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ER_Diagram for Case Study_1 using Mysql Workbench

1. Users Table

CaseStudy_ErDiagram

Limit to 1000 rows

```
1  Create database CaseStudy;
2  use CaseStudy;
3  -- User Table
4  CREATE TABLE Users (
5      user_id INT PRIMARY KEY,
6      username VARCHAR(50),
7      password VARCHAR(100),
8      email VARCHAR(100),
9      phone VARCHAR(15)
10 );
11 INSERT INTO Users (user_id, username, password, email, phone)
12 VALUES (1, 'user1', 'password123', 'user1@example.com', '+1234567890'),
13        (2, 'user2', 'securepass', 'user2@example.com', '+2345678901');
14 INSERT INTO Users (user_id, username, password, email, phone)
15 VALUES (3, 'user3', 'pass123', 'user3@example.com', '+5678901234'),
16        (4, 'admin', 'adminpass', 'admin@example.com', '+6789012345');
17 select* from Users;
```

user_id	username	password	email	phone
1	user1	password123	user1@example.com	+1234567890
2	user2	securepass	user2@example.com	+2345678901
3	user3	pass123	user3@example.com	+5678901234
4	admin	adminpass	admin@example.com	+6789012345
NULL	NULL	NULL	NULL	NULL

2. Passengers Table

```sql
-- Passengers Table
CREATE TABLE Passengers (
    passenger_id INT PRIMARY KEY,
    first_name VARCHAR(50),
    last_name VARCHAR(50),
    email VARCHAR(100),
    phone VARCHAR(15)
);
INSERT INTO Passengers (passenger_id, first_name, last_name, email, phone)
VALUES (1, 'John', 'Doe', 'john.doe@example.com', '+3456789012'),
       (2, 'Alice', 'Johnson', 'alice@example.com', '+4567890123');
INSERT INTO Passengers (passenger_id, first_name, last_name, email, phone)
VALUES (3, 'Emma', 'Smith', 'emma@example.com', '+7890123456'),
       (4, 'Michael', 'Johnson', 'michael@example.com', '+8901234567');
select * from Passengers;
```

passenger_id	first_name	last_name	email	phone
1	John	Doe	john.doe@example.com	+3456789012
2	Alice	Johnson	alice@example.com	+4567890123
3	Emma	Smith	emma@example.com	+7890123456
4	Michael	Johnson	michael@example.com	+8901234567
NULL	NULL	NULL	NULL	NULL

3. Trains Table

```sql
-- Trains Table
CREATE TABLE Trains (
    train_id INT PRIMARY KEY,
    train_name VARCHAR(50),
    departure_station VARCHAR(50),
    arrival_station VARCHAR(50),
    departure_time TIME,
    arrival_time TIME
);
INSERT INTO Trains (train_id, train_name, departure_station, arrival_station, departure_time, arrival_time)
VALUES (101, 'Express 101', 'Station A', 'Station B', '08:00:00', '10:00:00'),
       (102, 'Swift Travel', 'Station C', 'Station D', '09:30:00', '12:00:00');
INSERT INTO Trains (train_id, train_name, departure_station, arrival_station, departure_time, arrival_time)
VALUES (103, 'Rapid Express', 'Station E', 'Station F', '11:00:00', '13:00:00'),
       (104, 'Swift Voyager', 'Station G', 'Station H', '14:30:00', '16:30:00');
select * from Trains;
```

train_id	train_name	departure_station	arrival_station	departure_time	arrival_time
101	Express 101	Station A	Station B	08:00:00	10:00:00
102	Swift Travel	Station C	Station D	09:30:00	12:00:00
103	Rapid Express	Station E	Station F	11:00:00	13:00:00
104	Swift Voyager	Station G	Station H	14:30:00	16:30:00
NULL	NULL	NULL	NULL	NULL	NULL

4. Reservations Table

```sql
-- Reservations Table
CREATE TABLE Reservations (
    reservation_id INT PRIMARY KEY,
    user_id INT,
    train_id INT,
    passenger_id INT,
    seat_number VARCHAR(10),
    status VARCHAR(20),
    check_in_date DATE,
    check_out_date DATE,
    FOREIGN KEY (user_id) REFERENCES Users(user_id),
    FOREIGN KEY (train_id) REFERENCES Trains(train_id),
    FOREIGN KEY (passenger_id) REFERENCES Passengers(passenger_id)
);
INSERT INTO Reservations (reservation_id, user_id, train_id, passenger_id, seat_number, status, check_in_date, check_out_date)
VALUES (1, 1, 101, 1, 'A23', 'Confirmed', '2023-11-01', '2023-11-03'),
       (2, 2, 102, 2, 'B15', 'Confirmed', '2023-11-02', '2023-11-04');
INSERT INTO Reservations (reservation_id, user_id, train_id, passenger_id, seat_number, status, check_in_date, check_out_date)
VALUES (3, 3, 103, 3, 'C12', 'Confirmed', '2023-11-05', '2023-11-07'),
       (4, 4, 104, 4, 'D07', 'Pending', '2023-11-06', '2023-11-08');
select * from Reservations;
```

reservation_id	user_id	train_id	passenger_id	seat_number	status	check_in_date	check_out_date
1	1	101	1	A23	Confirmed	2023-11-01	2023-11-03
2	2	102	2	B15	Confirmed	2023-11-02	2023-11-04
3	3	103	3	C12	Confirmed	2023-11-05	2023-11-07
4	4	104	4	D07	Pending	2023-11-06	2023-11-08
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

5. Payments Table

```
74    -- Payments Table
75    CREATE TABLE Payments (
76        payment_id INT PRIMARY KEY,
77        reservation_id INT,
78        payment_amount DECIMAL(10,2),
79        payment_status VARCHAR(20),
80        payment_method VARCHAR(50),
81        transaction_date DATETIME,
82        FOREIGN KEY (reservation_id) REFERENCES Reservations(reservation_id)
83    );
84    INSERT INTO Payments (payment_id, reservation_id, payment_amount, payment_status, payment_method, transaction_date)
85    VALUES (1, 1, 100.00, 'Paid', 'Credit Card', '2023-11-01 10:30:00'),
86           (2, 2, 120.50, 'Paid', 'PayPal', '2023-11-02 11:45:00');
87    INSERT INTO Payments (payment_id, reservation_id, payment_amount, payment_status, payment_method, transaction_date)
88    VALUES (3, 3, 85.75, 'Paid', 'Credit Card', '2023-11-05 12:15:00'),
89           (4, 4, 92.20, 'Pending', 'PayPal', '2023-11-06 14:30:00');
90    select * from Payments;
```

payment_id	reservation_id	payment_amount	payment_status	payment_method	transaction_date
1	1	100.00	Paid	Credit Card	2023-11-01 10:30:00
2	2	120.50	Paid	PayPal	2023-11-02 11:45:00
3	3	85.75	Paid	Credit Card	2023-11-05 12:15:00
4	4	92.20	Pending	PayPal	2023-11-06 14:30:00
NULL	NULL	NULL	NULL	NULL	NULL

6. Tickets Table

```
-- Tickets Table
CREATE TABLE Tickets (
    ticket_id INT PRIMARY KEY,
    reservation_id INT,
    seat_number VARCHAR(10),
    ticket_status VARCHAR(20),
    departure_date DATE,
    departure_time TIME,
    arrival_date DATE,
    arrival_time TIME,
    boarding_gate VARCHAR(10),
    FOREIGN KEY (reservation_id) REFERENCES Reservations(reservation_id)
);
INSERT INTO Tickets (ticket_id, reservation_id, seat_number, ticket_status, departure_date, departure_time, arrival_date, arrival_time, boarding_gate)
VALUES (1, 1, 'A23', 'Confirmed', '2023-11-01', '08:00:00', '2023-11-03', '10:00:00', 'Gate A'),
       (2, 2, 'B15', 'Confirmed', '2023-11-02', '09:30:00', '2023-11-04', '12:00:00', 'Gate B');
INSERT INTO Tickets (ticket_id, reservation_id, seat_number, ticket_status, departure_date, departure_time, arrival_date, arrival_time, boarding_gate)
VALUES (3, 3, 'C12', 'Confirmed', '2023-11-05', '11:00:00', '2023-11-07', '13:00:00', 'Gate C'),
       (4, 4, 'D07', 'Pending', '2023-11-06', '14:30:00', '2023-11-08', '16:30:00', 'Gate D');
select * from Tickets;
```

ticket_id	reservation_id	seat_number	ticket_status	departure_date	departure_time	arrival_date	arrival_time	boarding_gate
1	1	A23	Confirmed	2023-11-01	08:00:00	2023-11-03	10:00:00	Gate A
2	2	B15	Confirmed	2023-11-02	09:30:00	2023-11-04	12:00:00	Gate B
3	3	C12	Confirmed	2023-11-05	11:00:00	2023-11-07	13:00:00	Gate C
4	4	D07	Pending	2023-11-06	14:30:00	2023-11-08	16:30:00	Gate D
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

All tables in the database:

```
113 •  show tables;
```

Result Grid | Filter Rows:

Tables_in_casestudy
passengers
payments
reservations
tickets
trains
users

ER Diagram using MySql WorkBench