DBMS-LAB 4 RAILWAY RESERVATION

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Task-1:

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

2. Calculate and update the age attribute in User Table.

```
MariaDB [cs_pes1ug20cs648_railways]> UPDATE train_user SET Age=Date_FORMAT(FROM_DAYS(DATEDIFF(now(),DOB)),'%Y')+0;
Query OK, 33 rows affected (0.014 sec)
Rows matched: 33 Changed: 33 Warnings: 0
MariaDB [cs_pes1ug20cs648_railways]> select * from train_user;
 | user_id | user_type | firstname | lastname | age | dob
                                                                                                          | pincode | street_number
ADM_002 | ADM]
| ADM_003 | ADMI
USR_001 | PSGR
USR_002 | PSGR
USR_003 | PSGR
USR_003 | PSGR
                  ADMIN
                                                                                        1989-04-14 |
                                                                                                            600047
                                                                                                                            Old Jail Road
                                                                                                            640012
575003
560001
                                     Droupadi
                                                                                        1990-04-14
                                                          Murmu
                                                                                                                             High Street
                                                         Singh
Ullal
                  ADMIN
                                     Manmohan
                                                                               31
51
                                                                                        1991-04-08
                                                                                                                             Pumpwell Road
                                                                                        1971-01-01
                                                                                                                             10, Janpath
                                                         Ali
Reddy
                                                                               21
25
                                                                                        2000-10-09
1996-12-12
                                                                                                            560003
600001
                                                                                                                            10, Downing
14, Kailsh Marg
                                     Muhammed
                                     Sai Deepak
   USR_004
USR_005
                                     Rudra
Rahul
                                                          Agarwal
Khanna
                                                                                        1996-12-13
1997-12-14
                                                                                                            600042
600067
                                                                                                                            5, Lohia Garden
                  PSGR
                                                                                                                            1, Pink Street
                                                                                24
   USR_006
USR_007
                                     Nirmala
Smriti
                                                                                23
22
56
55
                                                                                       1998-12-15
1999-12-16
1966-04-14
1967-04-08
                                                                                                            560105
575014
                                                                                                                            3, Blue Avenue
4, Banyan Avenie
                  PSGR
                                                          Seturamar
                  PSGR
                                                          Irani
                                     Ajit
Arjun
Samanta
   USR_008
USR_009
                                                         Sethi
Allu
                                                                                                                                 Poes Garden
Dhamaka street
                  PSGR
                                                                                                            575001
                  PSGR
                                                                                                            575020
  USR_010
USR_011
USR_012
USR_013
                                                                                       1968-04-14 |
1969-04-14 |
1970-04-08 |
1971-04-14 |
                  PSGR
                                                         Prabhu
Bedi
                                                                                                            600042
560003
                                                                                                                            8, Clone Colony
56, Brigade Road
                                                                                54
53
52
51
50
                  PSGR
                                     Kiran
                                     Rahul
Rashkit
                                                          Gandhi
Shetty
                  PSGR
                                                                                                            475001
               PSGR
                                                                                                            560009
                                                                                                                            JC Road
  USR_013 |
USR_014 | PSGR
USR_015 | PSGR
USR_016 | PSGR
                                                                                        1972-04-14 |
1973-04-14 |
                                                                                                            600034
560054
                                                                                                                             Anna Sali
                                     Vedavalli
                                                                                                                            Church Street, Bangalore
American Street
Kasturba Road
New BEL Road
                                                          Srinath
                                                                                49
                                                                                                            600043
560048
                                                                                        1974-04-14
  USR_017 | PSGR
USR_018 | PSGR
USR_019 | PSGR
USR_020 | PSGR
                                                                                        1975-04-08
1976-04-14
                                     Sheela
                                                         Dixit
                                                                                                            560008
                                     Margaret
                                                                                        1977-04-14 |
1978-04-14 |
                                     Arun
Anshu
                                                          Kumar
                                                                                45
                                                                                                            600046
                                                                                                                            Mint Street
KSR Road
                                                          Bhardwaj
                                                                                                            575001
  USR_021 | PSGR
USR_022 | PSGR
USR_023 | PSGR
                                     Suma
                                                         Sampat
Udupa
                                                                                43
                                                                                        1979-04-08
1980-04-14
                                                                                                            560012
560015
                                                                                                                            Old Airport Road, Bangalore
Suranjan Das Road
                                     Srihari
                                                                                42
                                                                                        1981-04-14 |
1982-04-08 |
   USR_023
USR_024
                                                                                                                             T Nagar
M G Road, Bangalore
                                     Satish
                                                          Kotian
                                                                                                            600044
                                     Shradha
                                                                                                            560006
                  PSGR
                                                                                40
                                                          Nayar
   USR_025
USR_026
                  PSGR
                                     Manisha
Bharti
                                                          Solanki
                                                                                39
38
                                                                                        1983-04-08
1984-04-14
                                                                                                            575030
560059
                                                                                                                             M G Road
NAL Wind Tunnel Road
                  PSGR
                                                          Devgan
  USR_027
USR_028
                                     Roopa
Pallavi
                                                         Ram
Ram
                                                                                37
36
                                                                                                                            Bunder Road
Lavelle Road
                  PSGR
                                                                                        1985-04-14
                                                                                                            575023
                  PSGR
                                                                                        1986-04-08
                                                                                                            560044
  USR_029 | PSGR
USR_030 | PSGR
                                     Ravi
Virat
                                                         Naik
Murthy
                                                                                35
34
                                                                                        1987-04-14 |
1988-04-14 |
                                                                                                            600045
575011
                                                                                                                            Thiru V ka Salai
Bejai New Road
33 rows in set (0.001 sec)
```

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

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

4. Display the train route information which is run between Chennai to Sholingur

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

```
MariaDB [cs_pes1ug20cs648_railways]> select* from train where train_type not in ('Mail');
  train_no
             train_name
                                train_type |
                                                          destination
                                                                        availability
                                              source
             MAN-BEN Express
                                              Mangaluru
     58450
                                Fast
                                                          Bengaluru
                                                                        yes
             BEN-MAN Express
     58451
                                              Bengaluru
                                Fast
                                                          Mangaluru
                                                                        yes
     62620
             CHE-BEN Shatabdi
                                Superfast
                                              Chennai
                                                          Bengaluru
                                                                        No
                                Superfast
                                              Bengaluru
             BEN-CHE Shatabdi
     62621
                                                          Chennai
                                                                        yes
4 rows in set (0.001 sec)
```

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

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

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

```
MariaDB [cs_pes1ug20cs648_railways]> select* from train_user where dob between ('1980-01-01') and ('1990-12-30');
 user_id | user_type | firstname |
                                     lastname |
                                                age
                                                      I dob
                                                                    | pincode | street_number
 ADM 001
            ADMIN
                        Narendra
                                     Modi
                                                   33
                                                        1989-04-14
                                                                     600047
                                                                                Old Jail Road
 ADM_002
                                                        1990-04-14
            ADMTN
                        Droupadi
                                     Murmu
                                                   32
                                                                     640012
                                                                                High Street
 USR_022
USR_023
                                                       1980-04-14
                                                                     560015
                                                                                Suranjan Das Road
            PSGR
                        Srihari
                                     Udupa
                                                   42
                                                        1981-04-14
                                                                     600044
            PSGR
                        Satish
                                     Kotian
                                                   41
                                                                                T Nagar
 USR_024
            PSGR
                        Shradha
                                     Nayar
                                                   40
                                                        1982-04-08
                                                                     560006
                                                                                M G Road, Bangalore
 USR_025
                                     Solanki
            PSGR
                        Manisha
                                                   39
                                                       1983-04-08
                                                                     575030
                                                                                M G Road
 USR_026
            PSGR
                        Bharti
                                     Devgan
                                                        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
                                                        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 (0.001 sec)
```

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

```
MariaDB [cs_pes1ug20cs648_railways]> select * from train_user where firstname like 'S%';
                        firstname
                                      lastname
 user_id |
           user_type |
                                                       l dob
                                                                       pincode
                                                                                  street number
                                                  age
  USR_003
            PSGR
                         Sai Deepak
                                                         1996-12-12
                                                                       600001
                                                                                  14, Kailsh Marg
                                       Reddy
 USR_007
USR_010
            PSGR
                         Smriti
                                      Irani
                                                    22
                                                         1999-12-16
                                                                       575014
                                                                                    Banyan Avenie
                                      Prabhu
                                                         1968-04-14
            PSGR
                         Samanta
                                                    54
                                                                       600042
                                                                                    Clone Colony
  USR_016
            PSGR
                         Subbu
                                      Saravana
                                                    48
                                                         1974-04-14
                                                                       600043
                                                                                  American Street
  USR_017
            PSGR
                         Sheela
                                                    47
                                                         1975-04-08
                                                                       560048
                                                                                  Kasturba Road
                                      Dixit
 USR_021
            PSGR
                                                         1979-04-08
                                                                       560012
                                                                                  Old Airport Road, Bangalore
                         Suma
                                      Sampat
                                                    43
 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
                                                                                  M G Road, Bangalore
 USR_024
            PSGR
                         Shradha
                                      Nayar
                                                    40
                                                         1982-04-08
                                                                       560006
 rows in set (0.001 sec)
```

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

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

Task-1:

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

Create users

```
MariaDB [cs_pes1ug20cs648_railways]> create user user1 identified by 'user1';
Query OK, 0 rows affected (0.008 sec)

MariaDB [cs_pes1ug20cs648_railways]> create user user2 identified by 'user2';
Query OK, 0 rows affected (0.012 sec)
```

Checking if database can be accessed

```
C:\xampp\mysql\bin>mysql -u user1 -p
Enter password: *****
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 49
Server version: 10.4.21-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 cs_pes1ug20cs648_railways;
ERROR 1044 (42000): Access denied for user 'user1'@'%' to database 'cs_pes1ug20cs648_railways'
MariaDB [(none)]> |
```

Granting select privilege on train table and create privilege on compartment table

```
MariaDB [cs_pes1ug20cs648_railways]> GRANT SELECT ON cs_pes1ug20cs648_railways.train TO user1; Query OK, 0 rows affected (0.008 sec)

MariaDB [cs_pes1ug20cs648_railways]> GRANT CREATE ON cs_pes1ug20cs648_railways.compartment TO user1; Query OK, 0 rows affected (0.001 sec)
```

Show the grants for the particular user

Select operation is working on train table

```
MariaDB [(none)]> use cs_pes1ug20cs648_railways;
Database changed
MariaDB [cs_pes1ug20cs648_railways]> select* from train;
 train_no | train_name
                                train_type
                                              source
                                                           destination
                                                                         availability
     25260
             Chennai Mail
                                              Mangaluru
                                                           Chennai
                                 Mail
                                                                         Yes
                                                           Mangaluru
     25261
             Managaluru Mail
                                 Mail
                                              Chennai
                                                                         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 (0.027 sec)
```

Select command does not work on compartment table

```
MariaDB [cs_pes1ug20cs648_railways]> select* from compartment;
ERROR 1142 (42000): SELECT command denied to user 'user1'@'localhost' for table 'compartment'
```

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

Granting update and delete privileges on compartment table

```
C:\xampp\mysql\bin>mysql -u root
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 12
Server version: 10.4.21-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 cs_peslug20cs648_railways;
Database changed
MariaDB [cs_peslug20cs648_railways]> GRANT UPDATE,DELETE ON cs_peslug20cs648_railways.compartment TO user1;
Query OK, 0 rows affected (0.004 sec)
```

Show grants

Table before updation of first value

MariaDB [cs_peslug20cs648_railways]> GRANT SELECT ON cs_peslug20cs648_railways.compartment TO user1; Query OK, 0 rows affected (0.002 sec)

MariaDB [cs_pes1ug20cs648_railways]> select* from compartment; ++ compartment_no compartment_type capacity availability train_number									
+									
F01	I Class	16	0	25260					
F01	I Class	16	0	25261					
F01	I Class	16	4	58450					
F01	I Class	16	5	58451					
F01	I Class	16	15	62620					
F01	I Class	16	6	62621					
F02	I Class	16	0	62620					
G01	III Class	60	33	25261					
G01	III Class	60	2	58450					
G01	III Class	60	40	58451					
G01	III Class	60	10	62621					
G02	III Class	60	45	25261					
G02	III Class	60	12	62621					
S01	II Class	30	15	25260					
S01	II Class	30	15	25261					
S01	II Class	30	5	58450					
S01	II Class	30	4	62621					
S02	II Class	30	17	25260					
S02	II Class	30	3	58450					
S02	II Class	30	6	62621					
+++++++									

Table after updation of value

```
MariaDB [cs_pes1ug20cs648_railways]> UPDATE compartment SET availability = 2 WHERE compartment_no= 'F01' and train_number=25260;
Query OK, 1 row affected (0.011 sec)
Rows matched: 1 Changed: 1 Warnings: 0
MariaDB [cs_pes1ug20cs648_railways]> select* from compartment;
 compartment_no | compartment_type | capacity | availability | train_number |
                       I Class
I Class
I Class
I Class
I Class
  F01
                                                      16
                                                                                        25260
  F01
                                                                                        25261
  F01
                                                                                        58450
  F01
                                                                                        58451
  F01
                                                                                        62620
  F01
                       I Class
I Class
                                                      16
                                                                         6
0
                                                                                        62621
  F02
                                                                                        62620
  G01
                                                      60
                                                                         33
                                                                                        25261
                       III Class
  G01
                       III Class
                                                      60
                                                                                        58450
                                                                        40
10
45
  G01
                       III Class
                                                      60
                                                                                        58451
  G01
G02
                                                      60
60
                       III Class
                                                                                        62621
                       III Class
                                                                                        25261
                                                                        12
15
15
                       III Class
II Class
II Class
                                                      60
30
  G02
                                                                                        62621
  S01
                                                                                        25260
  S01
                                                      30
                                                                                        25261
                       II Class
                                                      30
                                                                                        58450
                       II Class
II Class
                                                      30
                                                                                        62621
  S02
                                                      30
                                                                                        25260
  S02
                       II Class
                                                                                        58450
                                                      30
  S02
                       II Class
                                                      30
                                                                                        62621
20 rows in set (0.001 sec)
```

Revoking UPDATE and DELETE from table

MariaDB [cs_pes1ug20cs648_railways]> REVOKE UPDATE,DELETE ON cs_pes1ug20cs648_railways.compartment FROM user1; Query OK, 0 rows affected (0.001 sec)

Show grants and UPDATE does not work

MariaDB [cs_peslug20cs648_railways]> UPDATE compartment SET availability = 2 WHERE compartment_no= 'F01' and train_number=25260' ERROR 1142 (42000): UPDATE command denied to user 'userl'@'localhost' for table 'compartment'

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

Started a transaction and added savepoints and rollback and released savepoints

```
MariaDB [cs_peslug20cs648_railways]> start transaction;
Query OK, 0 rows affected (0.000 sec)

MariaDB [cs_peslug20cs648_railways]> set autocommit=0;
Query OK, 0 rows affected (0.013 sec)

MariaDB [cs_peslug20cs648_railways]> insert into compartment values('F05','I Class',100,100,25260);
Query OK, 1 row affected (0.018 sec)

MariaDB [cs_peslug20cs648_railways]> insert into compartment values('F05','II Class',200,200,25261);
Query OK, 1 row affected (0.001 sec)

MariaDB [cs_peslug20cs648_railways]> savepoint s1;
Query OK, 0 rows affected (0.011 sec)

MariaDB [cs_peslug20cs648_railways]> insert into compartment values('F06','II Class',2000,900,25261);
Query OK, 1 row affected (0.000 sec)

MariaDB [cs_peslug20cs648_railways]> rollback to s1;
Query OK, 0 rows affected (0.001 sec)
```

MariaDB [cs_pes1ug20cs648_railways]> select* from copmartment; ERROR 1146 (42S02): Table 'cs_pes1ug20cs648_railways.copmartment' doesn't exist MariaDB [cs_pes1ug20cs648_railways]> select* from compartment; compartment_no | compartment_type | capacity availability train_number F01 I Class 16 2 25260 I Class F01 16 0 25261 I Class F01 16 4 58450 I Class F01 16 5 58451 I Class F01 16 15 62620 I Class F01 16 6 62621 F02 I Class 16 0 62620 F₀5 I Class 100 100 25260 F05 II Class 200 200 25261 G01 III Class 60 33 25261 G01 III Class 60 58450 2 III Class G01 60 40 58451 G01 III Class 60 10 62621 G02 III Class 60 45 25261 III Class G02 60 12 62621 501 II Class 30 15 25260 S01 II Class 30 15 25261 II Class 5 58450 S01 30 4 S01 II Class 30 62621 17 S02 II Class 30 25260 II Class 30 58450 502 3 S₀2 II Class 30 6 62621

22 rows in set (0.000 sec)

MariaDB [cs_pes1ug20cs648_railways]> commit;
Query OK, 0 rows affected (0.011 sec)