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Week 4

1. Insert the shared data into the respective tables using appropriate insert query.

```
MariaDB [cs621_railway]> show tables;
+-----------------------+
| Tables_in_cs621_railway |
+-----------------------+
| compartment           |
| fare                  |
| payment_info          |
| route_info            |
| ticket                |
| ticket_passenger      |
| train                 |
| train_user            |
| user_phone            |
| user_train            |
+-----------------------+
10 rows in set (0.001 sec)
```

2. Calculate and update age attribute in User Table.

```
MariaDB [cs621_railway]> update train_user set age=date_format(from_days(datediff(now(), DOB)), '%Y')+0;
Query OK, 33 rows affected (0.058 sec)
Rows matched: 33  Changed: 33  Warnings: 0
```

```
MariaDB [cs621_railway]> select * from train_user;
+---------+-----------+------------+-----------+------+------------+---------+---------------------------+
| user_id | user_type | firstname  | lastname  | age  | dob        | pincode | street_number             |
+---------+-----------+------------+-----------+------+------------+---------+---------------------------+
| ADM_001 | ADMIN     | Narendra   | Modi      |   33 | 1989-04-14 | 600047  | Old Jail Road             |
| ADM_002 | ADMIN     | Droupadi   | Murmu     |   32 | 1990-04-14 | 640012  | High Street               |
| ADM_003 | ADMIN     | Manmohan   | Singh     |   31 | 1991-04-08 | 575003  | Pumpwell Road             |
| USR_001 | PSGR      |      Ajit  | Ullal     |   51 | 1971-01-01 | 560001  | 10, Janpath               |
| USR_002 | PSGR      | Muhammed   | Ali       |   21 | 2000-10-09 | 560003  | 10, Downing               |
| USR_003 | PSGR      | Sai Deepak | Reddy     |   25 | 1996-12-12 | 600001  | 14, Kailsh Marg           |
| USR_004 | PSGR      | Rudra      | Agarwal   |   25 | 1996-12-13 | 600042  | 5, Lohia Garden           |
| USR_005 | PSGR      | Rahul      | Khanna    |   24 | 1997-12-14 | 600067  | 1, Pink Street            |
| USR_006 | PSGR      | Nirmala    | Seturaman |   23 | 1998-12-15 | 560105  | 3, Blue Avenue            |
| USR_007 | PSGR      | Smriti     | Irani     |   22 | 1999-12-16 | 575014  | 4, Banyan Avenie          |
| USR_008 | PSGR      | Ajit       | Sethi     |   56 | 1966-04-14 | 575001  | 6, Poes Garden            |
| USR_009 | PSGR      | Arjun      | Allu      |   55 | 1967-04-08 | 575020  | 7, Dhamaka street         |
| USR_010 | PSGR      | Samanta    | Prabhu    |   54 | 1968-04-14 | 600042  | 8, Clone Colony           |
| USR_011 | PSGR      | Kiran      | Bedi      |   53 | 1969-04-14 | 560003  | 56, Brigade Road          |
| USR_012 | PSGR      | Rahul      | Gandhi    |   52 | 1970-04-08 | 475001  | Mirza road                |
| USR_013 | PSGR      | Rashkit    | Shetty    |   51 | 1971-04-14 | 560009  | JC Road                   |
| USR_014 | PSGR      | Rishi      | Sunak     |   50 | 1972-04-14 | 600034  | Anna Sali                 |
| USR_015 | PSGR      | Vedavalli  | Srinath   |   49 | 1973-04-14 | 560054  | Church Street, Bangalore  |
| USR_016 | PSGR      | Subbu      | Saravana  |   48 | 1974-04-14 | 600043  | American Street           |
| USR_017 | PSGR      | Sheela     | Dixit     |   47 | 1975-04-08 | 560048  | Kasturba Road             |
```

3. Display all the route information whose distance falls in a range from 70 to 150 km.

```
MariaDB [cs621_railway]> select * from route_info where distance between 70 and 150;
+----------------+--------------+------------------+----------------+----------+----------+
| from_station_no | to_station_no | from_station_name | to_station_name | distance | train_no |
+----------------+--------------+------------------+----------------+----------+----------+
|              1 |            2 | Mangaluru        | Kannur         |      131 |    25260 |
|              4 |            4 | Palakkad         | Chennai        |      130 |    25260 |
|              1 |            2 | Chennai          | Palakkad       |      130 |    25261 |
|              3 |            4 | Kannur           | Mangaluru      |      131 |    25261 |
|              3 |            4 | Mysore           | Bengaluru      |      139 |    58450 |
|              1 |            2 | Bengaluru        | Mysore         |      139 |    58451 |
|              1 |            2 | Chennai          | Sholingur      |       90 |    62620 |
|              1 |            3 | Chennai          | Katpadi        |      129 |    62620 |
|              4 |            5 | Bangarpet        | Bengaluru      |       71 |    62620 |
|              1 |            2 | Bengaluru        | Bangarpet      |       71 |    62621 |
|              3 |            5 | Katpadi          | Chennai        |      130 |    62621 |
|              4 |            5 | Sholingur        | Chennai        |       90 |    62621 |
+----------------+--------------+------------------+----------------+----------+----------+
12 rows in set (0.003 sec)
```

4. Display the train route information which are run between Chennai and Sholingur

```
MariaDB [cs621_railway]> select * from route_info where from_station_name='Chennai' and to_station_name='Shol
ingur';
+----------------+--------------+------------------+----------------+----------+----------+
| from_station_no | to_station_no | from_station_name | to_station_name | distance | train_no |
+----------------+--------------+------------------+----------------+----------+----------+
|              1 |            2 | Chennai          | Sholingur      |       90 |    62620 |
+----------------+--------------+------------------+----------------+----------+----------+
1 row in set (0.002 sec)
```

5. Display the train details whose type is not mail.

```
MariaDB [cs621_railway]> select *from train where train_type<>'Mail';
+----------+------------------+------------+-----------+-------------+--------------+
| train_no | train_name       | train_type | source    | destination | availability |
+----------+------------------+------------+-----------+-------------+--------------+
|    58450 | MAN-BEN Express  | Fast       | Mangaluru | Bengaluru   | yes          |
|    58451 | BEN-MAN Express  | Fast       | Bengaluru | Mangaluru   | yes          |
|    62620 | CHE-BEN Shatabdi | Superfast  | Chennai   | Bengaluru   | No           |
|    62621 | BEN-CHE Shatabdi | Superfast  | Bengaluru | Chennai     | yes          |
+----------+------------------+------------+-----------+-------------+--------------+
4 rows in set (0.001 sec)
```

6. Display the train name which goes to Chennai from Bangalore.

```
MariaDB [cs621_railway]> select train_name from train where source='Bengaluru' and destination='Chennai';
+------------------+
| train_name       |
+------------------+
| BEN-CHE Shatabdi |
+------------------+
1 row in set (0.000 sec)
```

7. Display the list of trains starting from Chennai after 8:00.

```
MariaDB [cs621_railway]> select * from ticket where departure='Chennai' and departure_time>'8';
+--------+----------+------------+-----------+-----------+----------------+--------------+--------------+-----------+------------------+--------------+
| pnr    | train_no | travel_date | departure | arrival   | departure_time | arrival_time | passenger_id | train_type | compartment_type | compartment_no |
+--------+----------+------------+-----------+-----------+----------------+--------------+--------------+-----------+------------------+--------------+
| PNR002 |    62620 | 2022-08-14 | Chennai   | Bengaluru | 08:00:00       | 12:25:00     | ADM_001      | Superfast | I Class          | F02          |
| PNR003 |    25261 | 2022-08-01 | Chennai   | Mangaluru | 18:00:00       | 07:30:00     | ADM_003      | Mail      | III Class        | G02          |
| PNR008 |    62620 | 2022-08-02 | Chennai   | Bangarpet | 08:00:00       | 09:00:00     | ADM_002      | Superfast | I Class          | F01          |
+--------+----------+------------+-----------+-----------+----------------+--------------+--------------+-----------+------------------+--------------+
3 rows in set (0.007 sec)
```

8. Display the list of users who are born between 1980 to 1990.

```
MariaDB [cs621_railway]> select * from train_user where dob between '1980-01-01' and '1990-12-31';
+---------+-----------+-----------+----------+------+------------+---------+----------------------+
| user_id | user_type | firstname | lastname | age  | dob        | pincode | street_number        |
+---------+-----------+-----------+----------+------+------------+---------+----------------------+
| ADM_001 | ADMIN     | Narendra  | Modi     |   33 | 1989-04-14 | 600047  | Old Jail Road        |
| ADM_002 | ADMIN     | Droupadi  | Murmu    |   32 | 1990-04-14 | 640012  | High Street          |
| USR_022 | PSGR      | Srihari   | Udupa    |   42 | 1980-04-14 | 560015  | Suranjan Das Road    |
| USR_023 | PSGR      | Satish    | Kotian   |   41 | 1981-04-14 | 600044  | T Nagar              |
| USR_024 | PSGR      | Shradha   | Nayar    |   40 | 1982-04-08 | 560006  | M G Road, Bangalore  |
| USR_025 | PSGR      | Manisha   | Solanki  |   39 | 1983-04-08 | 575030  | M G Road             |
| USR_026 | PSGR      | Bharti    | Devgan   |   38 | 1984-04-14 | 560059  | NAL Wind Tunnel Road |
| USR_027 | PSGR      | Roopa     | Ram      |   37 | 1985-04-14 | 575023  | Bunder Road          |
| USR_028 | PSGR      | Pallavi   | Ram      |   36 | 1986-04-08 | 560044  | Lavelle Road         |
| USR_029 | PSGR      | Ravi      | Naik     |   35 | 1987-04-14 | 600045  | Thiru V ka Salai     |
| USR_030 | PSGR      | Virat     | Murthy   |   34 | 1988-04-14 | 575011  | Bejai New Road       |
+---------+-----------+-----------+----------+------+------------+---------+----------------------+
11 rows in set (0.000 sec)
```

9. Display the train users whose name starts with the letter 'S'

```
MariaDB [cs621_railway]> select * from train_user where firstname like 'S%';
+---------+-----------+------------+----------+------+------------+---------+----------------------------+
| user_id | user_type | firstname  | lastname | age  | dob        | pincode | street_number              |
+---------+-----------+------------+----------+------+------------+---------+----------------------------+
| USR_003 | PSGR      | Sai Deepak | Reddy    |   25 | 1996-12-12 | 600001  | 14, Kailsh Marg            |
| USR_007 | PSGR      | Smriti     | Irani    |   22 | 1999-12-16 | 575014  | 4, Banyan Avenie           |
| USR_010 | PSGR      | Samanta    | Prabhu   |   54 | 1968-04-14 | 600042  | 8, Clone Colony            |
| USR_016 | PSGR      | Subbu      | Saravana |   48 | 1974-04-14 | 600043  | American Street            |
| USR_017 | PSGR      | Sheela     | Dixit    |   47 | 1975-04-08 | 560048  | Kasturba Road              |
| USR_021 | PSGR      | Suma       | Sampat   |   43 | 1979-04-08 | 560012  | Old Airport Road, Bangalore|
| USR_022 | PSGR      | Srihari    | Udupa    |   42 | 1980-04-14 | 560015  | Suranjan Das Road          |
| USR_023 | PSGR      | Satish     | Kotian   |   41 | 1981-04-14 | 600044  | T Nagar                    |
| USR_024 | PSGR      | Shradha    | Nayar    |   40 | 1982-04-08 | 560006  | M G Road, Bangalore        |
+---------+-----------+------------+----------+------+------------+---------+----------------------------+
9 rows in set (0.000 sec)
```

10. Find the availability of I Class compartment of the train number 62621

```
MariaDB [cs621_railway]> select availability from compartment where compartment_type='I Class' and train_num
ber=62621;
+--------------+
| availability |
+--------------+
|            6 |
+--------------+
1 row in set (0.000 sec)
```

11. Find the PNR and Transaction ID of the users who made payment via Union Bank.

```
MariaDB [cs621_railway]> select pnr, transaction_no from payment_info where bank='Union Bank';
+--------+----------------+
| pnr    | transaction_no |
+--------+----------------+
| PNR012 |         243535 |
| PNR015 |         758900 |
| PNR010 |         867546 |
| PNR003 |         978776 |
+--------+----------------+
4 rows in set (0.003 sec)
```

Task 2:

1. Grant privileges on different tables to users and observe the effect.

```
MariaDB [cs621_railway]> create user customer identified by 'customer';
Query OK, 0 rows affected (0.004 sec)

MariaDB [cs621_railway]> grant select on ticket to customer;
Query OK, 0 rows affected (0.001 sec)
```

```
C:\xampp\mysql\bin>mysql -u customer -p
Enter password: ********
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 13
Server version: 10.4.24-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

```
MariaDB [(none)]> use cs621_railway;
Database changed
MariaDB [cs621_railway]> show tables;
+-------------------------+
| Tables_in_cs621_railway |
+-------------------------+
| ticket                  |
+-------------------------+
1 row in set (0.001 sec)
```

```
MariaDB [cs621_railway]> update ticket set train_no=0;
ERROR 1142 (42000): UPDATE command denied to user 'customer'@'localhost' for table 'ticket'
MariaDB [cs621_railway]>
```

2. Revoke UPDATE & DELETE privileges on any tables and observe the effect if any deletion/updation is performed.

```
MariaDB [(none)]> use cs621_railway;
Database changed
MariaDB [cs621_railway]> show tables;
+-------------------------+
| Tables_in_cs621_railway |
+-------------------------+
| ticket                  |
| train                   |
+-------------------------+
2 rows in set (0.001 sec)
```

```
MariaDB [cs621_railway]> update train set train_type='NMail' where train_type='Mail';
Query OK, 2 rows affected (0.004 sec)
Rows matched: 2  Changed: 2  Warnings: 0

MariaDB [cs621_railway]> select * from train;
+----------+------------------+-----------+-----------+-------------+--------------+
| train_no | train_name       | train_type| source    | destination | availability |
+----------+------------------+-----------+-----------+-------------+--------------+
|    25260 | Chennai Mail     | NMail     | Mangaluru | Chennai     | Yes          |
|    25261 | Managaluru Mail  | NMail     | Chennai   | Mangaluru   | Yes          |
|    58450 | MAN-BEN Express  | Fast      | Mangaluru | Bengaluru   | yes          |
|    58451 | BEN-MAN Express  | Fast      | Bengaluru | Mangaluru   | yes          |
|    62620 | CHE-BEN Shatabdi | Superfast | Chennai   | Bengaluru   | No           |
|    62621 | BEN-CHE Shatabdi | Superfast | Bengaluru | Chennai     | yes          |
+----------+------------------+-----------+-----------+-------------+--------------+
6 rows in set (0.000 sec)
```

```
MariaDB [cs621_railway]> revoke update,delete on train from customer;
Query OK, 0 rows affected (0.002 sec)

MariaDB [cs621_railway]> quit;
Bye

MariaDB [cs621_railway]> update train set train_type='NMail' where train_type='Mail';
ERROR 1142 (42000): UPDATE command denied to user 'customer'@'localhost' for table 'train'
```

3. Create different save points and perform some insert/update/delete operations. Observe the effect of commit & rollback operations and release any created savepoints.

```
MariaDB [cs621_railway]> insert into train values(1, 'Abcd', 'Mail', 'Bengaluru', 'Chennai', 7);
Query OK, 1 row affected (0.003 sec)

MariaDB [cs621_railway]> savepoint a;
Query OK, 0 rows affected (0.000 sec)

MariaDB [cs621_railway]> insert into train values(1, 'Abcd', 'Mail', 'Bengaluru', 'Chennai', 7);
Query OK, 1 row affected (0.051 sec)

MariaDB [cs621_railway]> savepoint a;
Query OK, 0 rows affected (0.000 sec)

MariaDB [cs621_railway]> select * from train;
+----------+-----------------+-----------+-----------+-------------+--------------+
| train_no | train_name      | train_type| source    | destination | availability |
+----------+-----------------+-----------+-----------+-------------+--------------+
|        1 | Abcd            | Mail      | Bengaluru | Chennai     | 7            |
|    25260 | Chennai Mail    | NMail     | Mangaluru | Chennai     | Yes          |
|    25261 | Managaluru Mail | NMail     | Chennai   | Mangaluru   | Yes          |
|    58450 | MAN-BEN Express | Fast      | Mangaluru | Bengaluru   | yes          |
|    58451 | BEN-MAN Express | Fast      | Bengaluru | Mangaluru   | yes          |
|    62620 | CHE-BEN Shatabdi| Superfast | Chennai   | Bengaluru   | No           |
|    62621 | BEN-CHE Shatabdi| Superfast | Bengaluru | Chennai     | yes          |
+----------+-----------------+-----------+-----------+-------------+--------------+
7 rows in set (0.000 sec)

MariaDB [cs621_railway]> insert into train values(2, 'Dcef', 'Mail', 'Bengaluru', 'Chennai', 4);
Query OK, 1 row affected (0.000 sec)

MariaDB [cs621_railway]> savepoint b;
Query OK, 0 rows affected (0.000 sec)

MariaDB [cs621_railway]> insert into train values(3, 'ghij', 'NMail', 'Bengaluru', 'Chennai', 6);
Query OK, 1 row affected (0.000 sec)
```

```
MariaDB [cs621_railway]> rollback to b;
Query OK, 0 rows affected (0.000 sec)

MariaDB [cs621_railway]> select * from train;
+----------+-----------------+-----------+-----------+-------------+--------------+
| train_no | train_name      | train_type| source    | destination | availability |
+----------+-----------------+-----------+-----------+-------------+--------------+
|        1 | Abcd            | Mail      | Bengaluru | Chennai     | 7            |
|        2 | Dcef            | Mail      | Bengaluru | Chennai     | 4            |
|    25260 | Chennai Mail    | NMail     | Mangaluru | Chennai     | Yes          |
|    25261 | Managaluru Mail | NMail     | Chennai   | Mangaluru   | Yes          |
|    58450 | MAN-BEN Express | Fast      | Mangaluru | Bengaluru   | yes          |
|    58451 | BEN-MAN Express | Fast      | Bengaluru | Mangaluru   | yes          |
|    62620 | CHE-BEN Shatabdi| Superfast | Chennai   | Bengaluru   | No           |
|    62621 | BEN-CHE Shatabdi| Superfast | Bengaluru | Chennai     | yes          |
+----------+-----------------+-----------+-----------+-------------+--------------+
8 rows in set (0.000 sec)

MariaDB [cs621_railway]> commit;
Query OK, 0 rows affected (0.076 sec)

MariaDB [cs621_railway]> select * from train;
+----------+-----------------+-----------+-----------+-------------+--------------+
| train_no | train_name      | train_type| source    | destination | availability |
+----------+-----------------+-----------+-----------+-------------+--------------+
|        1 | Abcd            | Mail      | Bengaluru | Chennai     | 7            |
|        2 | Dcef            | Mail      | Bengaluru | Chennai     | 4            |
|    25260 | Chennai Mail    | NMail     | Mangaluru | Chennai     | Yes          |
|    25261 | Managaluru Mail | NMail     | Chennai   | Mangaluru   | Yes          |
|    58450 | MAN-BEN Express | Fast      | Mangaluru | Bengaluru   | yes          |
|    58451 | BEN-MAN Express | Fast      | Bengaluru | Mangaluru   | yes          |
|    62620 | CHE-BEN Shatabdi| Superfast | Chennai   | Bengaluru   | No           |
|    62621 | BEN-CHE Shatabdi| Superfast | Bengaluru | Chennai     | yes          |
+----------+-----------------+-----------+-----------+-------------+--------------+
8 rows in set (0.000 sec)
```