

DBMS Lab-5

Name: Vrushank G

SRN: PES1UG20CS516

Section: I

Lab 5 - SQL – Joins: Inner, Outer; Sub queries: Correlated and Uncorrelated

1.Update 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 [pes1ug20cs516]> create view view_1 as select ticket.pnr , ticket.train_no, ticket.departure,
-> ticket.arrival,route_info.distance,fare.fare_per_km from (ticket join route_info on
-> ticket.train_no=route_info.train_no and ticket.departure=route_info.from_station_name and
-> ticket.arrival=route_info.to_station_name) join fare on ticket.train_type=fare.train_type and
-> ticket.compartment_type=fare.compartment_type;
Query OK, 0 rows affected (0.031 sec)
```

```
MariaDB [pes1ug20cs516]> select * from view_1
-> ;
```

pnr	train_no	departure	arrival	distance	fare_per_km
PNR001	62621	Bengaluru	Chennai	362	4
PNR002	62620	Chennai	Bengaluru	361	4
PNR003	25261	Chennai	Mangaluru	481	1
PNR004	25260	Mangaluru	Chennai	481	1
PNR005	58451	Bengaluru	Mangaluru	503	2
PNR006	58450	Mangaluru	Bengaluru	504	2
PNR007	62621	Bangarpet	Chennai	291	2
PNR008	62620	Chennai	Bangarpet	290	4
PNR010	25260	Mangaluru	Kannur	131	1
PNR012	58451	Subramanya	Mangaluru	194	3
PNR014	25260	Kannur	Palakkad	220	1
PNR015	25260	Palakkad	Chennai	130	1
PNR020	62620	Chennai	Katpadi	129	2

```
13 rows in set (0.018 sec)
```

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b. Create a View passenger_num

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

```
MariaDB [pes1ug20cs516]> create view view_2 as select count(*) as passenger_number, pnr from ticket_passenger group by pnr;
Query OK, 0 rows affected (0.006 sec)

MariaDB [pes1ug20cs516]> select *from view_2;
+-----+-----+
| passenger_number | pnr |
+-----+-----+
| 2 | PNR001 |
| 2 | PNR002 |
| 2 | PNR003 |
| 2 | PNR004 |
| 4 | PNR005 |
| 1 | PNR006 |
| 1 | PNR007 |
| 1 | PNR008 |
| 2 | PNR010 |
| 1 | PNR011 |
| 1 | PNR012 |
| 1 | PNR014 |
| 1 | PNR015 |
+-----+-----+
13 rows in set (0.004 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;

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```
MariaDB [peslug20cs516]> update payment_info as p inner join (select view_2.pnr,view_2.passenger_number,
-> view_1.fare_per_km,view_1.distance from view_1 inner join view_2 on view_1.pnr=view_2.pnr ) as
-> p2 on p.pnr=p2.pnr set p.price=p2.distance*p2.passenger_number *p2.fare_per_km;
Query OK, 12 rows affected (0.020 sec)
Rows matched: 12  Changed: 12  Warnings: 0
```

```
MariaDB [peslug20cs516]> select *from payment_info;
```

transaction_no	bank	card_no	price	pnr
146445	HDFC	1.23433E+15	1008.00	PNR006
243535	UNION BANK	2.43647E+15	582.00	PNR012
342344	IOB	5.62357E+15	2896.00	PNR001
354364	CANARA BANK	5.76879E+15	220.00	PNR014
531343	SBI	8.95327E+15	962.00	PNR004
576768	ICICI	7.56356E+15	582.00	PNR007
676756	CANARA BANK	7.36756E+15	2888.00	PNR002
746745	KOTAK	2.54564E+15	1160.00	PNR008
758900	UNION BANK	2.43266E+15	130.00	PNR015
867546	UNION BANK	4.65769E+15	262.00	PNR010
867547	SBI	7.46635E+15	NULL	PNR011
978098	INDIAN BANK	9.88733E+15	4024.00	PNR005
978776	UNION BANK	1I54978597435874	962.00	PNR003

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

NATURAL JOIN

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

```
MariaDB [peslug20cs516]> select train_no,from_station_no,to_station_no,distance from route_info where to_station_no-from_station_no=1 order by train_no;
```

train_no	from_station_no	to_station_no	distance
25260	1	2	131
25260	2	3	220
25261	1	2	130
25261	2	3	220
25261	3	4	131
58450	1	2	195
58450	2	3	170
58450	3	4	139
58451	1	2	139
58451	2	3	170
58451	3	4	194
62620	1	2	90
62620	2	3	39
62620	3	4	161
62620	4	5	71
62621	1	2	71
62621	2	3	161
62621	3	4	40
62621	4	5	90

```
19 rows in set (0.002 sec)
```

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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 [pes1ug20cs516]> select train_no from route_info INNER JOIN compartment ON  
-> route_info.train_no=compartment.train_number where compartment.availability>10 and  
-> route_info.from_station_name='Bengaluru' and to_station_name='Chennai';  
+-----+  
| train_no |  
+-----+  
|    62621 |  
+-----+  
1 row in set (0.014 sec)
```

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

```
MariaDB [pes1ug20cs516]> select distinct name from ticket_passenger inner join payment_info on ticket_passenger.pnr=payment_info.pnr where payment_info.price>500;  
+-----+  
| name |  
+-----+  
| Smriti Irani |  
| Ramya R |  
| Saideepak Reddy |  
| Sheela Reddy |  
| Anwar Hussein |  
| Karishma Husein |  
| Christon D Souza |  
| Hema Ullal |  
| Hima Ullal |  
| Asha Ullal |  
| Ajit Ullal |  
+-----+  
11 rows in set (0.005 sec)
```

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LEFT OUTER JOIN

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

```
MariaDB [pes1ug20cs516]> select firstname,lastname,dob,pnr from ticket left join train_user on  
-> ticket.passenger_id=train_user.user_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
Muhammed	Ali	2000-10-09	PNR005
Muhammed	Ali	2000-10-09	PNR006
Smriti	Irani	1999-12-16	PNR010
Ajit	Sethi	1966-04-14	PNR011
Arjun	Allu	1967-04-08	PNR012
Samanta	Prabhu	1968-04-14	PNR014
Rahul	Gandhi	1970-04-08	PNR015
Anshu	Bhardwaj	1978-04-14	PNR020

14 rows in set (0.022 sec)

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

```
MariaDB [pes1ug20cs516]> select distinct firstname,lastname from train_user left join ticket on  
-> train_user.user_id!=ticket.passenger_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 (0.002 sec)
```

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RIGHT OUTER JOIN

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

```
MariaDB [pes1ug20cs516]> select pnr,train_no,travel_date,firstname,lastname from train_user right outer join ticket on
-> train_user.user_id=ticket.passenger_id;
```

pnr	train_no	travel_date	firstname	lastname
PNR001	62621	2022-08-07	Narendra	Modi
PNR002	62620	2022-08-14	Narendra	Modi
PNR003	25261	2022-08-01	Manmohan	Singh
PNR004	25260	2022-08-15	Manmohan	Singh
PNR005	58451	2022-08-03	Muhammed	Ali
PNR006	58450	2033-08-04	Muhammed	Ali
PNR007	62621	2022-08-07	Droupadi	Murmu
PNR008	62620	2022-08-02	Droupadi	Murmu
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
PNR015	25260	2022-08-05	Rahul	Gandhi
PNR020	62620	2022-09-26	Anshu	Bhardwaj

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

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

```
MariaDB [pes1ug20cs516]> 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
USR_020	62620	CHE-BEN Shatabdi
ADM_001	62621	BEN-CHE Shatabdi
ADM_002	62621	BEN-CHE Shatabdi
USR_008	62621	BEN-CHE Shatabdi

```
14 rows in set (0.009 sec)
```

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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. (Correlated)

```
MariaDB [pes1ug20cs516]> 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 (0.005 sec)

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

```
MariaDB [pes1ug20cs516]> 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
ADM_001
USR_002

2 rows in set (0.007 sec)