impact the underlying table (students).

4. I created another view named me_stud for students in the 'Mechanical Engineering' department.

5. Similar behavior was observed when inserting, deleting, and updating data in the me_stud view as in the case of the cse_stud view. Changes made in the views directly impacted the underlying tables.