

RAILWAY RESERVATION

1. Update price of the ticket.

Hint:

This requires creation of two views.

One for calculating the price of one ticket for a given PNR. This involves computation of distance traveled and fare per kilometer.

```
MariaDB [PES1UG20CS150_RRS_UPDATED]> create view view1 as select ticket.pnr,ticket.train_no,ticket.departure,ticket.arrival,route_info.distance,fare.fare_per_km from ticket,route_info,fare where (ticket.train_no=route_info.train_no and ticket.departure=route_info.from_station_name and ticket.arrival=route_info.to_station_name and fare.train_type=ticket.train_type and fare.compartment_type=ticket.compartment_type);
Query OK, 0 rows affected (0.011 sec)

MariaDB [PES1UG20CS150_RRS_UPDATED]> create view view2 as select pnr ,count(pnr) as numbers from ticket_passenger group by pnr;
Query OK, 0 rows affected (0.012 sec)

MariaDB [PES1UG20CS150_RRS_UPDATED]> update payment_info as p inner join view1 as v1 on p.pnr=v1.pnr inner join view2 as v2 on v1.pnr=v2.pnr set p.price=v1.distance * v1.fare_per_km * v2.numbers;
Query OK, 12 rows affected (0.019 sec)
Rows matched: 12  Changed: 12  Warnings: 0
```

NATURAL JOIN

2. Retrieve the all stations along route of the Trains along with the distance between the Stations

```
MariaDB [PES1UG20CS150_RRS_UPDATED]> select t.train_no,t.source,t.destination,t.train_name ,r.from_station_name,to_station_name,r.distance from train as t natural join route_info as r where r.to_station_no-r.from_station_no=1;
+-----+-----+-----+-----+-----+-----+-----+
| train_no | source | destination | train_name | from_station_name | to_station_name | distance |
+-----+-----+-----+-----+-----+-----+-----+
| 25260 | Mangaluru | Chennai | Chennai Mail | Mangaluru | Kannur | 131 |
| 25260 | Mangaluru | Chennai | Chennai Mail | Kannur | Palakkad | 220 |
| 25261 | Chennai | Mangaluru | Managaluru Mail | Chennai | Palakkad | 130 |
| 25261 | Chennai | Mangaluru | Managaluru Mail | Palakkad | Kannur | 220 |
| 25261 | Chennai | Mangaluru | Managaluru Mail | Kannur | Mangaluru | 131 |
| 58450 | Mangaluru | Bengaluru | MAN-BEN Express | Mangaluru | Subramanya | 195 |
| 58450 | Mangaluru | Bengaluru | MAN-BEN Express | Subramanya | Mysore | 170 |
| 58450 | Mangaluru | Bengaluru | MAN-BEN Express | Mysore | Bengaluru | 139 |
| 58451 | Bengaluru | Mangaluru | BEN-MAN Express | Bengaluru | Mysore | 139 |
| 58451 | Bengaluru | Mangaluru | BEN-MAN Express | Mysore | Subramanya | 170 |
| 58451 | Bengaluru | Mangaluru | BEN-MAN Express | Subramanya | Mangaluru | 194 |
| 62620 | Chennai | Bengaluru | CHE-BEN Shatabdi | Chennai | Sholingur | 90 |
| 62620 | Chennai | Bengaluru | CHE-BEN Shatabdi | Sholingur | Katpadi | 39 |
| 62620 | Chennai | Bengaluru | CHE-BEN Shatabdi | Katpadi | Bangarpet | 161 |
| 62620 | Chennai | Bengaluru | CHE-BEN Shatabdi | Bangarpet | Bengaluru | 71 |
| 62621 | Bengaluru | Chennai | BEN-CHE Shatabdi | Bengaluru | Bangarpet | 71 |
| 62621 | Bengaluru | Chennai | BEN-CHE Shatabdi | Bangarpet | Katpadi | 161 |
| 62621 | Bengaluru | Chennai | BEN-CHE Shatabdi | Katpadi | Sholingur | 40 |
| 62621 | Bengaluru | Chennai | BEN-CHE Shatabdi | Sholingur | Chennai | 90 |
+-----+-----+-----+-----+-----+-----+-----+
19 rows in set (0.001 sec)

MariaDB [PES1UG20CS150_RRS_UPDATED]>
```

INNER JOIN (equijoin)

3.Retrieve the Train no of train which is leaving Bengaluru and arriving at Chennai with compartments availability greater than 10

```
MariaDB [PES1UG20CS150_RRS_UPDATED]> select distinct r.train_no from compartment as c inner join route_info as r where r
.to_station_name="Chennai" and r.from_station_name="Bengaluru" and c.availability>10;
+-----+
| train_no |
+-----+
|      62621 |
+-----+
1 row in set (0.001 sec)
```

4.Retrieve first and last name of users who have booked a ticket with price greater than 500

```
MariaDB [PES1UG20CS150_RRS_UPDATED]> select distinct train_user.firstname ,train_user.lastname from train_user join paym
ent_info on payment_info.price>500;
+-----+-----+
| firstname | lastname |
+-----+-----+
| Narendra | Modi     |
| Droupadi | Murmu    |
| Manmohan | Singh    |
| Ajit     | Ullal    |
| Muhammed | Ali      |
| Sai Deepak | Reddy   |
| Rudra    | Agarwal  |
| Rahul    | Khanna   |
| Nirmala  | Seturaman |
| Smriti   | Irani    |
| Ajit     | Sethi    |
| Arjun    | Allu     |
| Samanta  | Prabhu   |
| Kiran    | Bedi     |
| Rahul    | Gandhi   |
| Rashkit  | Shetty   |
| Rishi    | Sunak    |
| Vedavalli | Srinath  |
| Subbu    | Saravana |
| Sheela   | Dixit    |
| Margaret | Alva     |
| Arun     | Kumar    |
| Anshu    | Bhardwaj |
| Suma     | Sampat   |
| Srihari  | Udupa    |
| Satish   | Kotian   |
| Shradha  | Nayar    |
| Manisha  | Solanki  |
| Bharti   | Devgan   |
| Roopa    | Ram      |
| Pallavi  | Ram      |
| Ravi     | Naik     |
| Virat    | Murthy   |
+-----+-----+
33 rows in set (0.001 sec)
```

LEFT OUTER JOIN

5. Retrieve the first name, last name, DOB and ticket PNR if they've bought it for all users.

```
MariaDB [PES1UG20CS150_RRS_UPDATED]> select train_user.firstname,train_user.lastname,train_user.dob from train_user left
outer join ticket on ticket.pnr;
```

firstname	lastname	dob
Narendra	Modi	1989-04-14
Droupadi	Murmu	1990-04-14
Manmohan	Singh	1991-04-08
Ajit	Ullal	1971-01-01
Muhammed	Ali	2000-10-09
Sai Deepak	Reddy	1996-12-12
Rudra	Agarwal	1996-12-13
Rahul	Khanna	1997-12-14
Nirmala	Seturaman	1998-12-15
Smriti	Irani	1999-12-16
Ajit	Sethi	1966-04-14
Arjun	Allu	1967-04-08
Samanta	Prabhu	1968-04-14
Kiran	Bedi	1969-04-14
Rahul	Gandhi	1970-04-08
Rashkit	Shetty	1971-04-14
Rishi	Sunak	1972-04-14
Vedavalli	Srinath	1973-04-14
Subbu	Saravana	1974-04-14
Sheela	Dixit	1975-04-08
Margaret	Alva	1976-04-14
Arun	Kumar	1977-04-14
Anshu	Bhardwaj	1978-04-14
Suma	Sampat	1979-04-08
Srihari	Udupa	1980-04-14
Satish	Kotian	1981-04-14
Shradha	Nayar	1982-04-08
Manisha	Solanki	1983-04-08
Bharti	Devgan	1984-04-14
Roopa	Ram	1985-04-14
Pallavi	Ram	1986-04-08
Ravi	Naik	1987-04-14
Virat	Murthy	1988-04-14

33 rows in set, 13 warnings (0.003 sec)

6. Retrieve the first name, last name,of the Users who have not bought a ticket

```

MariaDB [PES1UG20CS150_RRS_UPDATED]> select distinct train_user.firstname,train_user.lastname from train_user left outer
join ticket on ticket.passenger_id != train_user.user_id;
+-----+-----+
| firstname | lastname |
+-----+-----+
| Droupadi  | Murmu    |
| Manmohan  | Singh    |
| Ajit      | Ullal    |
| Muhammed  | Ali      |
| Sai Deepak| Reddy    |
| Rudra     | Agarwal  |
| Rahul     | Khanna   |
| Nirmala   | Seturaman|
| Smriti    | Irani    |
| Ajit      | Sethi    |
| Arjun     | Allu     |
| Samanta   | Prabhu   |
| Kiran     | Bedi     |
| Rahul     | Gandhi   |
| Rashkit   | Shetty   |
| Rishi     | Sunak    |
| Vedavalli | Srinath  |
| Subbu     | Saravana |
| Sheela    | Dixit    |
| Margaret  | Alva     |
| Arun      | Kumar    |
| Anshu     | Bhardwaj |
| Suma      | Sampat   |
| Srihari   | Udupa    |
| Satish    | Kotian   |
| Shradha   | Nayar    |
| Manisha   | Solanki  |
| Bharti    | Devgan   |
| Roopa     | Ram      |
| Pallavi   | Ram      |
| Ravi      | Naik     |
| Virat     | Murthy   |
| Narendra  | Modi     |
+-----+-----+
33 rows in set (0.001 sec)

MariaDB [PES1UG20CS150_RRS_UPDATED]>

```

RIGHT OUTER JOIN

7. Retrieve the ticket PNR, Train number, travel date and along with all users first name and last name.

```
MariaDB [PES1UG20CS150_RRS_UPDATED]> select ticket.pnr,ticket.train_no,ticket.travel_date,train_user.firstname,train_user.lastname from ticket right outer join train_user on ticket.passenger_id=train_user.user_id;
```

pnr	train_no	travel_date	firstname	lastname
PNR001	62621	2022-08-07	Narendra	Modi
PNR002	62620	2022-08-14	Narendra	Modi
PNR007	62621	2022-08-07	Droupadi	Murmu
PNR008	62620	2022-08-02	Droupadi	Murmu
PNR003	25261	2022-08-01	Manmohan	Singh
PNR004	25260	2022-08-15	Manmohan	Singh
NULL	NULL	NULL	Ajit	Ullal
PNR005	58451	2022-08-03	Muhammed	Ali
PNR006	58450	2033-08-04	Muhammed	Ali
NULL	NULL	NULL	Sai Deepak	Reddy
NULL	NULL	NULL	Rudra	Agarwal
NULL	NULL	NULL	Rahul	Khan
NULL	NULL	NULL	Nirmala	Seturaman
PNR010	25260	2022-08-19	Smriti	Irani
PNR011	62621	2022-08-22	Ajit	Sethi
PNR012	58451	2022-08-11	Arjun	Allu
PNR014	25260	2022-08-17	Samanta	Prabhu
NULL	NULL	NULL	Kiran	Bedi
PNR015	25260	2022-08-05	Rahul	Gandhi
NULL	NULL	NULL	Rashkit	Shetty
NULL	NULL	NULL	Rishi	Sunak
NULL	NULL	NULL	Vedavalli	Srinath
NULL	NULL	NULL	Subbu	Saravana
NULL	NULL	NULL	Sheela	Dixit
NULL	NULL	NULL	Margaret	Alva
NULL	NULL	NULL	Arun	Kumar
NULL	NULL	NULL	Anshu	Bhardwaj
NULL	NULL	NULL	Suma	Sampat
NULL	NULL	NULL	Srihari	Udapa
NULL	NULL	NULL	Satish	Kotian
NULL	NULL	NULL	Shradha	Nayar
NULL	NULL	NULL	Manisha	Solanki
NULL	NULL	NULL	Bharti	Devgan
NULL	NULL	NULL	Roopa	Ram
NULL	NULL	NULL	Pallavi	Ram
NULL	NULL	NULL	Ravi	Naik
NULL	NULL	NULL	Virat	Murthy

37 rows in set (0.001 sec)

8. Retrieve the user id if they've traveled in a train along with train id and name of all trains.

```
MariaDB [PES1UG20CS150_RRS_UPDATED]> select ticket.passenger_id,train.train_no,train.train_name from ticket right outer join train on train.train_no=ticket.train_no;
```

passenger_id	train_no	train_name
ADM_003	25260	Chennai Mail
USR_007	25260	Chennai Mail
USR_010	25260	Chennai Mail
USR_012	25260	Chennai Mail
ADM_003	25261	Managaluru Mail
USR_002	58450	MAN-BEN Express
USR_002	58451	BEN-MAN Express
USR_009	58451	BEN-MAN Express
ADM_001	62620	CHE-BEN Shatabdi
ADM_002	62620	CHE-BEN Shatabdi
ADM_001	62621	BEN-CHE Shatabdi
ADM_002	62621	BEN-CHE Shatabdi
USR_008	62621	BEN-CHE Shatabdi

13 rows in set (0.001 sec)

```
MariaDB [PES1UG20CS150_RRS_UPDATED]> _
```

NESTED QUERIES

9. Retrieve the train no and name of trains whose destination is not Mangaluru and distance is not less than 100km and departure time is not 8:30:00 PM.

```
MariaDB [PES1UG20CS150_RRS_UPDATED]> select train.train_no,train.train_name from train where train.train_no in(select train.train_no from route_info join ticket on route_info.train_no=ticket.train_no where ticket.departure not like "Mangalore" and ticket.departure_time != "20:30:00" and route_info.distance>100);
```

train_no	train_name
25260	Chennai Mail
25261	Managaluru Mail
58450	MAN-BEN Express
58451	BEN-MAN Express
62620	CHE-BEN Shatabdi
62621	BEN-CHE Shatabdi

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

MariaDB [PES1UG20CS150_RRS_UPDATED]>

10. Retrieve the User ID who has spent more ticket price than the average ticket price.

```
MariaDB [PES1UG20CS150_RRS_UPDATED]> select ticket.passenger_id from ticket where ticket.pnr in(select payment_info.pnr from payment_info where payment_info.price>(select avg(price) from payment_info));
```

passenger_id
ADM_001
ADM_001
USR_002
USR_002

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

MariaDB [PES1UG20CS150_RRS_UPDATED]>