B. V. Raju Institute of Technology
(UGC Autonomous, Accredited By NBA &NAAC)
Vishnupur, Narspur, Medak (Dist.),
Telangana State, India –502313

A Laboratory Project Report

on

HOTEL MANAGEMENT SYSTEM DATABASE

submitted in partial fulfillment of the requirements for the laboratory project in

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

By

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CERTIFICATE

This is to certify that the laboratory Project entitled
"**HOTEL MANAGEMENT SYSTEM DATABASE" ,** being submitted by

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In partial fulfillment of the requirements for the laboratory project of BACHELOR OF TECHNOLOGY in **COMPUTER SCIENCE AND ENGINEERING** to BVRAJUINSTITUTE OF TECHNOLOGY is a record of bonafide work carried out during a period from **December 2024 to June 2025** by them under the guidance of ***Mr.T.Satish Babu***, *Associate Professor*, CSE Department.

This is to certify that the above statement made by the students are correct to the best of my knowledge

Mr.T.Satish Babu
Associate Professor

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CANDIDATE'S DECLARATION

We hereby certify that the work which is being presented in the project entitled **"HOTEL MANAGEMENT SYSTEM DATABSE"**in partial fulfillment of the requirements for the project laboratory of Database Management Systems, work carried out during a period from **December2024 to June2025**under the guidance of **Mr.T.SATISH BABU**, *Associate Professor*.

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ABSTRACT

The Hotel Management System database helps hotels keep track of everything they need to run smoothly — from managing guests and their bookings to handling rooms, payments, and staff. It includes different sections (called tables) that store important details like guest names, room availability, booking dates, and payment info.

With this system, hotel staff can easily check which rooms are available, book them for guests, record payments, and even track extra services like room service or laundry. It also stores staff information so the hotel can manage who is working on what tasks.

The database is well-organized and easy to expand if the hotel wants to add new features later, like collecting feedback from guests or tracking room cleaning.

Overall, this system makes hotel operations faster, simpler, and more accurate.

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1. INTRODUCTION

The database stores data about hotel guests, rooms, bookings (reservations), staff, services used by guests, and payments. A person who books a room is a guest. Guests and staff members are all users of the hotel system.

There are three main types of rooms - single, double, and suite. A booking reserves a specific room for a guest. A guest may have one or more bookings, each for one room during a specific date range. Each room may be booked multiple times by different guests, but not at overlapping dates.

Each booking may include one or more additional services such as room service, laundry, or spa treatments. A service is linked to a specific booking. Each payment is related to a booking and may include charges for both the room and any extra services used.

The hotel is managed by staff. The database stores the following data:

For each guest: full name, contact number, email, address, and government-issued ID;

For each room: room number, room type (single, double, suite), floor number, maximum occupancy, nightly rate, and availability status;

For each booking: booking number, check-in date, check-out date, room assigned, guest information, booking status (reserved, checked-in, checked-out, cancelled), and payments;

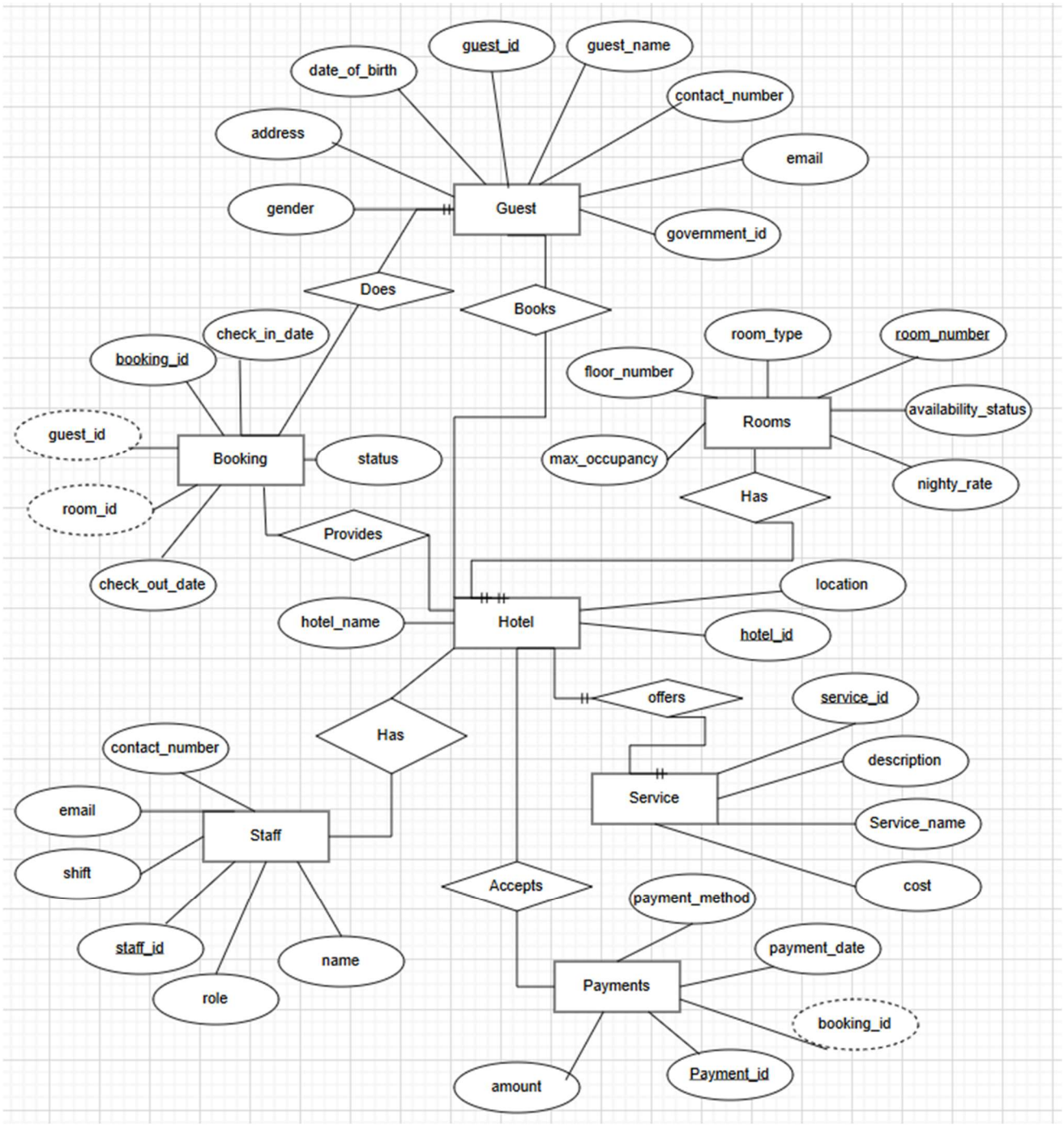
For each service used: service name, description, cost, date used, and associated booking;

For each staff member: employee ID, name, role (e.g., receptionist, cleaner, manager), shift, contact number, and assigned floor or department;

For each payment: date-time and amount;

This database allows efficient tracking of room reservations, guest profiles, service usage, staff responsibilities, and financial transactions to ensure smooth hotel operations and enhance guest satisfaction.

2. ER Diagram


guest_id
guest_name
date_of_birth
contact_number
address
email
gender
Guest
government_id
Does
Books
check_in_date
booking_id
room_type
room_number
floor_number
availability_status
Rooms
guest_id
Booking
status
max_occupancy
nighty_rate
room_id
Has
Provides
check_out_date
location
hotel_name
Hotel
hotel_id
offers
service_id
Has
contact_number
description
Service
email
Staff
Service_name
shift
cost
Accepts
payment_method
staff_id
name
payment_date
Payments
role
booking_id
amount
Payment_id

3. IMPLEMENTATION:

Requirements:

Table: Guest

- **guest_id (Primary Key)**
- **first_name**
- **last_name**
- **date_of_birth**
- **gender**
- **address**
- **contact_number**
- **email**
- **government_id**

Table: Room

- **room_id (Primary Key)**
- **room_number**
- **room_type (e.g., Single, Double, Suite)**
- **floor_number**
- **max_occupancy**
- **nightly_rate**
- **availability_status (e.g., Available, Booked, Under Maintenance)**

Table: Booking

- **booking_id (Primary Key)**
- **check_in_date**
- **check_out_date**
- **status (e.g., Reserved, Checked-in, Checked-out, Cancelled)**

- **guest_id (Foreign Key references Guest)**
- **room_id (Foreign Key references Room)**

Table: Service

- **service_id (Primary Key)**
- **service_name**
- **description**
- **cost**

Table: BookingService

- **booking_service_id (Primary Key)**
- **booking_id (Foreign Key references Booking)**
- **service_id (Foreign Key references Service)**
- **service_date**

Table: Payment

- **payment_id (Primary Key)**
- **amount**
- **payment_date**
- **payment_method (e.g., Cash, Card, Online)**
- **booking_id (Foreign Key references Booking)**

Table: Staff

- **staff_id (Primary Key)**
- **first_name**
- **last_name**
- **role (e.g., Receptionist, Housekeeping, Manager)**

- **contact_number**
- **email**
- **shift**
- **assigned_floor**

SQL Statements:

```
-- Create Guest table
CREATE TABLE Guest (
    guest_id INT PRIMARY KEY AUTO_INCREMENT,
    first_name VARCHAR(50),
    last_name VARCHAR(50),
    date_of_birth DATE,
    gender VARCHAR(10),
    address VARCHAR(255),
    contact_number VARCHAR(20),
    email VARCHAR(100),
    govt_id VARCHAR(50)
);

-- Create Room table
 CREATE TABLE Room (
    room_id INT PRIMARY KEY AUTO_INCREMENT,
    room_number VARCHAR(10) UNIQUE,
    room_type VARCHAR(20),
    floor_number INT,
    max_occupancy INT,
    nightly_rate DECIMAL(10, 2),
```

```
    availability_status VARCHAR(20)
);

-- Create Booking table
CREATE TABLE Booking (
    booking_id INT PRIMARY KEY AUTO_INCREMENT,
    check_in_date DATE,
    check_out_date DATE,
    status VARCHAR(20),
    guest_id INT,
    room_id INT,
    FOREIGN KEY (guest_id) REFERENCES Guest(guest_id),
    FOREIGN KEY (room_id) REFERENCES Room(room_id)
);

-- Create Service table
CREATE TABLE Service (
    service_id INT PRIMARY KEY AUTO_INCREMENT,
    service_name VARCHAR(100),
    description TEXT,
    cost DECIMAL(10, 2)
);

-- Create Payment table
CREATE TABLE Payment (
    payment_id INT PRIMARY KEY AUTO_INCREMENT,
    amount DECIMAL(10, 2),
```

```
    payment_date DATETIME,
    payment_method VARCHAR(20),
    booking_id INT,
    FOREIGN KEY (booking_id) REFERENCES Booking(booking_id)
);

-- Create Staff table
CREATE TABLE Staff (
    staff_id INT PRIMARY KEY AUTO_INCREMENT,
    first_name VARCHAR(50),
    last_name VARCHAR(50),
    role VARCHAR(50),
    contact_number VARCHAR(20),
    email VARCHAR(100),
    shift VARCHAR(50),
    assigned_floor INT
);
```

```
--Insert sample data into Guest table
INSERT INTO Guest (guest_id,first_name, last_name, date_of_birth, gender,
address, contact_number, email, govt_id)
VALUES
(7680,'Alice', 'Johnson', '1990-05-15', 'Female', '123 Main St, Cityville',
'9876543210', 'alice@yahoo.com', 'ID123456'),
(7681,'Bob', 'Smith', '1985-08-22', 'Male', '456 Oak St, Townsville', '8765432109',
'bob@yahoo.com', 'ID789012'),
(7682,'John', 'Smith', '1989-09-20', 'Male', '567 Pine Avenue', '8515586382',
'john@yahoo.com', 'ID7098764'),
(7683,'Jane', 'Doe', '1996-11-07', 'Female', '342 Elm street', '9876596392',
'jane@yahoo.com', 'ID8763411');

-- Insert sample data into Room table
INSERT INTO Room (room_id,room_number, room_type, floor_number,
max_occupancy, nightly_rate, availability_status)
VALUES
(56101,'101', 'Single', 1, 1, 75.00, 'Available'),
(56102,'102', 'Double', 1, 2, 120.00, 'Available'),
(60201,'201', 'Suite', 2, 4, 250.00, 'Available'),
(56205,'205', 'Single', 1, 1, 75.00, 'Available');

-- Insert sample data into Booking table
INSERT INTO Booking (booking_id,check_in_date, check_out_date, status, guest_id,
room_id)
VALUES
```

```
(5672,'2025-06-01', '2025-06-05', 'Reserved', 7680, 56101),
(5678,'2025-06-10', '2025-06-15', 'Reserved', 7683, 56205);

-- Insert sample data into Service table
INSERT INTO Service (service_id,service_name, description, cost)
VALUES
(110,'Room Service', 'In-room food and beverage service', 25.00),
(117,'Laundry', 'Clothing wash and fold service', 15.00),
(131,'Spa', 'Access to spa and wellness treatments', 50.00);

-- Insert sample data into Payment table
INSERT INTO Payment (payment_id,amount, payment_date, payment_method,
booking_id)
VALUES
(115653,300.00, '2025-06-01 10:00:00', 'Card', 5672),
(578954,500.00, '2025-06-10 14:30:00', 'Online', 5678);

-- Insert sample data into Staff table
INSERT INTO Staff (staff_id,first_name, last_name, role, contact_number, email,
shift, assigned_floor)
VALUES
(765,'ana', 'William', 'Receptionist', '9123456780', 'emma.w@hotel.com', 'Morning',
1),
(782,'Liam', 'Brown', 'Housekeeping', '9234567890', 'liam.b@hotel.com', 'Evening',
2),
(791,'Olivia', 'Davis', 'Manager', '9345678901', 'olivia.d@hotel.com', 'Full Day',
NULL);
```

4. RESULT:

GUEST TABLE :

guest_id	first_name	last_name	date_of_birth	gender	address	contact_number	email	govt_id
7680	Alice	Johnson	1990-05-15	Female	123 Main St, Cityville	9876543210	alice@yahoo.com	ID123456
7681	Bob	Smith	1985-08-22	Male	456 Oak St, Townsville	8765432109	bob@yahoo.com	ID789012
7682	John	Smith	1989-09-20	Male	567 Pine Avenue	8515586382	john@yahoo.com	ID7098764
7683	Jane	Doe	1996-11-07	Female	342 Elm street	9876596392	jane@yahoo.com	ID8763411

ROOM TABLE :

room_id	room_number	room_type	floor_number	max_occupancy	nightly_rate	availability_status
56101	101	Single	1	1	75.00	Available
56102	102	Double	1	2	120.00	Available
56205	205	Single	1	1	75.00	Available
60201	201	Suite	2	4	250.00	Available

BOOKING TABLE :

booking_id	check_in_date	check_out_date	status	guest_id	room_id
5672	2025-06-01	2025-06-05	Reserved	7680	56101
5678	2025-06-10	2025-06-15	Reserved	7683	56205

SERVICE TABLE :

service_id	service_name	description	cost
110	Room Service	In-room food and beverage service	25.00
117	Laundry	Clothing wash and fold service	15.00
131	Spa	Access to spa and wellness treatments	50.00

PAYMENT TABLE :

payment_id	amount	payment_date	payment_method	booking_id
115653	300.00	2025-06-01 10:00:00	Card	5672
578954	500.00	2025-06-10 14:30:00	Online	5678

STAFF TABLE :

staff_id	first_name	last_name	role	contact_number	email	shift	assigned_floor
765	ana	William	Receptionist	9123456780	emma.w@hotel.com	Morning	1
782	Liam	Brown	Housekeeping	9234567890	liam.b@hotel.com	Evening	2
791	Olivia	Davis	Manager	9345678901	olivia.d@hotel.com	Full Day	NULL

5. CONCLUSION

- The provided SQL script defines a database schema for a hotel management system, including tables for guests, rooms, bookings, services, and payments.
- Sample data was inserted to illustrate relationships and demonstrate how the schema could be populated with realistic hotel operations.
- The queries retrieve key information about guests, their bookings, room availability, and service usage, providing a clear view of how data is organized within the system.
- This example serves as a foundational starting point for building a more comprehensive and scalable database system tailored to the specific needs and complexities of hotel management.
- For a production environment, additional considerations such as indexing, enforcing data integrity through constraints, and optimizing query performance should be addressed according to the expected workload and access patterns.
- Ongoing collaboration with hotel management staff and database experts is essential to continuously refine and adapt the schema to evolving business requirements and industry best practices.

6. REFERENCES

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