

# **RDBMS MICRO PROJECT**

Class: SY Int-Btech Cse I

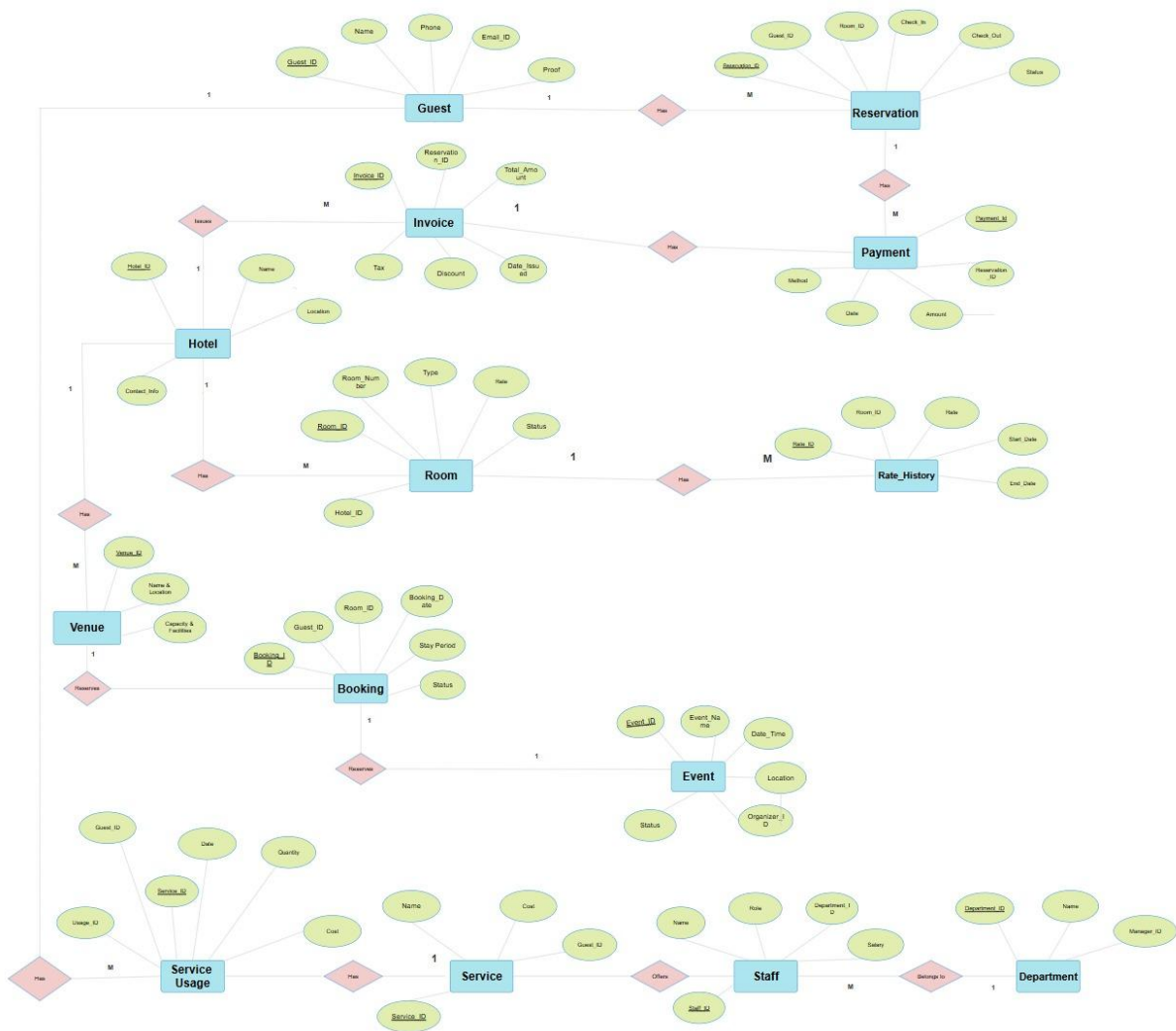
Title: Hotel Management System

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# ER Diagram



# Case Study

## Case Study Title: Hotel Management System

### 1. Introduction:-

The Hotel Management System is designed to automate and simplify the operations of a hotel. It manages reservations, guest details, rooms, billing, staff, services, inventory, and events. The main objective is to improve efficiency, reduce manual errors, and provide better guest experiences.

### 2. Objectives:-

1. To maintain records of guests, reservations, and payments.
2. To manage room availability, rate history, and booking details.
3. To handle invoices and streamline financial transactions.
4. To manage services, staff, and departmental activities.
5. To keep track of hotel inventory and stock levels.
6. To organize events and venues within the hotel.

### 3. Entities and Their Roles:-

1. Guest – Stores guest details such as Guest\_ID, Name, Phone, Email, Address.
2. Reservation – Manages booking details (Reservation\_ID, Date, Duration).
3. Invoice – Records billing info (Invoice\_ID, Amount, Discount, Tax).
4. Payment – Tracks payments made by guests.
5. Hotel – Holds general details of the hotel (Hotel\_ID, Name, Location).
6. Room – Contains room details (Room\_ID, Type, Status, Rate).
7. Rate History – Stores price changes over time.
8. Venue – Details of venues available for events.
9. Booking – Manages reservations for rooms/venues.
10. Event – Records event details such as Event\_ID, Date, Organizer.
11. Service – Hotel services such as laundry, food, spa.
12. Service Usage – Tracks which services are used by which guest.
13. Staff – Employee details including Staff\_ID, Role, Salary.
14. Department – Departments such as housekeeping, catering, management.

### 4. Relationships:-

1. Guest–Reservation: A guest can make many reservations.
2. Reservation–Invoice–Payment: Each reservation generates invoices and payments.
3. Hotel–Room: A hotel contains multiple rooms.
4. Room–Rate History: Room prices change over time.
5. Booking–Event–Venue: Bookings are made for events and linked to venues.
6. Guest–Service Usage–Service: Guests use services provided by the hotel.
7. Staff–Department–Service: Staff belong to departments and provide services.

## **5. System Workflow:-**

1. Guest makes a reservation.
2. System checks room availability and confirms booking.
3. At check-in, guest details are stored.
4. Invoice and payment are generated at check-out.
5. Guests can avail extra services (food, laundry, spa), which are added to the invoice.
6. Staff and departments ensure smooth hotel operations.
7. Hotels may host events; bookings for venues are managed in the system.

## **6. Advantages:-**

1. Easy management of reservations and guest records.
2. Accurate billing and payment tracking.
3. Proper monitoring of inventory and stock.
4. Efficient staff and service management.
5. Enhanced guest experience with smooth operations.

## **7. Conclusion:-**

This Hotel Management System provides an integrated solution to manage hotel operations digitally. The ER diagram shows a complete structure covering guests, staff, services, events, and billing. Implementing this system reduces errors, saves time, and ensures better customer satisfaction.

# SQL MODULE

```
mysql> create table hotel
-> (hotel_id int primary key, name char(30) not null, location varchar(30) not null, contact_info varchar(30) not null);
Query OK, 0 rows affected (0.05 sec)
```

```
mysql> desc hotel;
```

Field	Type	Null	Key	Default	Extra
hotel_id	int	NO	PRI	NULL	
name	char(30)	NO		NULL	
location	varchar(30)	NO		NULL	
contact_info	varchar(30)	NO		NULL	

```
4 rows in set (0.01 sec)
```

```
mysql> insert into hotel values (1, 'Grand Palace Hotel', 'New York', 'contact@grandpalace.com');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> select * from hotel;
```

hotel_id	name	location	contact_info
1	Grand Palace Hotel	New York	contact@grandpalace.com

```
1 row in set (0.00 sec)
```

```
mysql> update hotel set location='New York, USA' where hotel_id=1;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> select * from hotel;
```

hotel_id	name	location	contact_info
1	Grand Palace Hotel	New York, USA	contact@grandpalace.com

```
1 row in set (0.00 sec)
```

```
mysql> insert into hotel values (2, 'Westin', 'Pune, India', 'contact@westin.com');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into hotel values (3, 'VTP', 'Pune, India', 'contact@VTP.com');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into hotel values (4, 'Blue Diamond', 'Pune, India', 'contact@BlueDiamond.com');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into hotel values (5, 'Sheraton', 'Pune, India', 'contact@Sheraton.com');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into hotel values (6, 'Taj Hotel', 'Mumbai, India', 'contact@Taj.com');
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into hotel values (7, 'Fern', 'Igatpuri, India', 'contact@fern.com');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into hotel values (8, 'Hyatt', 'Pune, India', 'contact@hyatt.com');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> select * from hotel;
```

hotel_id	name	location	contact_info
1	Grand Palace Hotel	New York, USA	contact@grandpalace.com
2	Westin	Pune, India	contact@westin.com
3	VTP	Pune, India	contact@VTP.com
4	Blue Diamond	Pune, India	contact@BlueDiamond.com
5	Sheraton	Pune, India	contact@Sheraton.com
6	Taj Hotel	Mumbai, India	contact@Taj.com
7	Fern	Igatpuri, India	contact@fern.com
8	Hyatt	Pune, India	contact@hyatt.com

```
8 rows in set (0.00 sec)
```

```
mysql> create table guest
-> (guest_id int primary key, name char(30) not null, phone int, email varchar(30) not null, id_proof varchar(30) not null);
Query OK, 0 rows affected (0.05 sec)
```

```
mysql> alter table guest add constraint uk unique (phone);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'unique (phone)' at line 1
```

```
mysql> alter table guest add constraint uk unique (phone);
Query OK, 0 rows affected (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc guest;
```

Field	Type	Null	Key	Default	Extra
guest_id	int	NO	PRI	NULL	
name	char(30)	NO		NULL	
phone	int	YES	UNI	NULL	
email	varchar(30)	NO		NULL	
id_proof	varchar(30)	NO		NULL	

```
5 rows in set (0.01 sec)
```

```
mysql> insert into guest values
-> (1, 'Chinmayi', 988123, 'chinmayi@gmail.com', 'DL123456');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into guest values
-> (2, 'Alina', 764123, 'alina@gmail.com', 'DL123457');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into guest values
-> (3,'Taru',764454,'taru@gmail.com','DL123458');
Query OK, 1 row affected (0.02 sec)

mysql> insert into guest values
-> (4,'Kunshi',764874,'kunshi@gmail.com','DL123479');
Query OK, 1 row affected (0.02 sec)

mysql> insert into guest values
-> (5,'Anamika',986874,'anamika@gmail.com','DL123487');
Query OK, 1 row affected (0.02 sec)

mysql> insert into guest values
-> (6,'Rakshita',765874,'rakshita@gmail.com','DL123489');
Query OK, 1 row affected (0.02 sec)

mysql> insert into guest values
-> (7,'Diganta',770874,'diganta@gmail.com','DL123495');
Query OK, 1 row affected (0.02 sec)

mysql> insert into guest values
-> (8,'Abhirami',770868,'abhirami@gmail.com','DL123486');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> select * from guest;
```

guest_id	name	phone	email	id_proof
1	Chinmayi	988123	chinmayi@gmail.com	DL123456
2	Alina	764123	alina@gmail.com	DL123457
3	Taru	764454	taru@gmail.com	DL123458
4	Kunshi	764874	kunshi@gmail.com	DL123479
5	Anamika	986874	anamika@gmail.com	DL123487
6	Rakshita	765874	rakshita@gmail.com	DL123489
7	Diganta	770874	diganta@gmail.com	DL123495
8	Abhirami	770868	abhirami@gmail.com	DL123486

```
mysql> create table department
-> (department_id int primary key, name char(30) not null, manager_id int not null);
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> alter table department add constraint uk unique(manager_id);
Query OK, 0 rows affected (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc department;
```

Field	Type	Null	Key	Default	Extra
department_id	int	NO	PRI	NULL	
name	char(30)	NO		NULL	
manager_id	int	NO	UNI	NULL	

3 rows in set (0.00 sec)

```
mysql> insert into department values
-> \c
mysql> alter table department modify manager_id varchar(20);
Query OK, 0 rows affected (0.09 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc department;
```

Field	Type	Null	Key	Default	Extra
department_id	int	NO	PRI	NULL	
name	char(30)	NO		NULL	
manager_id	varchar(20)	YES	UNI	NULL	

3 rows in set (0.00 sec)

```
mysql> insert into department values
-> (1,'Front office', 'D1');
Query OK, 1 row affected (0.01 sec)

mysql> insert into department values
-> (2,'Food', 'D2');
Query OK, 1 row affected (0.00 sec)

mysql> insert into department values
-> (3,'House keeping', 'D3');
Query OK, 1 row affected (0.01 sec)

mysql> (3,'Security', 'D4');
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '3
,'Security', 'D4')' at line 1
mysql> insert into department values
-> (4,'Security', 'D4');
Query OK, 1 row affected (0.00 sec)

mysql> insert into department values
-> (5,'Accounts', 'D5');
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from department;
```

department_id	name	manager_id
1	Front office	D1
2	Food	D2
3	House keeping	D3
4	Security	D4
5	Accounts	D5

5 rows in set (0.00 sec)

```
mysql> create table staff
-> (staff_id int primary key, name char(30) not null, role char(30), dept_id int not null, salary int not null);
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> alter table staff add constraint chk check (salary>10000);
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc staff;
```

Field	Type	Null	Key	Default	Extra
staff_id	int	NO	PRI	NULL	
name	char(30)	NO		NULL	
role	char(30)	YES		NULL	
dept_id	int	NO		NULL	
salary	int	NO		NULL	

```
5 rows in set (0.00 sec)
```

```
mysql> insert into staff values
-> (1,'Abhiruchi','Chef',2,40000);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into staff values
-> (2,'Tanmay','Accountant',32,50000);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into staff values
-> (3,'Nimish','House keeper',42,25000);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from staff;
```

staff_id	name	role	dept_id	salary
1	Abhiruchi	Chef	2	40000
2	Tanmay	Accountant	32	50000
3	Nimish	House keeper	42	25000

```
3 rows in set (0.00 sec)
```

```
mysql> create table service
-> (service_id int primary key, name char(30) not null, cost int not null);
Query OK, 0 rows affected (0.06 sec)
```

```
mysql> insert into service
```

```
-> \c
```

```
mysql> alter table service add constraint chk_cost check (cost>2000);
Query OK, 0 rows affected (0.09 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> insert into service
```

```
-> (1, 'Accommodation', 10000);
```

```
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '1, 'Accommodation', 10000)' at line 2
```

```
mysql> insert into service values
```

```
-> (1,'Accommodation',10000);
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into service values
```

```
-> (2,'Food',5000);
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into service values
```

```
-> (3,'House keeping',3000);
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into service values
```

```
-> (4,'Recreation',17000);
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into service values
```

```
-> (5,'Event',20000);
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into service values
```

```
-> (6,'Security',21000);
```

```
Query OK, 1 row affected (0.02 sec)
```



```
mysql> select * from service;
```

service_id	name	cost
1	Accommodation	10000
2	Food	5000
3	House keeping	3000
4	Recreation	17000
5	Event	20000
6	Security	21000

```
6 rows in set (0.00 sec)

mysql> create table room
-> (room_no int primary key, type char(30)
-> \c
mysql> create table room
-> (room_no int primary key, type char(30) not null, status char(30) not null, rate int constraint chk_rate check(rate>3000), constraint fk_
hotel_id
-> foreign key(hotel_id) references hotel(hotel_id));
ERROR 1072 (42000): Key column 'hotel_id' doesn't exist in table
mysql> alter table room add hotel_id int;
ERROR 1146 (42502): Table 'demo.room' doesn't exist
mysql> create table room
-> (room_no int primary key, type char(30) not null, status char(30) not null, rate int constraint chk_rate check(rate>3000),
-> hotel_id int, constraint fk_hotelid foreign key(hotel_id) references hotel(hotel_id));
Query OK, 0 rows affected (0.14 sec)

mysql> desc room;
```

Field	Type	Null	Key	Default	Extra
room_no	int	NO	PRI	NULL	
type	char(30)	NO		NULL	
status	char(30)	NO		NULL	
rate	int	YES		NULL	
hotel_id	int	YES	MUL	NULL	

```
mysql> insert into room values
-> (100,'standard','Available',4000,1);
Query OK, 1 row affected (0.02 sec)

mysql> insert into room values
-> (201,'Deluxe','Available',5000,2);
Query OK, 1 row affected (0.02 sec)

mysql> insert into room values
-> (301,'Suite','Available',6000,3);
Query OK, 1 row affected (0.02 sec)

mysql> insert into room values
-> (401,'Executive','Available',7000,4);
Query OK, 1 row affected (0.00 sec)

mysql> insert into room values
-> (101,'Standard','Available',4000,5);
Query OK, 1 row affected (0.02 sec)

mysql> insert into room values
-> (202,'Deluxe','Available',5000,6);
Query OK, 1 row affected (0.02 sec)

mysql> insert into room values
-> (302,'Suite','Available',6000,7);
Query OK, 1 row affected (0.02 sec)

mysql> insert into room values
-> (402,'Executive','Available',7000,8);
Query OK, 1 row affected (0.02 sec)

mysql> select * from room;
```

room_no	type	status	rate	hotel_id
100	standard	Available	4000	1
101	Standard	Available	4000	5
201	Deluxe	Available	5000	2
202	Deluxe	Available	5000	6
301	Suite	Available	6000	3
302	Suite	Available	6000	7
401	Executive	Available	7000	4
402	Executive	Available	7000	8

```
8 rows in set (0.00 sec)

mysql> create table reservation
-> (reservation_id int primary key, guest_id int, room_id int, check_in date not null, check_out date not null, status char(30) not null,
-> \c
mysql> create table reservation
-> (reservation_id int primary key, guest_id int, room_no int, check_in date not null, check_out date not null, status char(30) not null,
-> constraint fk_guest_id foreign key(guest_id) references guest(guest_id), constraint fk_room_no foreign key(room_no) references room(room_
no));
Query OK, 0 rows affected (0.08 sec)

mysql> insert into reservation values
-> (12622,1,100,'2025-01-02','2025-01-03','Availabe');
Query OK, 1 row affected (0.02 sec)

mysql> insert into reservation values
-> (12623,2,101,'2025-01-02','2025-01-04','Availabe');
Query OK, 1 row affected (0.02 sec)

mysql> insert into reservation values
-> (12624,3,201,'2025-01-02','2025-01-06','Available');
Query OK, 1 row affected (0.02 sec)
```

```

mysql> insert into reservation values
-> (12625,4,201,'2025-01-02','2025-01-08','Available');
Query OK, 1 row affected (0.02 sec)

mysql> insert into reservation values
-> (12626,5,202,'2025-01-01','2025-01-09','Available');
Query OK, 1 row affected (0.02 sec)

mysql> insert into reservation values
-> (12627,6,301,'2025-01-03','2025-01-10','Available');
Query OK, 1 row affected (0.02 sec)

mysql> insert into reservation values
-> (12628,7,341,'2025-01-03','2025-01-13','Available');
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails ('demo`.`reservation`, CONSTRAINT `fk_room_no` FOREIGN KEY
(`room_no`) REFERENCES `room` (`room_no`))
mysql> select * from reservation;
+-----+-----+-----+-----+-----+-----+
| reservation_id | guest_id | room_no | check_in | check_out | status |
+-----+-----+-----+-----+-----+-----+
| 12622 | 1 | 100 | 2025-01-02 | 2025-01-03 | Availabe |
| 12623 | 2 | 101 | 2025-01-02 | 2025-01-04 | Availabe |
| 12624 | 3 | 201 | 2025-01-02 | 2025-01-06 | Available |
| 12625 | 4 | 201 | 2025-01-02 | 2025-01-08 | Available |
| 12626 | 5 | 202 | 2025-01-01 | 2025-01-09 | Available |
| 12627 | 6 | 301 | 2025-01-03 | 2025-01-10 | Available |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> insert into room values
-> \c
mysql> insert into reservation values
-> (126228,7,202,'2025-01-03','2025-01-12','Available');
Query OK, 1 row affected (0.02 sec)

mysql> insert into reservation values
-> (126229,8,501,'2025-01-10','2025-01-15','Available');

mysql> insert into reservation values
-> (126229,8,402,'2025-01-10','2025-01-15','Available');
Query OK, 1 row affected (0.02 sec)

mysql> select * from reservation;
+-----+-----+-----+-----+-----+-----+
| reservation_id | guest_id | room_no | check_in | check_out | status |
+-----+-----+-----+-----+-----+-----+
| 12622 | 1 | 100 | 2025-01-02 | 2025-01-03 | Availabe |
| 12623 | 2 | 101 | 2025-01-02 | 2025-01-04 | Availabe |
| 12624 | 3 | 201 | 2025-01-02 | 2025-01-06 | Available |
| 12625 | 4 | 201 | 2025-01-02 | 2025-01-08 | Available |
| 12626 | 5 | 202 | 2025-01-01 | 2025-01-09 | Available |
| 12627 | 6 | 301 | 2025-01-03 | 2025-01-10 | Available |
| 126228 | 7 | 202 | 2025-01-03 | 2025-01-12 | Available |
| 126229 | 8 | 402 | 2025-01-10 | 2025-01-15 | Available |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> create table payment
-> (payment_id int primary key, reservation_id int, amount int not null, payment_date date not null, method char(30),
-> constraint fk_reservation_id foreign key(reservation_id) references reservation(reservation_id));
Query OK, 0 rows affected (0.10 sec)

mysql> desc payment;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| payment_id | int | NO | PRI | NULL | |
| reservation_id | int | YES | MUL | NULL | |
| amount | int | NO | | NULL | |
| payment_date | date | NO | | NULL | |
| method | char(30) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> insert into payment values
-> (1011,12622,1000,'2025-01-02','UPI');
Query OK, 1 row affected (0.02 sec)

mysql> insert into payment values
-> (1012,12623,1100,'2025-01-02','UPI');
Query OK, 1 row affected (0.02 sec)

mysql> insert into payment values
-> (1013,12624,22000,'2025-01-03','Check');
Query OK, 1 row affected (0.01 sec)

mysql> insert into payment values
-> (1014,12625,22500,'2025-01-03','Check');
Query OK, 1 row affected (0.02 sec)

mysql> insert into payment values
-> (1015,12626,22600,'2025-01-03','Check');
Query OK, 1 row affected (0.02 sec)

mysql> insert into payment values
-> (1016,12627,22000,'2025-01-04','UPI');
Query OK, 1 row affected (0.02 sec)

mysql> insert into payment values
-> (1017,12627,23000,'2025-01-04','UPI');
Query OK, 1 row affected (0.02 sec)

mysql> insert into payment values
-> (1018,126228,20000,'2025-01-05','UPI');
Query OK, 1 row affected (0.02 sec)

```

```
mysql> select * from payment;
```

payment_id	reservation_id	amount	payment_date	method
1011	12622	1000	2025-01-02	UPI
1012	12623	1100	2025-01-02	UPI
1013	12624	22000	2025-01-03	Check
1014	12625	22500	2025-01-03	Check
1015	12626	22600	2025-01-03	Check
1016	12627	22000	2025-01-04	UPI
1017	12627	23000	2025-01-04	UPI
1018	126228	20000	2025-01-05	UPI

```
8 rows in set (0.00 sec)
```

```
mysql> create table invoice
```

```
-> (invoice_id int primary key, reservation_id int, total_amount int constraint chk_total check(total_amount>2000), tax int, discount int,
-> date_issued date not null, constraint fk_res_id foreign key(reservation_id) references reservation(reservation_id));
Query OK, 0 rows affected (0.07 sec)
```

```
mysql> desc invoice;
```

Field	Type	Null	Key	Default	Extra
invoice_id	int	NO	PRI	NULL	
reservation_id	int	YES	MUL	NULL	
total_amount	int	YES		NULL	
tax	int	YES		NULL	
discount	int	YES		NULL	
date_issued	date	NO		NULL	

```
6 rows in set (0.00 sec)
```

```
mysql> insert into invoice values
```

```
-> (10001,12622,10000,1800,2000,'2025-01-02');
```

```
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails ('demo`.`invoice`, CONSTRAINT `fk_res_id` FOREIGN KEY (`reservation_id`) REFERENCES `reservation` (`reservation_id`))
```

```
mysql> insert into invoice values
```

```
-> (10001,12622,10000,1800,2000,'2025-01-02');
```

```
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into invoice values
```

```
-> (10002,12623,10000,1800,1000,'2025-01-02');
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into invoice values
```

```
-> (10003,12624,22000,3960,5000,'2025-01-03');
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into invoice values
```

```
-> (10004,12625,23000,4140,5500,'2025-01-03');
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into invoice values
```

```
-> (10005,12626,23100,4158,5500,'2025-01-03');
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into invoice values
```

```
-> (10006,12627,22000,3960,5000,'2025-01-04');
```

```
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into invoice values
```

```
-> (10007,126228,54000,9720,7000,'2025-01-03');
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into invoice values
```

```
-> (10008,126229,50000,9000,7000,'2025-01-03');
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> select * from invoice;
```

invoice_id	reservation_id	total_amount	tax	discount	date_issued
10001	12622	10000	1800	2000	2025-01-02
10002	12623	10000	1800	1000	2025-01-02
10003	12624	22000	3960	5000	2025-01-03
10004	12625	23000	4140	5500	2025-01-03
10005	12626	23100	4158	5500	2025-01-03
10006	12627	22000	3960	5000	2025-01-04
10007	126228	54000	9720	7000	2025-01-03
10008	126229	50000	9000	7000	2025-01-03

```
8 rows in set (0.00 sec)
```

```
mysql> create table rate_history
-> (rate_id int primary key, room_no int, rate int constraint ch_rate check(rate>1000), start_date date not null, end_date date not null,
-> constraint fk_rno foreign key(room_no) references room(room_no));
Query OK, 0 rows affected (0.08 sec)
```

```
mysql> desc rate_history;
```

Field	Type	Null	Key	Default	Extra
rate_id	int	NO	PRI	NULL	
room_no	int	YES	MUL	NULL	
rate	int	YES		NULL	
start_date	date	NO		NULL	
end_date	date	NO		NULL	

```
5 rows in set (0.01 sec)
```

```
mysql> insert into rate_history values
-> (901,100,20000,'2025-01-03','2025-01-03');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into rate_history values
-> (902,101,5000,'2025-01-03','2025-01-04');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into rate_history values
-> (903,201,6000,'2025-01-03','2025-01-05');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into rate_history values
-> (904,202,7000,'2025-01-03','2025-01-06');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into rate_history values
-> (905,301,8000,'2025-01-03','2025-01-06');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> select * from rate_history;
```

rate_id	room_no	rate	start_date	end_date
901	100	20000	2025-01-03	2025-01-03
902	101	5000	2025-01-03	2025-01-04
903	201	6000	2025-01-03	2025-01-05
904	202	7000	2025-01-03	2025-01-06
905	301	8000	2025-01-03	2025-01-06

```
5 rows in set (0.00 sec)
```

```
mysql> create table schedule
-> (schedule_id int primary key, staff_id int, shift_start varchar(30) not null, shift_end varchar(30) not null, shift_date date,
-> constraint fk_staff foreign key(staff_id) references staff(staff_id));
Query OK, 0 rows affected (0.09 sec)
```

```
mysql> insert into schedule values
```

```
-> \c
```

```
mysql> desc schedule
```

```
-> ;
```

Field	Type	Null	Key	Default	Extra
schedule_id	int	NO	PRI	NULL	
staff_id	int	YES	MUL	NULL	
shift_start	varchar(30)	NO		NULL	
shift_end	varchar(30)	NO		NULL	
shift_date	date	YES		NULL	

```
5 rows in set (0.00 sec)
```

```
mysql> insert into schedule values
-> (10,1,'07:00','10:00','2025-01-03');
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into schedule values
-> (11,2,'07:00','10:00','2025-01-03');
```

```
mysql> insert into schedule values
-> (12,3,'07:00','11:00','2025-01-04');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> select * from schedule;
```

schedule_id	staff_id	shift_start	shift_end	shift_date
10	1	07:00	10:00	2025-01-03
11	2	07:00	10:00	2025-01-03
12	3	07:00	11:00	2025-01-04

```
3 rows in set (0.00 sec)
```

```
mysql> create table service_usage
-> (usage_id int primary key, service_id int, guest_id int, service_date date, cost int constraint ch_c check(cost>500),
-> \c
```

```
mysql> create table service_usage
```

```
-> (usage_id int primary key, service_id int, guest_id int, service_date date, cost int constraint ch_c check(cost>500),
```

```
-> constraint fk_sid foreign key(service_id) references service(service_id),
```

```
-> constraint fk_gid foreign key(guest_id) references guest(guest_id));
```

```
Query OK, 0 rows affected (0.09 sec)
```

```
mysql> insert into service_usage values
-> (201,1,1,'2025-01-02',5000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into service_usage values
-> (202,2,2,'2025-01-02',5500);
Query OK, 1 row affected (0.02 sec)

mysql> insert into service_usage values
-> (203,3,3,'2025-01-03',3000);
Query OK, 1 row affected (0.02 sec)

mysql> insert into service_usage values
-> (204,4,4,'2025-01-03',3500);
Query OK, 1 row affected (0.02 sec)

mysql> insert into service_usage values
-> (205,5,5,'2025-01-03',4400);
Query OK, 1 row affected (0.01 sec)

mysql> select * from service_usage;
+-----+-----+-----+-----+-----+
| usage_id | service_id | guest_id | service_date | cost |
+-----+-----+-----+-----+-----+
| 201 | 1 | 1 | 2025-01-02 | 5000 |
| 202 | 2 | 2 | 2025-01-02 | 5500 |
| 203 | 3 | 3 | 2025-01-03 | 3000 |
| 204 | 4 | 4 | 2025-01-03 | 3500 |
| 205 | 5 | 5 | 2025-01-03 | 4400 |
+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```