

Lab 4 - DML – Insert, Update, Delete, Transactions - Commit, Rollback, Save point

Assignment: Railway Reservation System

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Update all the relations with required data set that have been shared.

Task-I: Use INSERT/SELECT/UPDATE queries for the following tasks:

1. Insert the shared data into the respective tables using appropriate insert query.
 - Show the usage of INSERT and LOAD DATA INFILE commands explicitly

```
MariaDB [PES1UG20CS620_RR]> show tables;
+-----+
| Tables_in_pes1ug20cs620_rr |
+-----+
| compartment                |
| fare_table                 |
| payment_info               |
| route_info                 |
| ticket                     |
| ticket_passenger           |
| train                      |
| train_user                 |
| user_phone                 |
| user_train                 |
+-----+
10 rows in set (0.004 sec)
```

2. Calculate and update age attribute in User Table.

```
MariaDB [PES1UG20CS620_RR]> select * from train_user
-> ;
```

User_ID	User_Type	Fname	Lname	Age	DOB	Pincode	Street_No
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, Banga
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_018	PSGR	Margaret	Alva	46	1976-04-14	560008	New BEL Road
USR_019	PSGR	Arun	Kumar	45	1977-04-14	600046	Mint Street
USR_020	PSGR	Anshu	Bhardwaj	44	1978-04-14	575001	KSR Road
USR_021	PSGR	Suma	Sampat	43	1979-04-08	560012	Old Airport Road, Ba
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

```
33 rows in set (0.001 sec)
```

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

```
MariaDB [PES1UG20CS620_RR]> 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
1	2	Chennai	Palakkad	130	25261
1	2	Bengaluru	Mysore	139	58451
1	2	Chennai	Sholingur	90	62620
1	2	Bengaluru	Bangarpet	71	62621
1	3	Chennai	Katpadi	129	62620
3	4	Kannur	Mangaluru	131	25261
3	4	Mysore	Bengaluru	139	58450
3	5	Katpadi	Chennai	130	62621
4	4	Palakkad	Chennai	130	25260
4	5	Bangarpet	Bengaluru	71	62620
4	5	Sholingur	Chennai	90	62621

```
12 rows in set (0.007 sec)
```

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

```
MariaDB [PES1UG20CS620_RR]> select *from route_info where From_Station_Name='Chennai' and To_Station_Name='Sholingur';
```

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 (0.008 sec)
```

- Display the train details whose type is not mail.

```
MariaDB [PES1UG20CS620_RR]> select *from train where Train_type!='Mail';
```

Train_No	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 (0.003 sec)
```

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

```
MariaDB [PES1UG20CS620_RR]> select Name from train where source='Bengaluru' and destination='Chennai';
```

Name
BEN-CHE Shatabdi

```
1 row in set (0.001 sec)
```

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

```
MariaDB [PES1UG20CS620_RR]> select * from ticket where Departure='Chennai' and Departure_Time>='08:00:00';
```

PNR	Train_No	Travel_Date	Departure	Arrival	Departure_Time	Arrival_Time	User_ID	Train_Type	Compartment_Type	Compartment_Number
PNR002	62620	0000-00-00	Chennai	Bengaluru	08:00:00	12:25:00	ADM_001	Superfast	I Class	F02
PNR003	25261	0000-00-00	Chennai	Mangaluru	18:00:00	07:30:00	ADM_003	Mail	III Class	G02
PNR008	62620	0000-00-00	Chennai	Bangarpet	08:00:00	09:00:00	ADM_002	Superfast	I Class	F01

```
3 rows in set (0.003 sec)
```

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

```
MariaDB [PES1UG20CS620_RR]> select * from train_user where DOB>='1980-00-00' and DOB<='1989-12-31';
```

User_ID	User_Type	Fname	Lname	Age	DOB	Pincode	Street_No
ADM_001	ADMIN	Narendra	Modi	33	1989-04-14	600047	Old Jail Road
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

```
10 rows in set (0.005 sec)
```

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

```
MariaDB [PES1UG20CS620_RR]> select user_id,Fname,Lname from train_user where Fname like 'S%';
```

user_id	Fname	Lname
USR_003	Sai Deepak	Reddy
USR_007	Smriti	Irani
USR_010	Samanta	Prabhu
USR_016	Subbu	Saravana
USR_017	Sheela	Dixit
USR_021	Suma	Sampat
USR_022	Srihari	Udupa
USR_023	Satish	Kotian
USR_024	Shradha	Nayar

```
9 rows in set (0.001 sec)
```

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

```
MariaDB [PES1UG20CS620_RR]> select * from compartment where Train_Number=62621 and Compartment_Type='I Class';
```

Compartment_No	Compartment_Type	Capacity	Availability	Train_Number
F01	I Class	16	6	62621

```
1 row in set (0.005 sec)
```

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

```
MariaDB [PES1UG20CS620_RR]> select PNR,Transaction_ID from Payment_info where Bank='UNION BANK';
+-----+-----+
| PNR   | Transaction_ID |
+-----+-----+
| PNR012 | 243535         |
| PNR015 | 758900         |
| PNR010 | 867546         |
| PNR003 | 978776         |
+-----+-----+
4 rows in set (0.001 sec)
```

Task-II: Use DCL and TCL statements for the following:

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

```
MariaDB [(none)]> create user 'pes1ug20cs620_rr' identified by 'adarsh';
Query OK, 0 rows affected (0.003 sec)
```

```
MariaDB [(none)]> select user from mysql.user;
+-----+
| User |
+-----+
| pes1ug20cs620_rr |
| root   |
| root   |
| pma    |
| root   |
+-----+
5 rows in set (0.001 sec)
```

Without grant.

```
C:\Windows\System32\cmd.exe - mysql -u pes1ug20cs620_rr -p
Microsoft Windows [Version 10.0.19043.2006]
(c) Microsoft Corporation. All rights reserved.

C:\xampp\mysql\bin>mysql -u pes1ug20cs620_rr -p
Enter password: *****
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 18
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 pes1ug20cs620_rr;
ERROR 1044 (42000): Access denied for user 'pes1ug20cs620_rr'@ '%' to database 'pes1ug20cs620_rr'
MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| test      |
+-----+
2 rows in set (0.001 sec)
```

Granting all permission :

```
MariaDB [(none)]> use pes1ug20cs620_rr;
Database changed
MariaDB [pes1ug20cs620_rr]> grant all on ticket to pes1ug20cs620_rr;
Query OK, 0 rows affected (0.005 sec)

MariaDB [pes1ug20cs620_rr]>
```

Displaying the grants :

```
MariaDB [(none)]> show grants;
+-----+
| Grants for pes1ug20cs620_rr@% |
+-----+
| GRANT USAGE ON *.* TO `pes1ug20cs620_rr`@`%` IDENTIFIED BY PASSWORD '*F5B748DF0BB2C2D6F3FDFC696823CBC24B715EEA' |
| GRANT ALL PRIVILEGES ON `pes1ug20cs620_rr`.`ticket` TO `pes1ug20cs620_rr`@`%` |
+-----+
2 rows in set (0.001 sec)
```

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

Before :

```
MariaDB [pes1ug20cs620_rr]> select * from fare_table;
+-----+-----+-----+
| Train_Type | Compartment_Type | FarePerKM |
+-----+-----+-----+
| Fast       | I Class          | 2.75      |
| Fast       | II Class         | 1.6       |
| Fast       | III Class        | 1.1       |
| Mail       | I Class          | 2.3       |
| Mail       | II Class         | 1.35      |
| Mail       | III Class        | 0.95      |
| Superfast  | I Class          | 3.3       |
| Superfast  | II Class         | 1.92      |
| Superfast  | III Class        | 1.32      |
+-----+-----+-----+
9 rows in set (0.003 sec)

MariaDB [pes1ug20cs620_rr]> update fare_table set FarePerKM = 2.5 where compartment_type='I Class';
Query OK, 3 rows affected (0.006 sec)
Rows matched: 3  Changed: 3  Warnings: 0

MariaDB [pes1ug20cs620_rr]> select * from fare_table;
+-----+-----+-----+
| Train_Type | Compartment_Type | FarePerKM |
+-----+-----+-----+
| Fast       | I Class          | 2.5       |
| Fast       | II Class         | 1.6       |
| Fast       | III Class        | 1.1       |
| Mail       | I Class          | 2.5       |
| Mail       | II Class         | 1.35      |
| Mail       | III Class        | 0.95      |
| Superfast  | I Class          | 2.5       |
| Superfast  | II Class         | 1.92      |
| Superfast  | III Class        | 1.32      |
+-----+-----+-----+
9 rows in set (0.001 sec)

MariaDB [pes1ug20cs620_rr]> delete from fare_table where train_type='Fast' and compartment_type='I class';
Query OK, 1 row affected (0.005 sec)

MariaDB [pes1ug20cs620_rr]> show * from fare_table;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near '* from fare_table' at line 1
MariaDB [pes1ug20cs620_rr]> select * from fare_table;
+-----+-----+-----+
| Train_Type | Compartment_Type | FarePerKM |
+-----+-----+-----+
| Fast       | II Class         | 1.6       |
| Fast       | III Class        | 1.1       |
| Mail       | I Class          | 2.5       |
| Mail       | II Class         | 1.35      |
| Mail       | III Class        | 0.95      |
| Superfast  | I Class          | 2.5       |
| Superfast  | II Class         | 1.92      |
| Superfast  | III Class        | 1.32      |
+-----+-----+-----+
8 rows in set (0.001 sec)
```

After :

```
MariaDB [pes1ug20cs620_rr]> revoke update,delete on fare_table from pes1ug20cs620_rr;  
Query OK, 0 rows affected (0.003 sec)
```

```
MariaDB [pes1ug20cs620_rr]> update fare_table set FacePerKM = 2.5 where compartment_type='I Class';  
ERROR 1054 (42S22): Unknown column 'FacePerKM' in 'field list'
```

```
MariaDB [pes1ug20cs620_rr]> update fare_table set FarePerKM = 2.5 where compartment_type='I Class';  
Query OK, 0 rows affected (0.000 sec)  
Rows matched: 2 Changed: 0 Warnings: 0
```

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 [pes1ug20cs620_rr]> start transaction;  
Query OK, 0 rows affected (0.000 sec)  
  
MariaDB [pes1ug20cs620_rr]> set autocommit = 0;  
Query OK, 0 rows affected (0.000 sec)  
  
MariaDB [pes1ug20cs620_rr]> insert into fare_table (Train_type,Compartment_Type,FarePerKM) values ('Fast','I Class',1.35  
);  
Query OK, 1 row affected (0.001 sec)  
  
MariaDB [pes1ug20cs620_rr]> savepoint s1;  
Query OK, 0 rows affected (0.000 sec)  
  
MariaDB [pes1ug20cs620_rr]> select * from fare_table;  
+-----+-----+-----+  
| Train_Type | Compartment_Type | FarePerKM |  
+-----+-----+-----+  
| Fast      | I Class          | 1.35      |  
| Fast      | II Class         | 1.6        |  
| Fast      | III Class        | 1.1        |  
| Mail      | I Class          | 2.5        |  
| Mail      | II Class         | 1.35       |  
| Mail      | III Class        | 0.95       |  
| Superfast | I Class          | 2.5        |  
| Superfast | II Class         | 1.92       |  
| Superfast | III Class        | 1.32       |  
+-----+-----+-----+  
9 rows in set (0.001 sec)  
  
MariaDB [pes1ug20cs620_rr]>  
  
MariaDB [pes1ug20cs620_rr]> insert into fare_table values('Slow', 'II Class',0.98);  
Query OK, 1 row affected (0.001 sec)  
  
MariaDB [pes1ug20cs620_rr]> delete from fare_table where train_type = 'Mail' and Compartment_type='I Class';  
Query OK, 1 row affected (0.001 sec)  
  
MariaDB [pes1ug20cs620_rr]> savepoint s2;  
Query OK, 0 rows affected (0.000 sec)  
  
MariaDB [pes1ug20cs620_rr]> select * from fare_table;  
+-----+-----+-----+  
| Train_Type | Compartment_Type | FarePerKM |  
+-----+-----+-----+  
| Fast      | I Class          | 1.35      |  
| Fast      | II Class         | 1.6        |  
| Fast      | III Class        | 1.1        |  
| Mail      | II Class         | 1.35       |  
| Mail      | III Class        | 0.95       |  
| Slow      | II Class         | 0.98       |  
| Superfast | I Class          | 2.5        |  
| Superfast | II Class         | 1.92       |  
| Superfast | III Class        | 1.32       |  
+-----+-----+-----+  
9 rows in set (0.001 sec)
```

```
MariaDB [pes1ug20cs620_rr]> insert into fare_table values('Remove','No Class',0.0);
Query OK, 1 row affected (0.000 sec)
```

```
MariaDB [pes1ug20cs620_rr]> select * from fare_table;
```

Train_Type	Compartment_Type	FarePerKM
Fast	I Class	1.35
Fast	II Class	1.6
Fast	III Class	1.1
Mail	II Class	1.35
Mail	III Class	0.95
Remove	No Class	0
Slow	II Class	0.98
Superfast	I Class	2.5
Superfast	II Class	1.92
Superfast	III Class	1.32

```
10 rows in set (0.000 sec)
```

```
MariaDB [pes1ug20cs620_rr]> rollback to s2;
```

```
Query OK, 0 rows affected (0.002 sec)
```

```
MariaDB [pes1ug20cs620_rr]> select * from fare_table;
```

Train_Type	Compartment_Type	FarePerKM
Fast	I Class	1.35
Fast	II Class	1.6
Fast	III Class	1.1
Mail	II Class	1.35
Mail	III Class	0.95
Slow	II Class	0.98
Superfast	I Class	2.5
Superfast	II Class	1.92
Superfast	III Class	1.32

```
9 rows in set (0.000 sec)
```

```
MariaDB [pes1ug20cs620_rr]>
```

```
MariaDB [pes1ug20cs620_rr]> insert into fare_table values('Remove','No Class',0.0);
Query OK, 1 row affected (0.000 sec)
```

```
MariaDB [pes1ug20cs620_rr]> select * from fare_table;
```

Train_Type	Compartment_Type	FarePerKM
Fast	I Class	1.35
Fast	II Class	1.6
Fast	III Class	1.1
Mail	II Class	1.35
Mail	III Class	0.95
Remove	No Class	0
Slow	II Class	0.98
Superfast	I Class	2.5
Superfast	II Class	1.92
Superfast	III Class	1.32

```
10 rows in set (0.000 sec)
```

```
MariaDB [pes1ug20cs620_rr]> rollback to s2;
```

```
Query OK, 0 rows affected (0.002 sec)
```

```
MariaDB [pes1ug20cs620_rr]> select * from fare_table;
```

Train_Type	Compartment_Type	FarePerKM
Fast	I Class	1.35
Fast	II Class	1.6
Fast	III Class	1.1
Mail	II Class	1.35
Mail	III Class	0.95
Slow	II Class	0.98
Superfast	I Class	2.5
Superfast	II Class	1.92
Superfast	III Class	1.32

```
9 rows in set (0.000 sec)
```

```
MariaDB [pes1ug20cs620_rr]> insert into fare_table values('Slow','II Class',0.99);
```

```
ERROR 1062 (23000): Duplicate entry 'Slow-II Class' for key 'PRIMARY'
```

```
MariaDB [pes1ug20cs620_rr]> savepoint s3;
```

```
Query OK, 0 rows affected (0.000 sec)
```

```
MariaDB [pes1ug20cs620_rr]> release savepoint s3;
```

```
Query OK, 0 rows affected (0.000 sec)
```

```
MariaDB [pes1ug20cs620_rr]> commit;
```

```
Query OK, 0 rows affected (0.004 sec)
```