


# Program Project:

## Railway System Database Management System

### Task (1):

Retrieve all train information including train number, speed, and other relevant details.



Live SQL

SQL Worksheet

1
SELECT \* FROM Train;

TRAIN_ID	TRAIN_NAME	SPEED	SEATS_EACH_TRAILER
1	SAR	300	417
2	HARAMAIN HIGH	350	418

Download CSV

2 rows selected.

### Task (2):

List all stations along with their station code and name.



Live SQL



SQL Worksheet

1
SELECT Station\_code, Station\_name FROM Station;

STATION_CODE	STATION_NAME
A22	Riyadh
A11	Medina

### Task (3):

Display the schedule for a specific trip, including departure city, arrival city, departure time, distance, and price.

  Live SQL

SQL Worksheet



```
1 SELECT * FROM Schedule WHERE trip_ID = '10';
```

TRIP_ID	DEPARTURE_CITY	ARRIVAL_CITY	DEPARTURE_TIME	DISTANCE	PRICE
10	Riyadh	Jeddah	13-MAR-24 10.00.00.000000 AM	150	150

Download CSV

### Task (4):

Show traveler information such as name, phone number, and age.

  Live SQL

SQL Worksheet

```
1 SELECT name, phone_number, gender, age FROM Traveler;
```

NAME	PHONE_NUMBER	GENDER	AGE
Sara	554918229	Female	24
Majed	504336262	Male	30

Task (5):

Retrieve ticket information for a given date, including trip number and client number.

Live SQL

SQL Worksheet

1

SELECT ticket\_date , trip\_ID, traveler\_ID

2

FROM Ticket

3

WHERE ticket\_date = TO\_DATE('2024-09-12', 'YYYY-MM-DD');

4

TICKET_DATE	TRIP_ID	TRAVELER_ID
12-SEP-24	10	1159

Task (6):

List all booked tickets for a specific client.

Live SQL

SQL Worksheet

1

SELECT \* FROM Ticket WHERE traveler\_ID = '1266';

2

3

TICKET_ID	TRIP_ID	TICKET_DATE	TRAVELER_ID
F13C5	11	20-MAY-24	1266

Task (7):

Display the available train schedules for a given date.

Live SQL

SQL Worksheet

1 SELECT \* FROM Schedule WHERE TRUNC(departure\_time) = DATE '2024-03-13';

2

TRIP_ID	DEPARTURE_CITY	ARRIVAL_CITY	DEPARTURE_TIME	DISTANCE	PRICE
10	Riyadh	Jeddah	13-MAR-24 10.00.00.000000 AM	150	150
11	Medina	Riyadh	13-MAR-24 12.00.00.000000 PM	170	100

Task (8):

Show the total number of available seats for each trip.

Live SQL

SQL Worksheet

1 SELECT s.trip\_ID, COUNT(ts.train\_ID \* t.seats\_each\_trailer) AS total\_available\_seats

2 FROM Schedule s

3 LEFT JOIN Train\_Station ts ON s.departure\_city = ts.Station\_code

4 LEFT JOIN Train t ON ts.train\_ID = t.train\_ID

5 GROUP BY s.trip\_ID;

6

TRIP_ID	TOTAL_AVAILABLE_SEATS
14	0
15	0
12	0
11	0
10	0

Task (9):

List all trips with their corresponding departure and arrival cities.

Live SQL

SQL Worksheet

1

SELECT trip\_ID, departure\_city, arrival\_city FROM Schedule;

2

3

4

INSERT INTO Schedule (trip\_ID, departure\_city, arrival\_city, departure\_time, distance, price)

5

VALUES (12, 'Jeddah', 'Mecca', TIMESTAMP '2024-03-13 14:00:00', 80.0, 80);

6

7

INSERT INTO Schedule (trip\_ID, departure\_city, arrival\_city, departure\_time, distance, price)

8

VALUES (13, 'Mecca', 'Medina', TIMESTAMP '2024-03-13 16:00:00', 200.0, 200);

9

10

INSERT INTO Schedule (trip\_ID, departure\_city, arrival\_city, departure\_time, distance, price)

11

VALUES (14, 'Riyadh', 'Dammam', TIMESTAMP '2024-03-14 08:00:00', 400.0, 300);

12

13

INSERT INTO Schedule (trip\_ID, departure\_city, arrival\_city, departure\_time, distance, price)

14

VALUES (15, 'Dammam', 'Riyadh', TIMESTAMP '2024-03-14 12:00:00', 400.0, 300);

15

TRIP_ID	DEPARTURE_CITY	ARRIVAL_CITY
10	Riyadh	Jeddah
11	Medina	Riyadh
12	Jeddah	Mecca
13	Mecca	Medina
14	Riyadh	Dammam
15	Dammam	Riyadh

Task (10):

Display the total revenue generated from ticket sales for a specific date range.

Live SQL

SQL Worksheet

1

SELECT SUM(s.price) AS total\_revenue

2

FROM Ticket t

3

JOIN Schedule s ON t.trip\_ID = s.trip\_ID

4



WHERE t.ticket\_date BETWEEN DATE '2024-09-12' AND DATE '2024-09-29';

5

TOTAL_REVENUE
150

## Task (11):

Show the average speed of all trains.

  Live SQL



SQL Worksheet

```
1 SELECT AVG(speed) AS average_speed FROM Train;
2
```

AVERAGE_SPEED
310

## Task (12):

Retrieve the most popular departure and arrival cities based on the number of trips.

  Live SQL

SQL Worksheet

```
1 WITH DepartureCounts AS (
2   SELECT departure_city, COUNT(*) AS departure_count
3   FROM Schedule
4   GROUP BY departure_city
5   ORDER BY COUNT(*) DESC
6 ),
7 ArrivalCounts AS (
8   SELECT arrival_city, COUNT(*) AS arrival_count
9   FROM Schedule
10  GROUP BY arrival_city
11  ORDER BY COUNT(*) DESC
12 )
13 SELECT
14   (SELECT departure_city FROM DepartureCounts WHERE ROWNUM = 1) AS most_popular_departure_city,
15   (SELECT arrival_city FROM ArrivalCounts WHERE ROWNUM = 1) AS most_popular_arrival_city
16 FROM dual;
```

MOST_POPULAR_DEPARTURE_CITY	MOST_POPULAR_ARRIVAL_CITY
Riyadh	Riyadh

**Task (13):**  
List all trips sorted by departure time.

Live SQL

SQL Worksheet

1

SELECT \*

2

FROM Schedule

3

ORDER BY departure\_time;

4

TRIP_ID	DEPARTURE_CITY	ARRIVAL_CITY	DEPARTURE_TIME	DISTANCE	PRICE
10	Riyadh	Jeddah	13-MAR-24 10.00.00.000000 AM	150	150
11	Medina	Riyadh	13-MAR-24 12.00.00.000000 PM	170	100
12	Jeddah	Mecca	13-MAR-24 02.00.00.000000 PM	80	80
13	Mecca	Medina	13-MAR-24 04.00.00.000000 PM	200	200
14	Riyadh	Dammam	14-MAR-24 08.00.00.000000 AM	400	300
15	Dammam	Riyadh	14-MAR-24 12.00.00.000000 PM	400	300

**Task (14):**  
Display the total distance traveled by each train.

Live SQL

SQL Worksheet

1

SELECT

2

trip\_ID AS train,

3

SUM(distance) AS traveled\_distance

4

FROM

5

Schedule

6

WHERE

7

departure\_time < CURRENT\_TIMESTAMP

8

GROUP BY

9



trip\_ID;

10

TRAIN	TRAVELED_DISTANCE
10	150
11	170
12	80
13	200
14	400
15	400

## Task (15):

Show the total number of tickets booked for each trip.

  Live SQL

SQL Worksheet

1 ✓

2

3

4

```
SELECT trip_ID, COUNT(*) AS total_tickets_booked
FROM Ticket
GROUP BY trip_ID;
```

TRIP_ID	TOTAL_TICKETS_BOOKED
11	1
10	1

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