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ER_Diagram for Case Study_1 using Mysql Workbench

```
 1 •    create database CaseStudy;
 2
 3 •    use CaseStudy;
 4
 5      -- Create the Passenger table
 6 •    CREATE TABLE Passenger (
 7          passenger_ID INT PRIMARY KEY,
 8          first_name VARCHAR(50),
 9          last_name VARCHAR(50),
10          phone VARCHAR(20),
11          gender VARCHAR(10)
12      );
13
14      -- Insert sample values into the Passenger table
15 •    INSERT INTO Passenger (passenger_ID, first_name, last_name, phone, gender)
16      VALUES
17          (1, 'John', 'Doe', '123-456-7890', 'Male'),
18          (2, 'Jane', 'Smith', '987-654-3210', 'Female'),
19          (3, 'Alice', 'Johnson', '555-123-4567', 'Female'),
20          (4, 'Bob', 'Wilson', '777-888-9999', 'Male');
21
22 •    select * from Passenger;
```

- Passenger Table:

passenger_ID	first_name	last_name	phone	gender
1	John	Doe	123-456-7890	Male
2	Jane	Smith	987-654-3210	Female
3	Alice	Johnson	555-123-4567	Female
4	Bob	Wilson	777-888-9999	Male
NULL	NULL	NULL	NULL	NULL

```sql
24    -- Create the Train table
25  ● ⊖ CREATE TABLE Train (
26        train_num INT PRIMARY KEY,
27        train_name VARCHAR(100),
28        source_station VARCHAR(100),
29        destination_station VARCHAR(100),
30        departure_time TIME,
31        arrival_time TIME,
32        seats_available INT
33    ⌐ );
34
35    -- Insert sample values into the Train table
36  ● INSERT INTO Train (train_num, train_name, source_station, destination_station, departure_time, arrival_time, seats_available)
37    VALUES
38        (101, 'Express 101', 'Station A', 'Station B', '08:00:00', '10:00:00', 150),
39        (202, 'Local 202', 'Station X', 'Station Y', '09:30:00', '11:45:00', 120),
40        (303, 'Superfast 303', 'Station P', 'Station Q', '13:15:00', '16:30:00', 200),
41        (404, 'Regional 404', 'Station M', 'Station N', '14:45:00', '17:20:00', 180);
42
43  ● select * from Train;
```

- Train Table:

train_num	train_name	source_stati...	destination_stati...	departure_ti...	arrival_time	seats_available	
101	Express 101	Station A	Station B	08:00:00	10:00:00	150	
202	Local 202	Station X	Station Y	09:30:00	11:45:00	120	
303	Superfast 303	Station P	Station Q	13:15:00	16:30:00	200	
404	Regional 404	Station M	Station N	14:45:00	17:20:00	180	
NULL	NULL	NULL	NULL	NULL	NULL	NULL	

```sql
46    -- Create the Station table
47  ● ⊖ CREATE TABLE Station (
48        station_ID INT PRIMARY KEY,
49        station_name VARCHAR(100),
50        arrival_time TIME,
51        halt_time TIME,
52        train_num INT,
53        FOREIGN KEY (train_num) REFERENCES Train(train_num)
54    ⌐ );
55
56    -- Insert sample values into the Station table
57  ● INSERT INTO Station (station_ID, station_name, arrival_time, halt_time, train_num)
58    VALUES
59        (1, 'Station A', '08:00:00', '00:15:00', 101),
60        (2, 'Station B', '09:30:00', '00:10:00', 101),
61        (3, 'Station X', '08:15:00', '00:15:00', 202),
62        (4, 'Station Y', '09:45:00', '00:10:00', 202);
63
64  ● select * from Station;
```

- Station Table:

station_ID	station_name	arrival_time	halt_time	train_num	
1	Station A	08:00:00	00:15:00	101	
2	Station B	09:30:00	00:10:00	101	
3	Station X	08:15:00	00:15:00	202	
4	Station Y	09:45:00	00:10:00	202	
NULL	NULL	NULL	NULL	NULL	

```sql
 92     -- Create the Payment table
 93   ⊖ CREATE TABLE Payment (
 94         payment_ID INT PRIMARY KEY,
 95         ticket_ID INT,
 96         payment_date DATE,
 97         payment_amount DECIMAL(10, 2),
 98         payment_status VARCHAR(20)
 99     );
100
101     -- Insert sample values into the Payment table
102     INSERT INTO Payment (payment_ID, ticket_ID, payment_date, payment_amount, payment_status)
103     VALUES
104         (1, 1, '2023-10-25', 150.00, 'Paid'),
105         (2, 2, '2023-10-26', 180.00, 'Paid'),
106         (3, 3, '2023-10-27', 200.00, 'Paid'),
107         (4, 4, '2023-10-28', 160.00, 'Paid');
108
109     select * from Payment;
```

- Payment Table:

payment_ID	ticket_ID	payment_date	payment_amou...	payment_stat...
1	1	2023-10-25	150.00	Paid
2	2	2023-10-26	180.00	Paid
3	3	2023-10-27	200.00	Paid
4	4	2023-10-28	160.00	Paid
NULL	NULL	NULL	NULL	NULL

```sql
 66     -- Create the Ticket table
 67   ⊖ CREATE TABLE Ticket (
 68         ticket_ID INT PRIMARY KEY,
 69         passenger_ID INT,
 70         train_num INT,
 71         departure_station VARCHAR(100),
 72         arrival_station VARCHAR(100),
 73         booking_date DATE,
 74         seat_num VARCHAR(10),
 75         status VARCHAR(20),
 76         fare DECIMAL(10, 2),
 77         payment_ID INT,
 78         FOREIGN KEY (passenger_ID) REFERENCES Passenger(passenger_ID),
 79         FOREIGN KEY (train_num) REFERENCES Train(train_num),
 80         FOREIGN KEY (payment_ID) REFERENCES Payment(payment_ID)
 81     );
 82
 83     -- Insert sample values into the Ticket table
 84     INSERT INTO Ticket (ticket_ID, passenger_ID, train_num, departure_station, arrival_station, booking_date, seat_num, status, fare, payment_ID)
 85     VALUES
 86         (1, 1, 101, 'Station A', 'Station B', '2023-10-25', 'A12', 'Confirmed', 150.00, 1),
 87         (2, 2, 202, 'Station X', 'Station Y', '2023-10-26', 'B34', 'Confirmed', 180.00, 2),
 88         (3, 3, 303, 'Station P', 'Station Q', '2023-10-27', 'C45', 'Confirmed', 200.00, 3),
 89         (4, 4, 404, 'Station M', 'Station N', '2023-10-28', 'D56', 'Confirmed', 160.00, 4);
 90     select * from Ticket;
```

- Ticket Table:

ticket_ID	passenger_ID	train_num	departure_stati...	arrival_stati...	booking_date	seat_num	status	fare	payment_ID
1	1	101	Station A	Station B	2023-10-25	A12	Confirmed	150.00	1
2	2	202	Station X	Station Y	2023-10-26	B34	Confirmed	180.00	2
3	3	303	Station P	Station Q	2023-10-27	C45	Confirmed	200.00	3
4	4	404	Station M	Station N	2023-10-28	D56	Confirmed	160.00	4
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

- All Tables:

```
112 ●    show tables;
```

Tables_in_casestu...
Passenger
Payment
Station
Ticket
Train

- ER Diagram using My SQL Workbench