

# DBMS

## LAB 4

Hita Juneja  
PES1UG20CS645  
Roll No. 27  
Section K

### Task I:

Use INSERT/SELECT/UPDATE queries for the following tasks:

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

E.g -

```
CREATE TABLE `fare` (
  `train_type` varchar(20) NOT NULL,
  `compartment_type` varchar(10) NOT NULL,
  `fare_per_km` int(11) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;

INSERT INTO `fare` (`train_type`, `compartment_type`, `fare_per_km`) VALUES
('Fast', 'I Class', 3),
('Mail', 'I Class', 2),
('Superfast', 'I Class', 3),
('Fast', 'II Class', 2),
('Mail', 'II Class', 1),
('Superfast', 'II Class', 2),
('Fast', 'III Class', 1),
('Mail', 'III Class', 1),
('Superfast', 'III Class', 1);
```

## Train Table

```
[MariaDB [pes1ug20cs645_railway]]> select * from train;
+-----+-----+-----+-----+-----+-----+
| train_no | train_name | train_type | source | destination | availability |
+-----+-----+-----+-----+-----+-----+
| 25260 | Chennai Mail | Mail | Mangaluru | Chennai | Yes |
| 25261 | Managaluru Mail | Mail | Mangaluru | Chennai | Yes |
| 58450 | MAN-BEN Express | Fast | Mangaluru | Bengaluru | yes |
| 58451 | BEN-MAN Express | Fast | Mangaluru | Bengaluru | yes |
| 62620 | CHE-BEN Shatabdi | Superfast | Bengaluru | Mangaluru | No |
| 62621 | BEN-CHE Shatabdi | Superfast | Bengaluru | Mangaluru | yes |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.012 sec)
```

## Compartment Table

```
[MariaDB [pes1ug20cs645_railway]]> 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 |
+-----+-----+-----+-----+-----+
20 rows in set (0.006 sec)
```

## Fare Table

```
[MariaDB [pes1ug20cs645_railway]]> select * from fare;
+-----+-----+-----+
| train_type | compartment_type | fare_per_km |
+-----+-----+-----+
| Fast       | I Class          | 3             |
| Mail       | I Class          | 2             |
| Superfast  | I Class          | 3             |
| Fast       | II Class         | 2             |
| Mail       | II Class         | 1             |
| Superfast  | II Class         | 2             |
| Fast       | III Class        | 1             |
| Mail       | III Class        | 1             |
| Superfast  | III Class        | 1             |
+-----+-----+-----+
9 rows in set (0.003 sec)
```

## Payment Info

```
[MariaDB [pes1ug20cs645_railway]]> select * from payment_info;
+-----+-----+-----+-----+-----+
| transaction_no | bank      | card_no    | price   | pnr     |
+-----+-----+-----+-----+-----+
| 146445        | HDFC      | 1.23433E+15 | NULL    | PNR006  |
| 243535        | UNION BANK | 2.43647E+15 | NULL    | PNR012  |
| 342344        | IOB        | 5.62357E+15 | NULL    | PNR001  |
| 354364        | CANARA BANK | 5.76879E+15 | NULL    | PNR014  |
| 531343        | SBI        | 8.95327E+15 | NULL    | PNR004  |
| 576768        | ICICI      | 7.56356E+15 | NULL    | PNR007  |
| 676756        | CANARA BANK | 7.36756E+15 | NULL    | PNR002  |
| 746745        | KOTAK      | 2.54564E+15 | NULL    | PNR008  |
| 758900        | UNION BANK | 2.43266E+15 | NULL    | PNR015  |
| 867546        | UNION BANK | 4.65769E+15 | NULL    | PNR010  |
| 867547        | SBI        | 7.46635E+15 | NULL    | PNR011  |
| 978098        | INDIAN BANK | 9.88733E+15 | NULL    | PNR005  |
| 978776        | UNION BANK | 1I54978597435874 | NULL    | PNR003  |
+-----+-----+-----+-----+
13 rows in set (0.006 sec)
```

```
MariaDB [pes1ug20cs645_railway]]>
```

## Route Info

from_station_no	to_station_no	from_station_name	to_station_name	distance	train_no
1	2	Mangaluru	Kannur	131	25260
1	3	Mangaluru	Palakkad	351	25260
1	4	Mangaluru	Chennai	481	25260
2	3	Kannur	Palakkad	220	25260
2	4	Kannur	Chennai	350	25260
4	1	Palakkad	Chennai	130	25260
1	2	Chennai	Palakkad	130	25261
1	3	Chennai	Kannur	350	25261
1	4	Chennai	Mangaluru	481	25261
2	3	Palakkad	Kannur	220	25261
2	4	Palakkad	Mangaluru	351	25261
3	1	Kannur	Mangaluru	131	25261
1	2	Mangaluru	Subramanya	195	58450
1	3	Mangaluru	Mysore	365	58450
1	4	Mangaluru	Bengaluru	504	58450
2	3	Subramanya	Mysore	170	58450
2	4	Subramanya	Bengaluru	309	58450
3	1	Mysore	Bengaluru	1.243E+11	139
1	2	Bengaluru	Mysore	1.24547E+11	139
1	3	Bengaluru	Subramanya	5.61357E+10	309
1	4	Bengaluru	Mangaluru	5.71379E+10	503
2	3	Mysore	Subramanya	8.91327E+10	170
2	4	Mysore	Mangaluru	1.751356E+11	364
3	1	Subramanya	Mangaluru	1.731756E+11	194
1	2	Chennai	Sholingur	90	62620
1	3	Chennai	Katpadi	129	62620
1	4	Chennai	Bangarpet	290	62620
1	5	Chennai	Bengaluru	1.741535E+11	361
2	3	Sholingur	Katpadi	1.981733E+10	39
2	4	Sholingur	Bangarpet	1.151378597E+10	200
2	5	Sholingur	Chennai	271	62620
3	4	Katpadi	Bangarpet	161	62620
3	5	Katpadi	Chennai	232	62620
4	5	Bangarpet	Bengaluru	71	62620
1	2	Bengaluru	Bangarpet	71	62621
1	3	Bengaluru	Katpadi	232	62621
1	4	Bengaluru	Sholingur	272	62621

## Ticket Table

PNR	Train No	Travel Date	Departure	Arrival	Departure Time	Arrival Time	Passenger ID	Train Type	Compartiment Type	Compartiment No
PNR001	62621	2022-08-07	Bengaluru	Chennai	16:00:00	20:30:00	ADM_001	Superfast	I Class	F01
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
PNR004	25260	2022-08-15	Mangaluru	Chennai	19:15:00	08:00:00	ADM_003	Mail	II Class	S02
PNR005	58451	2022-08-03	Bengaluru	Mangaluru	06:00:00	14:00:00	USR_002	Fast	III Class	G01
PNR006	58450	2033-08-04	Mangaluru	Bengaluru	08:00:00	10:15:00	USR_002	Fast	II Class	S01
PNR007	62621	2022-08-07	Bangarpet	Chennai	18:00:00	20:30:00	ADM_002	Superfast	II Class	S01
PNR008	62620	2022-08-02	Chennai	Bangarpet	08:00:00	09:00:00	ADM_002	Superfast	I Class	F01
PNR010	25260	2022-08-19	Mangaluru	Kannur	19:15:00	23:15:00	USR_007	Mail	II Class	S01
PNR011	62621	2022-08-22	Katapadi	Chennai	19:00:00	20:30:00	USR_008	Superfast	I Class	F01
PNR012	58451	2022-08-11	Subramanya	Mangaluru	11:00:00	14:00:00	USR_009	Fast	I Class	F01
PNR014	25260	2022-08-17	Kannur	Palakkad	23:15:00	04:30:00	USR_010	Mail	II Class	S01
PNR015	25260	2022-08-05	Palakkad	Chennai	04:30:00	08:00:00	USR_012	Mail	II Class	S01

## Ticket Passenger

```
MariaDB [pes1ug20cs645_railway]> select * from ticket_passenger;
+-----+-----+-----+-----+
| seat_no | name           | age   | pnr      |
+-----+-----+-----+-----+
| F01-3   | Saideepak Reddy | 27    | PNR001   |
| F01-4   | Sheela Reddy    | 25    | PNR001   |
| F02-11  | SaiDeepak Reddy | 27    | PNR002   |
| F02-12  | Sheela Reddy    | 25    | PNR002   |
| G01-50  | Anwar Hussein   | 32    | PNR003   |
| G01-51  | Karishma Husein | 12    | PNR003   |
| G02-31  | Anwar Hussein   | 32    | PNR004   |
| G02-32  | Karishma Husein | 12    | PNR004   |
| S01-10  | Hema Ullal      | 27    | PNR005   |
| S01-11  | Hima Ullal      | 28    | PNR005   |
| S01-12  | Asha Ullal      | 21    | PNR005   |
| S01-9   | Ajit Ullal      | 31    | PNR005   |
| S01-35  | Smriti Irani    | 40    | PNR006   |
| S01-14  | Christon D Souza| 27    | PNR007   |
| F01-8   | Christon D Souza| 27    | PNR008   |
| S01-25  | Samanta Prabhu  | 21    | PNR010   |
| S01-26  | Rakshita Prabhu | 21    | PNR010   |
| F01-7   | Sheela Seth      | 33    | PNR011   |
| F01-13  | Ramya R          | 45    | PNR012   |
| S01-2   | Shradha Nayar   | 20    | PNR014   |
| S01-29  | Khushi Jha        | 18    | PNR015   |
+-----+-----+-----+-----+
21 rows in set (0.002 sec)
```

## Train User Table

user_id	user_type	firstname	lastname	age	dob	pincode	street_number
ADM_001	ADMIN	Narendra	Modi	NULL	1989-04-14	600047	Old Jail Road
ADM_002	ADMIN	Droupadi	Murmu	NULL	1990-04-14	640012	High Street
ADM_003	ADMIN	Manmohan	Singh	NULL	1991-04-08	575003	Pumpwell Road
USR_001	PSGR	Ajit	Ullal	NULL	1971-01-01	560001	10, Janpath
USR_002	PSGR	Muhammed	Ali	NULL	2000-10-09	560003	10, Downing
USR_003	PSGR	Sai Deepak	Reddy	NULL	1996-12-12	600001	14, Kailsh Marg
USR_004	PSGR	Rudra	Agarwal	NULL	1996-12-13	600042	5, Lohia Garden
USR_005	PSGR	Rahul	Khanna	NULL	1997-12-14	600067	1, Pink Street
USR_006	PSGR	Nirmala	Seturaman	NULL	1998-12-15	560105	3, Blue Avenue
USR_007	PSGR	Smriti	Irani	NULL	1999-12-16	575014	4, Banyan Avenue
USR_008	PSGR	Ajit	Sethi	NULL	1966-04-14	575001	6, Poes Garden
USR_009	PSGR	Arjun	Allu	NULL	1967-04-08	575020	7, Dhamaka street
USR_010	PSGR	Samanta	Prabhu	NULL	1968-04-14	600042	8, Clone Colony
USR_011	PSGR	Kiran	Bedi	NULL	1969-04-14	560003	56, Brigade Road
USR_012	PSGR	Rahul	Gandhi	NULL	1970-04-08	475001	Mirza road
USR_013	PSGR	Rashkit	Shetty	NULL	1971-04-14	560009	JC Road
USR_014	PSGR	Rishi	Sunak	NULL	1972-04-14	600034	Anna Sali
USR_015	PSGR	Vedavalli	Srinath	NULL	1973-04-14	560054	Church Street, Bangalore
USR_016	PSGR	Subbu	Saravana	NULL	1974-04-14	600043	American Street
USR_017	PSGR	Sheela	Dixit	NULL	1975-04-08	560048	Kasturba Road
USR_018	PSGR	Margaret	Alva	NULL	1976-04-14	560008	New BEL Road
USR_019	PSGR	Arun	Kumar	NULL	1977-04-14	600046	Mint Street
USR_020	PSGR	Anshu	Bhardwaj	NULL	1978-04-14	575001	KSR Road
USR_021	PSGR	Suma	Sampat	NULL	1979-04-08	560012	Old Airport Road, Bangalore
USR_022	PSGR	Srihari	Udupa	NULL	1980-04-14	560015	Suranjan Das Road
USR_023	PSGR	Satish	Kotian	NULL	1981-04-14	600044	T Nagar
USR_024	PSGR	Shradha	Nayar	NULL	1982-04-08	560006	M G Road, Bangalore
USR_025	PSGR	Manisha	Solanki	NULL	1983-04-08	575030	M G Road
USR_026	PSGR	Bharti	Devgan	NULL	1984-04-14	560059	NAL Wind Tunnel Road
USR_027	PSGR	Roopa	Ram	NULL	1985-04-14	575023	Bunder Road
USR_028	PSGR	Pallavi	Ram	NULL	1986-04-08	560044	Lavelle Road
USR_029	PSGR	Ravi	Naik	NULL	1987-04-14	600045	Thiru V ka Salai
USR_030	PSGR	Virat	Murthy	NULL	1988-04-14	575011	Bejai New Road

33 rows in set (0.002 sec)

21 rows in set (0.002 sec)

## User Phone

MariaDB [pes1ug20cs645_railway]> select * from user_phone;			
+-----+-----+-----+			
user_id   phone_no	Outlook	Google Meet	PESU Acad
+-----+-----+-----+			
ADM_001   9845012345	Format	Tools	Extensions
ADM_001   9900123456	Help	Last edit was s	
ADM_002   9845012345	Normal text	Arial	
ADM_002   9900123456	12	12	B
ADM_003   9845012345	1	1	2
ADM_003   9900123456			
USR_001   9845012345			
USR_001   9900123456	MariaDB [pes1ug20cs645_railway]> select		
USR_002   9845012345	+-----+-----+-----+		
USR_002   9900123456	user_id   user_type   firstname   las		
USR_003   9845012345	+-----+-----+-----+		
USR_003   9900123456	ADM_001   ADMIN   Narendra   Mod		
USR_003   9900123456	ADM_002   ADMIN   Droupadi   Mur		
USR_004   9845012345	ADM_003   ADMIN   Manmohan   Sin		
USR_004   9900123456	USR_001   PSGR   Ajit   Ull		
USR_004   9900123456	USR_002   PSGR   Muhammed   Ali		
USR_005   9845012345	USR_003   PSGR   Sai Deepak   Red		
USR_005   9900123456	USR_004   PSGR   Rudra   Aga		
USR_005   9900123456	USR_005   PSGR   Rahul   Kha		
USR_006   9845012345	USR_006   PSGR   Nirmala   Set		
USR_006   9900123456	USR_007   PSGR   Smriti   Ira		
USR_006   9900123456	USR_008   PSGR   Ajit   Set		
USR_007   9845012345	USR_009   PSGR   Arjun   All		
USR_007   9900123456	USR_010   PSGR   Samanta   Pro		
USR_007   9900123456	USR_011   PSGR   Kiran   Bed		
USR_008   9845012345	USR_012   PSGR   Rahul   Gan		
USR_008   9900123456	USR_013   PSGR   Rashkit   She		
USR_009   9845012345	USR_014   PSGR   Rishi   Sun		
USR_009   9900123456	USR_015   PSGR   Vedavalli   Sri		
USR_010   9845012345	USR_016   PSGR   Subbu   Sar		
USR_010   9900123456	USR_017   PSGR   Sheela   Dix		
USR_011   9845012345	USR_018   PSGR   Margaret   Alv		
USR_011   9900123456	USR_019   PSGR   Arun   Kum		
USR_012   9845012345	USR_020   PSGR   Anshu   Bha		
USR_012   9900123456	USR_021   PSGR   Suma   Sam		
USR_013   9845012345	USR_022   PSGR   Srihari   Udu		
USR_013   9900123456	USR_023   PSGR   Satish   Kot		
USR_014   9845012345	USR_024   PSGR   Shradha   Nay		
USR_014   9900123456	USR_025   PSGR   Manisha   Sol		
USR_015   9845012345	USR_026   PSGR   Bharti   Dev		
USR_015   9900123456	USR_027   PSGR   Roopa   Ram		
USR_016   9845012345	USR_028   PSGR   Pallavi   Rom		
USR_016   9900123456	USR_029   PSGR   Ravi   Nai		
USR_017   9845012345	USR_030   PSGR   Virat   Mur		
USR_017   9900123456	+-----+-----+-----+		
	33 rows in set (0.002 sec)		

USR_014	9900123456	
USR_015	9845012345	
USR_015	9900123456	
USR_016	9845012345	
USR_016	9900123456	
USR_017	9845012345	
USR_017	9900123456	
USR_018	9845012345	
USR_018	9900123456	
USR_019	9845012345	
USR_019	9900123456	
USR_020	9845012345	
USR_020	9900123456	
USR_021	9845012345	
USR_021	9900123456	
USR_022	9845012345	
USR_022	9900123456	
USR_023	9845012345	
USR_023	9900123456	
USR_024	9845012345	
USR_024	9900123456	
USR_025	9845012345	
USR_025	9900123456	
USR_026	9845012345	
USR_026	9900123456	
USR_027	9845012345	
USR_027	9900123456	
USR_028	9845012345	
USR_028	9900123456	
USR_029	9845012345	
USR_029	9900123456	
USR_030	9845012345	
USR_030	9900123456	

## User Train Table

```
MariaDB [pes1ug20cs645_railway]> select * from user_train;
+-----+-----+-----+
| user_id | train_id | date_time_stamp |
+-----+-----+-----+
| ADM_001 | 25261 | 2022-07-22 08:08:48 |
| ADM_001 | 25261 | 2022-07-22 08:08:54 |
| ADM_001 | 25261 | 2022-07-22 08:09:09 |
| ADM_001 | 58450 | 2022-07-22 08:09:00 |
| ADM_001 | 58451 | 2022-07-22 08:09:03 |
| ADM_001 | 58451 | 2022-07-22 08:09:12 |
| ADM_001 | 62620 | 2022-07-22 08:08:51 |
| ADM_001 | 62620 | 2022-07-22 08:08:57 |
| ADM_001 | 62621 | 2022-07-22 08:09:06 |
| ADM_002 | 25261 | 2022-07-22 08:09:10 |
| ADM_002 | 58450 | 2022-07-22 08:08:52 |
| ADM_002 | 58450 | 2022-07-22 08:08:58 |
| ADM_002 | 58450 | 2022-07-22 08:09:01 |
| ADM_002 | 58451 | 2022-07-22 08:09:04 |
| ADM_002 | 58451 | 2022-07-22 08:09:07 |
| ADM_002 | 62620 | 2022-07-22 08:08:46 |
| ADM_002 | 62620 | 2022-07-22 08:09:13 |
| ADM_002 | 62621 | 2022-07-22 08:08:49 |
| ADM_002 | 62621 | 2022-07-22 08:08:55 |
| ADM_003 | 25260 | 2022-07-22 08:09:38 |
| ADM_003 | 25261 | 2022-07-22 08:08:53 |
| ADM_003 | 25261 | 2022-07-22 08:08:59 |
| ADM_003 | 58450 | 2022-07-22 08:08:47 |
| ADM_003 | 58450 | 2022-07-22 08:09:02 |
| ADM_003 | 58450 | 2022-07-22 08:09:14 |
| ADM_003 | 58451 | 2022-07-22 08:08:50 |
| ADM_003 | 58451 | 2022-07-22 08:08:56 |
| ADM_003 | 58451 | 2022-07-22 08:09:05 |
| ADM_003 | 62620 | 2022-07-22 08:09:08 |
| ADM_003 | 62621 | 2022-07-22 08:09:11 |
| USR_001 | 58451 | 2022-07-22 08:09:15 |
| USR_002 | 58451 | 2022-07-22 08:09:16 |
| USR_003 | 58450 | 2022-07-22 08:10:01 |
| USR_003 | 58450 | 2022-07-22 08:10:04 |
| USR_003 | 58451 | 2022-07-22 08:09:18 |
| USR_003 | 62620 | 2022-07-22 08:10:03 |
```

	USR_003		58450		2022-07-22 08:10:04	
	USR_003		58451		2022-07-22 08:09:18	
	USR_003		62620		2022-07-22 08:10:03	
	USR_003		62620		2022-07-22 08:10:11	
	USR_003		62621		2022-07-22 08:09:17	
	USR_004		25261		2022-07-22 08:10:15	
	USR_004		58450		2022-07-22 08:09:20	
	USR_004		62620		2022-07-22 08:09:19	
	USR_004		62620		2022-07-22 08:10:18	
	USR_005		25261		2022-07-22 08:10:20	
	USR_005		58451		2022-07-22 08:09:21	
	USR_005		62620		2022-07-22 08:09:22	
	USR_005		62620		2022-07-22 08:10:24	
	USR_005		62621		2022-07-22 08:10:22	
	USR_006		58450		2022-07-22 08:09:23	
	USR_006		58451		2022-07-22 08:09:24	
	USR_006		62621		2022-07-22 08:10:16	
	USR_007		25260		2022-07-22 08:08:45	
	USR_007		58451		2022-07-22 08:09:25	
	USR_007		62621		2022-07-22 08:09:26	
	USR_007		62621		2022-07-22 08:10:07	
	USR_008		58451		2022-07-22 08:09:27	
	USR_008		62621		2022-07-22 08:09:28	
	USR_008		62621		2022-07-22 08:10:09	
	USR_009		25261		2022-07-22 08:10:21	
	USR_009		58451		2022-07-22 08:09:29	
	USR_009		62620		2022-07-22 08:09:30	
	USR_010		58450		2022-07-22 08:09:31	
	USR_010		58451		2022-07-22 08:09:32	
	USR_011		58451		2022-07-22 08:09:33	
	USR_011		62621		2022-07-22 08:09:34	
	USR_012		58450		2022-07-22 08:09:36	
	USR_012		58451		2022-07-22 08:09:35	
	USR_012		58451		2022-07-22 08:10:02	
	USR_013		58451		2022-07-22 08:09:37	
	USR_013		58451		2022-07-22 08:10:05	
	USR_013		58451		2022-07-22 08:10:06	
	USR_014		58450		2022-07-22 08:09:39	
	USR_014		58451		2022-07-22 08:09:40	
	USR_014		58451		2022-07-22 08:10:08	
	USR_015		25261		2022-07-22 08:10:26	



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

```
UPDATE train_user SET Age=Date_FORMAT(FROM_DAYS(DATEDIFF(now(), DOB)), '%Y') + 0;
```

```
MariaDB [pes1ug20cs645_railway]> UPDATE train_user SET Age=Date_FORMAT(FROM_DAYS(DATEDIFF(now(), DOB)), '%Y') + 0;
Query OK, 33 rows affected (0.037 sec)
Rows matched: 33  Changed: 33  Warnings: 0

MariaDB [pes1ug20cs645_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
| 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, 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
| 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 (0.005 sec)
```

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

```
select * from route_info where distance between 70 and 150;
```

```
MariaDB [pes1ug20cs645_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 (0.008 sec)
```

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

```
select * from route_info where from_station_name = 'Chennai' and to_station_name ='Sholingur';
```

```
MariaDB [pes1ug20cs645_railway]> 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 (0.005 sec)
```

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

```
select * from train where train_type not in ('Mail');
```

```
MariaDB [pes1ug20cs645_railway]> select * from train where train_type not in ('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 (0.007 sec)
```

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

```
select train_name from train where source='Bengaluru' and destination='Chennai';
```

```
MariaDB [pes1ug20cs645_railway]> select train_name from train where source='Bengaluru' and destination='Chennai';
+-----+
| train_name      |
+-----+
| BEN-CHE Shatabdi |
+-----+
1 row in set (0.005 sec)
```

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

```
select train_no from ticket where department='Chennai' and departure_time>"8:00:00";
```

```
MariaDB [pes1ug20cs645_railway]> select train_no from ticket where department='Chennai' and departure_time>"8:00:00";
+-----+
| train_no |
+-----+
| 25261 |
+-----+
1 row in set (0.005 sec)
```

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

```
select * from train_user where dob between ('1980-01-01') and ('1990-12-30');
```

```
MariaDB [pes1ug20cs645_railway]> select * from train_user where dob between ('1980-01-01') and ('1990-12-30');
+-----+-----+-----+-----+-----+-----+-----+-----+
| 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      | 8.  | 1985-04-14 | 575023  | BunderRoad to 1990. |
| 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 (0.005 sec)
```

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

```
select * from train_user where firstname like 'S%';
```

```

--> MariaDB [pes1ug20cs645_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 Avenue |
| 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 (0.005 sec)

```

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

```
select availability from compartment where train_number=62621 and compartment_type='I class'
```

```

--> MariaDB [pes1ug20cs645_railway]> select availability from compartment where train_number=62621 and compartment_type='I class';
+-----+
| availability |
+-----+
|       6      |
+-----+
1 row in set (0.010 sec)

```

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

```
select pnr, transaction_no from payment_info where bank='UNION BANK';
```

```

--> MariaDB [pes1ug20cs645_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 (0.002 sec)

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)

```

## Task-II:

**Use DCL and TCL statements for the following:**

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

```
CREATE USER 'sailaja'@'localhost' identified by '671';  
grant UPDATE,SELECT on compartment to 'sailaja'@'localhost' with grant option;  
show grants for 'sailaja'@'localhost';
```

```
MariaDB [peslug20cs645_railway]> CREATE USER 'hita'@'localhost' identified by 'Bangalore101'  
|   -> ;  
Query OK, 0 rows affected (0.016 sec)  
  
MariaDB [peslug20cs645_railway]> grant UPDATE,SELECT on compartment to 'hita'@'localhost' with grant option;  
Query OK, 0 rows affected (0.006 sec)  
  
MariaDB [peslug20cs645_railway]> show grants for 'hita'@'localhost';  
+-----+  
| Grants for hita@localhost  
+-----+  
| GRANT USAGE ON *.* TO `hita`@`localhost` IDENTIFIED BY PASSWORD '*8FECDF9D1C7F50EE6BA11B7E40B7B6381C96B199'  
| GRANT SELECT, UPDATE ON `peslug20cs645_railway`.`compartment` TO `hita`@`localhost` WITH GRANT OPTION  
+-----+  
2 rows in set (0.003 sec)
```

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

```
revoke UPDATE,DELETE on compartment from 'sailaja'@'localhost';  
show grants for 'sailaja'@'localhost';
```

```
MariaDB [peslug20cs645_railway]> revoke UPDATE,DELETE on compartment from 'hita'@'localhost';  
Query OK, 0 rows affected (0.003 sec)  
  
MariaDB [peslug20cs645_railway]> show grants for 'hita'@'localhost';  
+-----+  
| Grants for hita@localhost  
+-----+  
| GRANT USAGE ON *.* TO `hita`@`localhost` IDENTIFIED BY PASSWORD '*8FECDF9D1C7F50EE6BA11B7E40B7B6381C96B199'  
| GRANT SELECT ON `peslug20cs645_railway`.`compartment` TO `hita`@`localhost` WITH GRANT OPTION  
+-----+  
2 rows in set (0.000 sec)
```

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

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

```
create table student(name varchar(10),age int,primary key(name));
```

```

insert into student(name,age) values("sailaja",19);

insert into student(name,age) values("juneja",24);

savepoint s1;

insert into student(name,age) values("seema",52);

commit;

select* from student;

savepoint s2;

insert into student(name,age) values("juneja",57);

select* from student;

```

```

MariaDB [pes1ug20cs645_railway]> create table student(name varchar(10),age int,primary key(name));
Query OK, 0 rows affected (0.045 sec)

MariaDB [pes1ug20cs645_railway]> insert into student(name,age) values("sailaja",19);
Query OK, 1 row affected (0.005 sec)

MariaDB [pes1ug20cs645_railway]>
MariaDB [pes1ug20cs645_railway]> insert into student(name,age) values("juneja",24);
Query OK, 1 row affected (0.003 sec)

MariaDB [pes1ug20cs645_railway]> savepoint s1;
Query OK, 0 rows affected (0.002 sec)

MariaDB [pes1ug20cs645_railway]> insert into student(name,age) values("seema",52);
Query OK, 1 row affected (0.003 sec)

MariaDB [pes1ug20cs645_railway]> commit;
Query OK, 0 rows affected (0.000 sec)

MariaDB [pes1ug20cs645_railway]> select * from student;
+----+----+
| name | age |
+----+----+
| juneja | 24 |
| sailaja | 19 |
| seema | 52 |
+----+----+
3 rows in set (0.002 sec)

MariaDB [pes1ug20cs645_railway]> savepoint s2;
Query OK, 0 rows affected (0.000 sec)

```

```
MariaDB [pes1ug20cs645_railway]> insert into student(name,age) values("juenja",57);
Query OK, 1 row affected (0.003 sec)

MariaDB [pes1ug20cs645_railway]> select * from student;
+-----+-----+
| name | age |
+-----+-----+
| juenja | 57 |
| juneja | 24 |
| sailaja | 19 |
| seema | 52 |
+-----+-----+
4 rows in set (0.001 sec)

MariaDB [pes1ug20cs645_railway]> commit;
Query OK, 0 rows affected (0.000 sec)

MariaDB [pes1ug20cs645_railway]> select * from student;
+-----+-----+
| name | age |
+-----+-----+
| juneja | 24 |
| sailaja | 19 |
| seema | 52 |
+-----+-----+
3 rows in set (0.002 sec)

MariaDB [pes1ug20cs645_railway]> savepoint s2;
Query OK, 0 rows affected (0.000 sec)
```