

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

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## RAILWAY RESERVATION

### 1.Update price of the ticket.

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0004 seconds.)

```
CREATE VIEW compute_price_204 AS SELECT ticket_204.PNR, ticket_204.Train_No, ticket_204.departure, ticket_204.arrival, route_info_204.distance, fare_204.fare_per_km FROM ticket_204, route_info_204, fare_204 WHERE ( ticket_204.Train_No = route_info_204.Train_No AND ticket_204.departure_place = route_info_204.from_station_name AND ticket_204.arrival_place = route_info_204.to_station_name AND fare_204.train_type = ticket_204.Train_Type AND fare_204.compartment_type = ticket_204.compartment_type );
```

[ Edit inline ] [ Edit ] [ Create PHP code ]

✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0004 seconds.)

```
CREATE VIEW passenger_num_204 AS SELECT PNR, COUNT(PNR) AS numbers FROM ticket_passenger_204 GROUP BY PNR;
```





































[ Edit inline ] [ Edit ] [ Create PHP code ]

✓ 11 rows affected. (Query took 0.0005 seconds.)

```
UPDATE payment_info_204 AS pInfo INNER JOIN compute_price_204 AS utp ON pInfo.PNR = utp.PNR INNER JOIN passenger_num_204 AS pn ON utp.PNR = pn.PNR SET pInfo.Price = utp.Distance * utp.fare_per_km * pn.numbers;
```

[ Edit inline ] [ Edit ] [ Create PHP code ]

| PNR    | numbers |
|--------|---------|
| PNR001 | 2       |
| PNR002 | 2       |
| PNR003 | 2       |
| PNR004 | 2       |
| PNR005 | 4       |
| PNR006 | 1       |
| PNR007 | 1       |
| PNR008 | 1       |
| PNR010 | 2       |
| PNR011 | 1       |
| PNR012 | 1       |
| PNR014 | 1       |
| PNR015 | 1       |

| ← T →                    |  |  |  | Transaction_no | price   | card_no          | bank        | PNR    |
|--------------------------|--|--|--|----------------|---------|------------------|-------------|--------|
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 146445         | 967.68  | 1234330000000000 | HDFC        | PNR006 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 243535         | 640.20  | 2436470000000000 | UNION BANK  | PNR012 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 342344         | 1665.20 | 5623570000000000 | IOB         | PNR001 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 354364         | 352.00  | 5768790000000000 | CANARA BANK | PNR014 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 531343         | 1539.20 | 8953270000000000 | SBI         | PNR004 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 576768         | 392.85  | 7563560000000000 | ICICI       | PNR007 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 676756         | 1660.60 | 7367560000000000 | CANARA BANK | PNR002 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 746745         | 667.00  | 2545640000000000 | KOTAK       | PNR008 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 758900         | 208.00  | 2432660000000000 | UNION BANK  | PNR015 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 867546         | 419.20  | 4657690000000000 | UNION BANK  | PNR010 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 867547         | 393.00  | 7466350000000000 | SBI         | PNR011 |
| <input type="checkbox"/> |  Edit |  Copy |  Delete | 978776         | 1058.20 | 154978597435874  | UNION BANK  | PNR003 |

## NATURAL JOIN

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

Showing rows 0 - 24 (44 total, Query took 0.0003 seconds.)

```
/*Q2*/ SELECT train_204.Train_no, train_204.Train_name, train_204.source, train_204.destination, train_204.availability FROM train_204 NATURAL JOIN route_info_204;
```

[ Edit inline ]
[ Edit ]
[ Create PHP code ]

1 > >>

☐ Show all

Number of rows: 25

Filter rows: Search this table

Sort by key: None

Extra options

| Train_no        | Train_name   | source    | destination | availability |
|-----------------|--------------|-----------|-------------|--------------|
| 25260           | Chennai Mail | Mangaluru | Chennai     | Yes          |
| 25260           | Chennai Mail | Mangaluru | Chennai     | Yes          |
| 25260           | Chennai Mail | Mangaluru | Chennai     | Yes          |
| 25260           | Chennai Mail | Mangaluru | Chennai     | Yes          |
| 25260           | Chennai Mail | Mangaluru | Chennai     | Yes          |
| 25260           | Chennai Mail | Mangaluru | Chennai     | Yes          |
| 25260           | Chennai Mail | Mangaluru | Chennai     | Yes          |
| Managaluru Mail |              | Chennai   | Mangaluru   | Yes          |

Console

[illegible]

| Train_no | Train_name       | source    | destination | availability |
|----------|------------------|-----------|-------------|--------------|
| 58451    | BEN-MAN Express  | Bengaluru | Mangaluru   | yes          |
| 58451    | BEN-MAN Express  | Bengaluru | Mangaluru   | yes          |
| 58451    | BEN-MAN Express  | Bengaluru | Mangaluru   | yes          |
| 58451    | BEN-MAN Express  | Bengaluru | Mangaluru   | yes          |
| 58451    | BEN-MAN Express  | Bengaluru | Mangaluru   | yes          |
| 58451    | BEN-MAN Express  | Bengaluru | Mangaluru   | yes          |
| 62620    | CHE-BEN Shatabdi | Chennai   | Bengaluru   | No           |
| 62620    | CHE-BEN Shatabdi | Chennai   | Bengaluru   | No           |
| 62620    | CHE-BEN Shatabdi | Chennai   | Bengaluru   | No           |
| 62620    | CHE-BEN Shatabdi | Chennai   | Bengaluru   | No           |
| 62620    | CHE-BEN Shatabdi | Chennai   | Bengaluru   | No           |
| 62620    | CHE-BEN Shatabdi | Chennai   | Bengaluru   | No           |
| 62620    | CHE-BEN Shatabdi | Chennai   | Bengaluru   | No           |
| 62620    | CHE-BEN Shatabdi | Chennai   | Bengaluru   | No           |
| 62620    | CHE-BEN Shatabdi | Chennai   | Bengaluru   | No           |
| 62620    | CHE-BEN Shatabdi | Chennai   | Bengaluru   | No           |
| 62621    | BEN-CHE Shatabdi | Bengaluru | Chennai     | yes          |
| 62621    | BEN-CHE Shatabdi | Bengaluru | Chennai     | yes          |

## INNER JOIN (equijoin)

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

Showing rows 0 - 0 (1 total, Query took 0.0003 seconds.)

```
/*Q3*/ SELECT route_info_204.Train_No FROM route_info_204 JOIN compartment_204 ON route_info_204.Train_No = compartment_204.train_number WHERE compartment_204.availability > 10 AND route_info_204.from_station_name = "Bengaluru" AND route_info_204.to_station_name = "Chennai";
```

[\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Create PHP code \]](#)

☐ Show all | Number of rows:  Filter rows:

Extra options

Train\_No

62621

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

✔ Showing rows 0 - 6 (7 total, Query took 0.0003 seconds.)

```
/*Q4*/ SELECT passenger_204.Firstname, passenger_204.Lastname FROM passenger_204 JOIN ticket_204 AS t ON passenger_204.User_ID = t.Passenger_id JOIN payment_info_204 ON payment_info_204.PNR = t.PNR WHERE payment_info_204.price > 500;
```

[ [Edit inline](#) ] [ [Edit](#) ] [ [Create PHP code](#) ]

☐ Show all | Number of rows: 25 ▾ Filter rows:  Sort by key: None ▾

Extra options

| Firstname | Lastname |
|-----------|----------|
| Muhammed  | Ali      |
| Arjun     | Allu     |
| Narendra  | Modi     |
| Manmohan  | Singh    |
| Narendra  | Modi     |
| Droupadi  | Murmu    |
| Manmohan  | Singh    |

## LEFT OUTER JOIN

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

✔ Showing rows 0 - 12 (13 total, Query took 0.0005 seconds.)

```
/*Q5*/ SELECT passenger_204.Firstname, passenger_204.Lastname, passenger_204.DOB, ticket_204.PNR FROM passenger_204 LEFT OUTER JOIN ticket_204 ON passenger_204.User_ID = ticket_204.Passenger_id WHERE ticket_204.PNR IS NOT NULL;
```

[ [Edit inline](#) ] [ [Edit](#) ] [ [Create PHP code](#) ]

| 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 |

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

✔ Showing rows 0 - 23 (24 total, Query took 0.0006 seconds.)

```
/*Q5*/ SELECT passenger_204.Firstname, passenger_204.Lastname FROM passenger_204 LEFT OUTER JOIN ticket_204 ON passenger_204.User_ID = ticket_204.Passenger_id WHERE ticket_204.PNR IS NULL;
```

[\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Create PHP code \]](#)

| Firstname  | Lastname  |
|------------|-----------|
| Ajit       | Ullal     |
| Sai Deepak | Reddy     |
| Rudra      | Agarwal   |
| Rahul      | Khanna    |
| Nirmala    | Seturaman |
| Kiran      | Bedi      |
| 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    |

## RIGHT OUTER JOIN

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

✔ Showing rows 0 - 12 (13 total, Query took 0.0004 seconds.)

```
/*Q7*/ SELECT ticket_204.PNR, ticket_204.Train_No, ticket_204.Travel_date, passenger_204.Firstname, passenger_204.Lastname FROM passenger_204
RIGHT OUTER JOIN ticket_204 ON passenger_204.User_ID = ticket_204.Passenger_id WHERE passenger_204.User_ID IS NOT NULL;
```

[\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Create PHP code \]](#)

| 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   |

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

Showing rows 0 - 11 (12 total, Query took 0.0425 seconds.)

```
/*Q8*/ SELECT ticket_204.Passenger_id, train_204.Train_no, train_204.Train_name FROM ticket_204 RIGHT OUTER JOIN train_204 ON train_204.Train_no = ticket_204.Train_No WHERE ( CURRENT_DATE >= ticket_204.Travel_date );
```

[\[ Edit inline \]](#) [\[ Edit \]](#) [\[ Create PHP code \]](#)

| Passenger_id | Train_no | Train_name       |
|--------------|----------|------------------|
| ADM_001      | 62621    | BEN-CHE Shatabdi |
| ADM_001      | 62620    | CHE-BEN Shatabdi |
| ADM_003      | 25261    | Managaluru Mail  |
| ADM_003      | 25260    | Chennai Mail     |
| USR_002      | 58451    | BEN-MAN Express  |
| ADM_002      | 62621    | BEN-CHE Shatabdi |
| ADM_002      | 62620    | CHE-BEN Shatabdi |
| USR_007      | 25260    | Chennai Mail     |
| USR_008      | 62621    | BEN-CHE Shatabdi |
| USR_009      | 58451    | BEN-MAN Express  |
| USR_010      | 25260    | Chennai Mail     |
| USR_012      | 25260    | Chennai Mail     |



## 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)

✓ Showing rows 0 - 3 (4 total, Query took 0.0002 seconds.)

```
/*Q9*/ SELECT train_204.Train_no FROM train_204 WHERE train_204.destination != "Mangaluru";
```

[ Edit inline ] [ Edit ] [ Create PHP code ]

☐ Show all | Number of rows: 25 ▾ | Filter rows:  | Sort by key: None ▾

Extra options

|   | Train_no |
|---|----------|
| <input type="checkbox"/> Edit  Copy  Delete | 25260    |
| <input type="checkbox"/> Edit  Copy  Delete | 58450    |
| <input type="checkbox"/> Edit  Copy  Delete | 62620    |
| <input type="checkbox"/> Edit  Copy  Delete | 62621    |

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

✓ Showing rows 0 - 4 (5 total, Query took 0.0913 seconds.)

```
/*Q10*/ SELECT ticket_204.PNR FROM ticket_204 JOIN payment_info_204 ON payment_info_204.PNR = ticket_204.PNR WHERE ( payment_info_204.price > ( SELECT AVG(payment_info_204.price) FROM payment_info_204 ) );
```

[ Edit inline ] [ Edit ] [ Create PHP code ]

☐ Show all | Number of rows: 25 ▾ | Filter rows:  | Sort by key: None ▾

Extra options

**PNR**

PNR006

PNR001

PNR004

PNR002

PNR003