

1. Update the price of the ticket.

a.

Create a view compute_price as below

CREATE VIEW compute_price 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);

```
MariaDB [pes1ug20cs494]> CREATE VIEW compute_price 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 (0.069 sec)
```

```
MariaDB [pes1ug20cs494]> select * from compute_price limit 5;
+-----+-----+-----+-----+-----+-----+
| PNR    | Train_No | Departure | Arrival  | Distance | fare_per_km |
+-----+-----+-----+-----+-----+-----+
| PNR001 | 62621   | Bengaluru | Chennai  | 362      | 3           |
| PNR002 | 62620   | Chennai   | Bengaluru | 361      | 3           |
| PNR003 | 25261   | Chennai   | Mangaluru | 481      | 1           |
| PNR004 | 25260   | Mangaluru | Chennai  | 481      | 1           |
| PNR005 | 58451   | Bengaluru | Mangaluru | 503      | 5           |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.043 sec)
```

b.

Create a View passenger_num CREATE VIEW passenger_num AS select PNR, count(PNR) as numbers from Ticket_Passenger group by PNR;

```
MariaDB [pes1ug20cs494]> create view passenger_num as select PNR, count(pnr) as Numbers from ticket_passenger group by pnr;
Query OK, 0 rows affected (0.013 sec)

MariaDB [pes1ug20cs494]> select * from passenger_num limit 5;
ERROR 1146 (42S02): Table 'pes1ug20cs494.passenger' doesn't exist
MariaDB [pes1ug20cs494]> select * from passenger_num limit 5;
+-----+-----+
| PNR   | Numbers |
+-----+-----+
| PNR001 | 2       |
| PNR002 | 2       |
| PNR003 | 2       |
| PNR004 | 2       |
| PNR005 | 4       |
+-----+-----+
5 rows in set (0.006 sec)
```

c.

Update Payment_info.price as below UPDATE Payment_Info AS p INNER JOIN compute_price AS cs ON p.PNR = cs.PNR INNER JOIN passenger_num AS pn ON cs.PNR = pn.PNR SET p.Price = cs.Distance * cs.Fare_Per_KM * pn.numbers;

```
MariaDB [pes1ug20cs494]> UPDATE Payment_Info AS p INNER JOIN compute_price AS cs ON p.PNR =
-> cs.PNR INNER JOIN passenger_num AS pn ON cs.PNR = pn.PNR SET p.Price =
-> cs.Distance * cs.Fare_Per_KM * pn.numbers;
Query OK, 12 rows affected (0.019 sec)
Rows matched: 12  Changed: 12  Warnings: 0

MariaDB [pes1ug20cs494]> select * from payment_info limit 5;
+-----+-----+-----+-----+-----+
| transaction_no | bank       | card_no      | price  | pnr      |
+-----+-----+-----+-----+-----+
| 146445         | HDFC       | 1.23433E+15  | 2520.00 | PNR006   |
| 243535         | UNION BANK | 2.43647E+15  | 970.00  | PNR012   |
| 342344         | IOB        | 5.62357E+15  | 2172.00 | PNR001   |
| 354364         | CANARA BANK | 5.76879E+15  | 220.00  | PNR014   |
| 531343         | SBI        | 8.95327E+15  | 962.00  | PNR004   |
+-----+-----+-----+-----+-----+
5 rows in set (0.001 sec)
```

2.

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

Query:

select train_no,from_station_name,to_station_name,distance from route_info where to_station_no-from_station_no=1 order by train_no;

```

MariaDB [pes1ug20cs494]> select train_no,from_station_name,to_station_name,distance from route_info
-> where to_station_no-from_station_no=1 order by train_no;
+-----+-----+-----+-----+
| train_no | from_station_name | to_station_name | distance |
+-----+-----+-----+-----+
| 25260 | Mangaluru | Kannur | 131 |
| 25260 | Kannur | Palakkad | 220 |
| 25261 | Chennai | Palakkad | 130 |
| 25261 | Palakkad | Kannur | 220 |
| 25261 | Kannur | Mangaluru | 131 |
| 58450 | Mangaluru | Subramanya | 195 |
| 58450 | Subramanya | Mysore | 170 |
| 58450 | Mysore | Bengaluru | 139 |
| 58451 | Bengaluru | Mysore | 139 |
| 58451 | Mysore | Subramanya | 170 |
| 58451 | Subramanya | Mangaluru | 194 |
| 62620 | Chennai | Sholingur | 90 |
| 62620 | Sholingur | Katpadi | 39 |
| 62620 | Katpadi | Bangarpet | 161 |
| 62620 | Bangarpet | Bengaluru | 71 |
| 62621 | Bengaluru | Bangarpet | 71 |
| 62621 | Bangarpet | Katpadi | 161 |
| 62621 | Katpadi | Sholingur | 40 |
| 62621 | Sholingur | Chennai | 90 |
+-----+-----+-----+-----+
19 rows in set (0.002 sec)

```

3.

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

Query:

select route_info.train_no from route_info inner join compartment on route_info.train_no = compartment.train_number where compartment.availability > 10 and from_station_name = "bengaluru" and to_station_name = "chennai";

```

MariaDB [pes1ug20cs494]> select route_info.train_no from route_info inner join compartment on
-> route_info.train_no = compartment.train_number where compartment.availability >
-> 10 and from_station_name = "bengaluru" and to_station_name = "chennai";
+-----+
| train_no |
+-----+
| 62621 |
+-----+
1 row in set (0.021 sec)

```

4.

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

Query:

select name from ticket_passenger inner join payment_info on ticket_passenger.pnr = payment_info.pnr
where price > 500;

```
MariaDB [pes1ug20cs494]> select name from ticket_passenger inner join payment_info on ticket_passenger.pnr  
-> = payment_info.pnr where price > 500;  
+-----+  
| name |  
+-----+  
| Smriti Irani |  
| Ramya R |  
| Saideepak Reddy |  
| Sheela Reddy |  
| Anwar Hussein |  
| Karishma Husein |  
| Christon D Souza |  
| SaiDeepak Reddy |  
| Sheela Reddy |  
| Christon D Souza |  
| Hema Ullal |  
| Hima Ullal |  
| Asha Ullal |  
| Ajit Ullal |  
| Anwar Hussein |  
| Karishma Husein |  
+-----+  
16 rows in set (0.001 sec)
```

5.

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

Query:

select firstname, lastname, dob, pnr from train_user left join ticket on user_id = passenger_id;

```

MariaDB [pes1ug20cs494]> select firstname, lastname, dob, pnr from train_user left join ticket on user_id =
-> passenger_id;
+-----+-----+-----+-----+
| firstname | lastname | dob       | pnr      |
+-----+-----+-----+-----+
| Narendra | Modi     | 1989-04-14 | PNR001   |
| Narendra | Modi     | 1989-04-14 | PNR002   |
| Droupadi | Murmu    | 1990-04-14 | PNR007   |
| Droupadi | Murmu    | 1990-04-14 | PNR008   |
| Manmohan | Singh    | 1991-04-08 | PNR003   |
| Manmohan | Singh    | 1991-04-08 | PNR004   |
| Ajit     | Ullal    | 1971-01-01 | NULL     |
| Muhammed | Ali      | 2000-10-09 | PNR005   |
| Muhammed | Ali      | 2000-10-09 | PNR006   |
| Sai Deepak | Reddy   | 1996-12-12 | NULL     |
| Rudra    | Agarwal  | 1996-12-13 | NULL     |
| Rahul    | Khanna   | 1997-12-14 | NULL     |
| Nirmala  | Seturaman | 1998-12-15 | NULL     |
| Smriti   | Irani    | 1999-12-16 | PNR010   |
| Ajit     | Sethi    | 1966-04-14 | PNR011   |
| Arjun    | Allu     | 1967-04-08 | PNR012   |
| Samanta  | Prabhu   | 1968-04-14 | PNR014   |
| Kiran    | Bedi     | 1969-04-14 | NULL     |
| Rahul    | Gandhi   | 1970-04-08 | PNR015   |
| Rashkit  | Shetty   | 1971-04-14 | NULL     |
| Rishi    | Sunak    | 1972-04-14 | NULL     |
| Vedavalli | Srinath  | 1973-04-14 | NULL     |
| Subbu    | Saravana | 1974-04-14 | NULL     |
| Sheela   | Dixit    | 1975-04-08 | NULL     |
| Margaret | Alva     | 1976-04-14 | NULL     |
| Arun     | Kumar    | 1977-04-14 | NULL     |
| Anshu    | Bhardwaj | 1978-04-14 | NULL     |
| Suma     | Sampat   | 1979-04-08 | NULL     |
| Srihari  | Udupa    | 1980-04-14 | NULL     |
| Satish   | Kotian   | 1981-04-14 | NULL     |
| Shradha  | Nayar    | 1982-04-08 | NULL     |
| Manisha  | Solanki  | 1983-04-08 | NULL     |
| Bharti   | Devgan   | 1984-04-14 | NULL     |
| Roopa    | Ram      | 1985-04-14 | NULL     |
| Pallavi  | Ram      | 1986-04-08 | NULL     |
| Ravi     | Naik     | 1987-04-14 | NULL     |
| Virat    | Murthy   | 1988-04-14 | NULL     |
+-----+-----+-----+-----+
37 rows in set (0.020 sec)

```


6.

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

Query:

select firstname, lastname, dob from train_user left join ticket on user_id = passenger_id where user_id not in (select passenger_id from ticket);

```
MariaDB [pes1ug20cs494]> select firstname, lastname, dob from train_user left join ticket on user_id =  
-> passenger_id where user_id not in (select passenger_id from ticket);
```

firstname	lastname	dob
Ajit	Ullal	1971-01-01
Sai Deepak	Reddy	1996-12-12
Rudra	Agarwal	1996-12-13
Rahul	Khanna	1997-12-14
Nirmala	Seturaman	1998-12-15
Kiran	Bedi	1969-04-14
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

```
24 rows in set (0.013 sec)
```

7.

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

Query:

select pnr, train_no, travel_date, firstname, lastname from ticket right join train_user on user_id = passenger_id;

```
MariaDB [pes1ug20cs494]> select pnr, train_no, travel_date, firstname, lastname from ticket right join
-> train_user on user_id = passenger_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	Khanna
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 (0.002 sec)

8.

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

Query:

select passenger_id,ticket.train_no,train_name from ticket RIGHT OUTER JOIN train on
ticket.train_no=train.train_no;

```
MariaDB [pes1ug20cs494]> select passenger_id,ticket.train_no,train_name from ticket RIGHT OUTER JOIN train
-> on
-> ticket.train_no=train.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 (0.019 sec)

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. (Correlated)

Query:

SELECT t1.train_no,t1.train_name from train as t1, (select distinct t2.train_no from route_info as t2,(select distinct train_no from ticket where departure_time!="20:30:00") as t3 where (t2.train_no=t3.train_no) and (t2.Distance>100)) as t2 where (t1.train_no=t2.train_no) and (t1.Destination!="Mangaluru");

```
MariaDB [pes1ug20cs494]> SELECT t1.train_no,t1.train_name from train as t1, (select distinct t2.train_no from
-> route_info as
-> t2,(select distinct train_no from ticket where departure_time!="20:30:00") as t3
-> where
-> (t2.train_no=t3.train_no) and (t2.Distance>100)) as t2 where
-> (t1.train_no=t2.train_no) and
-> (t1.Destination!="Mangaluru");
```

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

4 rows in set (0.001 sec)

10.

Retrieve the User ID who has spent more than the average ticket price. (Uncorrelated)

Query:

```
select distinct passenger_id from ticket join payment_info on ticket.pnr=payment_info.pnr where  
payment_info.price>(select avg(price) from payment_info);
```

```
MariaDB [pes1ug20cs494]> select distinct passenger_id from ticket join payment_info on  
-> ticket.pnr=payment_info.pnr where payment_info.price>(select avg(price) from  
-> payment_info);  
+-----+  
| passenger_id |  
+-----+  
| USR_002      |  
| ADM_001      |  
+-----+  
2 rows in set (0.006 sec)
```