

**SZABIST**

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## **DATABASE SYSTEMS**

### **PROJECT REPORT**

#### **ON**

### **HOTEL MANAGEMENT SYSTEM**

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## **INTRODUCTION**

This is our project about HOTEL MANAGEMENT SYSTEM to manage bookings, employees, rooms, service and hotels efficiently in order to provide best service. We have implemented this project using the concepts of database designing along with frontend using c# and MS Sql Server to make our program more efficient. We have provided few services such CRUD operations for all aspects where required. We have also tried to manage project security and integrity using various constraints and abstracting data.

## **OBJECTIVES**

Here's the logic behind our project. The design of our project is based on SAS applications where we provide Software as Service. Firstly, we are the super admins of this application and the hotel owners can get our application on subscription based model. We will be registering the hotels in database and authenticating them to use this application.

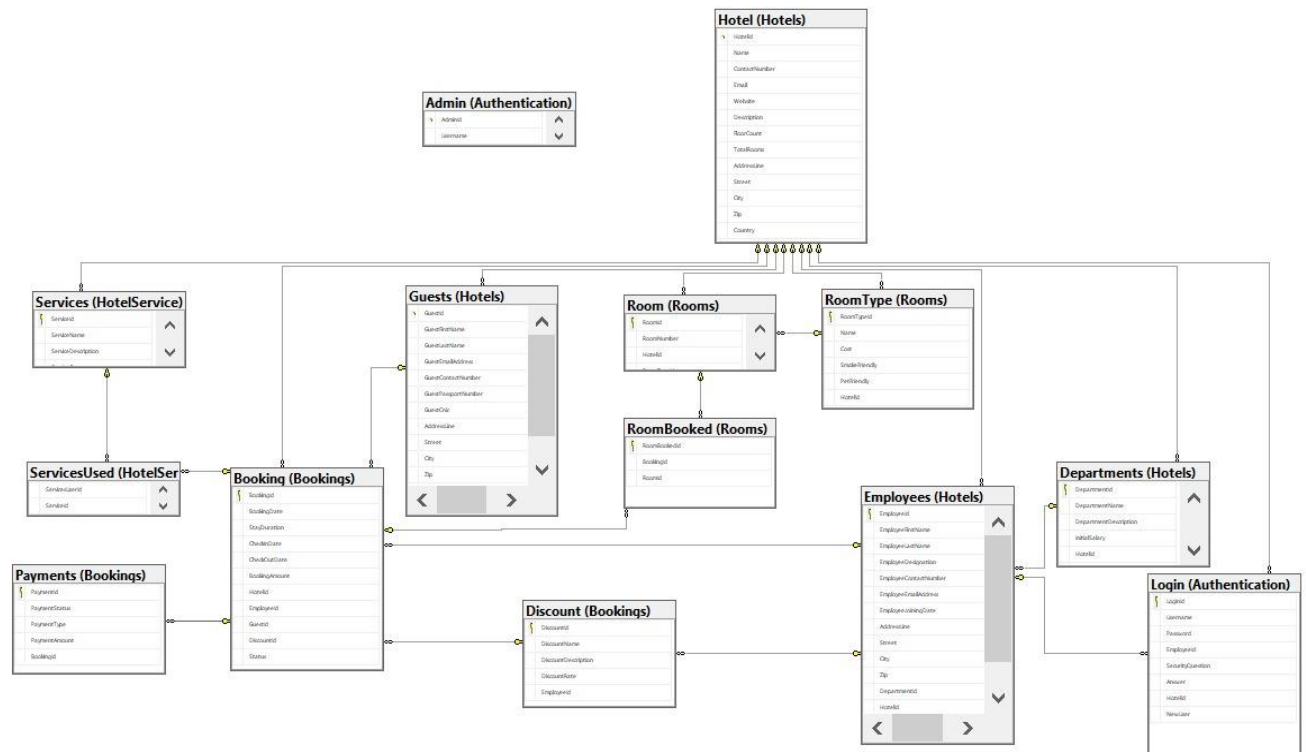
The purpose is to build this in a way that this reduces the manual and paper work for managing hotels, guest's and employee's data. Moreover, we have also added to functionality to provide hotel reports in order to maintain the record of bookings and payments.

We have provided full rights to user where he can add, update, search and delete information when required. Best database design is used in order to increase efficiency of managing data from various hotels.

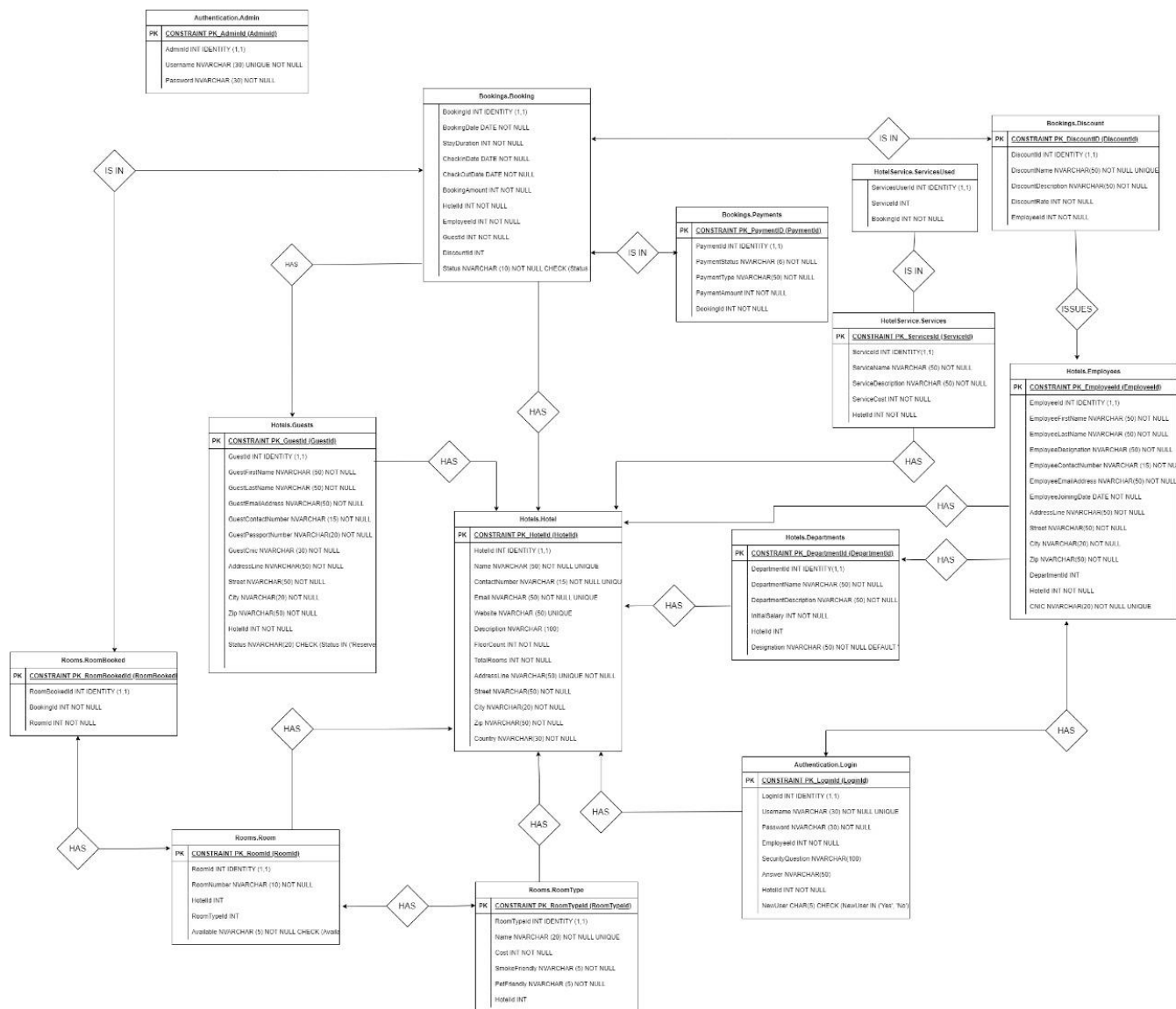
Application have following features:

- Adding, updating, deleting and searching Hotels.
- Generate hotel reports based of bookings.
- Adding services.
- Adding employees. (CRUD)
- Adding guests (CRUD)
- Maintaining payments of guests.
- Maintaining revenue of hotel.

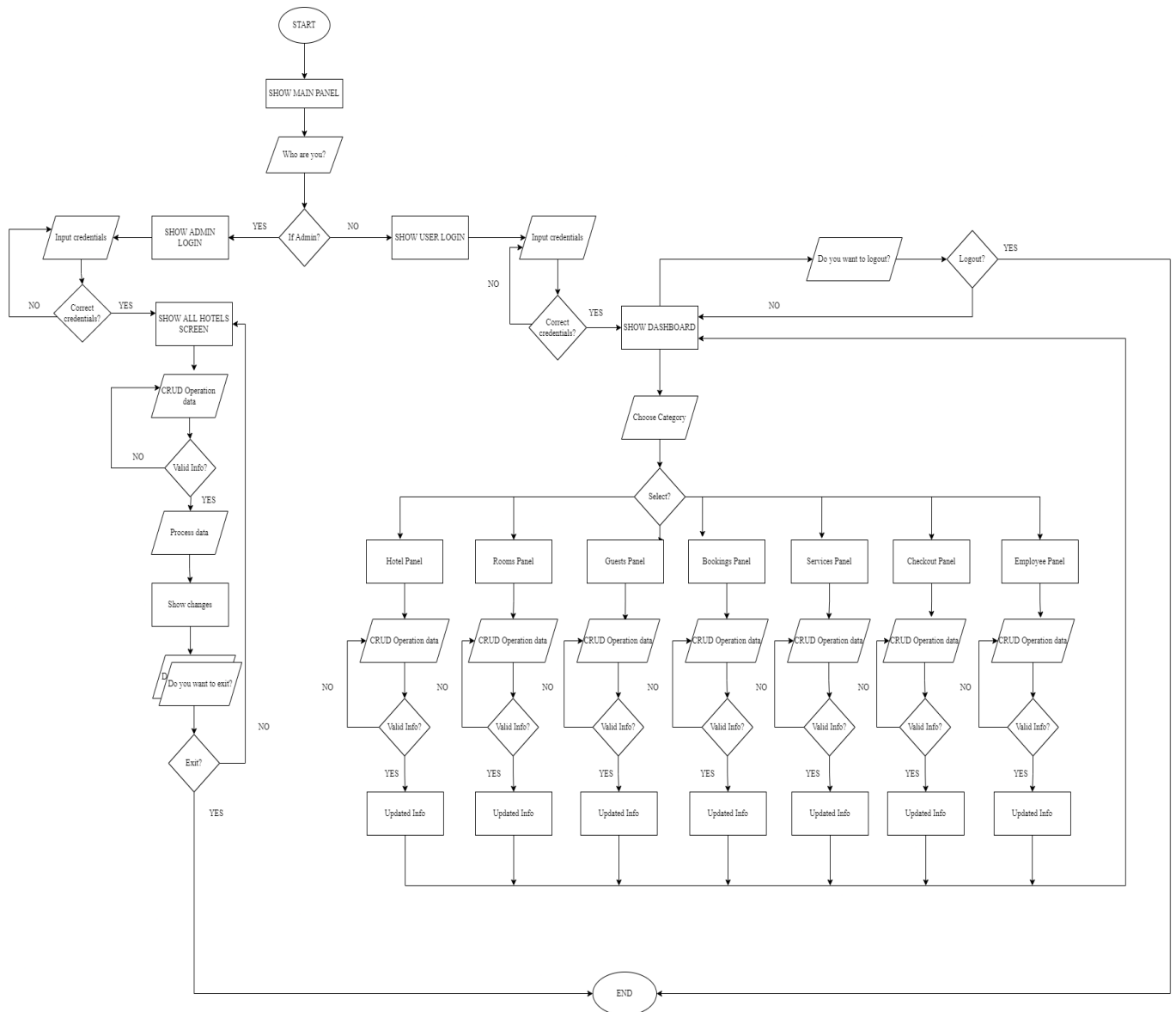
# RELATIONAL SCHEMA



## ENTITY RELATIONAL DIAGRAM



# APPLICATION FLOW DIAGRAM



## **MOTIVATION**

The motivation behind the idea is that now a days the world is getting digitalized so in order to remove all manual and paper work we have created system which would help us to manage data more accurately and efficiently. Moreover, this would give an ability to keep records of guests and employees which could be further used for analytics.

## **FLOW OF APPLICATION**

1. When a hotel owners comes to register his hotel in database and avail subscription, we will add hotel details in the database and provide a username and password which must be change when the user login for the first time.
2. Hotel owner (user) has a right to add employee, add services, add discounts and add rooms. He can also view details of bookings, guests and payments. Total revenue would be visible only for the owner.
3. He can also add room type and departments in the system.
4. Once a hotel owner adds employee, if he is from HR, Admin or IT department so it's necessary to create account that would be auto generated.
5. When employee login first time, he will change password and add security question along with answer. This would ensure the maximum security of the application.
6. Registered employee can add guests, rooms, discount, services, payments and bookings. All have CRUD operations.
7. Guest status can be changed to check-in and checkout.
8. Employee can filter data according to check-in and checkout.
9. Aggregate cost of stay duration and services used is automatically generated along with giving discount if applicable.
10. On checking out of the guest, the amount is added to hotel gross revenue.
11. The rooms have status of availability which would be marked as YES if it's not booked and NO if it's reserved.
12. Room type can be set by employee and ceo along with the rates.
13. Login user can reset there password if required.



## **CHALLENGES AND LIMITATIONS WHILE DEVELOPING PROJECT**

We faced most of the challenges in creating relationships among tables. We need to make sure that all the relationships created among tables are logical and follow the normalization rules. The most challenging part was creating the booking and the rooms table and its relationships with other respective tables. Another challenge was to learn and research about the designing framework to use for frontend and we ended up using GUNA. It was difficult initially but we were able to integrate it. We had some issues initially to use foreign keys where required so to overcome that we used tokens in Statics file. We also research about basics of C# as it was new for us along with Visual Studio as it was new environment for us to work. Another challenge was that to decide where to use foreign keys in regards to using it in plain MS Sql server and then accessing it from the frontend. We wanted to use few dependencies in order to generate reports which was a challenge for us. When we create accounts our initial approach was to email username and password to user but after 30 May 2022 it was restricted by Gmail to access any third party software so we ended up using security question and answer to overcome it.

## **SCOPE OF PROJECT**

This application is very useful for a long run. This can help hotels manage their staffs and guest with ease just by a single click as this provide functionality of generating reports. Moreover, data is managed efficiently and accurately which would help user to fetch everything easily.

## **TOOLS AND TECHNIQUES**

The language that is used is C# and for IDE Visual Studio is primarily used. Basic concepts of OOP along with best database design approach is used with MS Sql Server.

## **CONCLUSION**

Overall, the project has achieved its objectives. This was an attempt to create a database management system for hotel where a DBA can easily manage the hotels, rooms, bookings, guests, employees, departments, services, etc. and other things as well, easily and quickly. Overall, it is huge area and we tried to cover most of the parts of it. If we see this project in a long run, the world is changing and now everything is digitalize so this will be a productive and to optimize work load of everyone and reduce human efforts and work load and replace manual paper work.

## **REFERENCES**

1. Database System Concepts - Abraham Silberschatz, Henry F. Korth, S. Sudarshan
2. Database Systems - Ramez Elmasri , Shamkant B. Navathe

# NORMALIZATION

-- NORMALIZATION

```
CREATE TABLE Rooms.Room(  
    RoomId INT IDENTITY (1,1),  
    RoomNumber NVARCHAR (10) NOT NULL,  
    HotelId INT,  
    HotelName NVARCHAR (50) NOT NULL,  
    RoomTypeId INT,  
    RoomTypeName NVARCHAR (20) NOT NULL UNIQUE,  
    Cost INT NOT NULL,  
    SmokeFriendly NVARCHAR (5) NOT NULL,  
    PetFriendly NVARCHAR (5) NOT NULL,  
    HotelId INT,  
    CONSTRAINT PK_RoomTypeId PRIMARY KEY (RoomTypeId),  
    CONSTRAINT FK_HotelId_type FOREIGN KEY (HotelId) REFERENCES Hotels.Hotel(HotelID) ON  
DELETE NO ACTION ON UPDATE NO ACTION  
);
```

-- FIRST NORMAL FORM

-Repeating Columns Identified

1. RoomTypeId
2. RoomTypeName
3. Cost
4. SmokeFriendly
5. PetFriendly
6. HotelId
7. HotelName

--Primary key identified as RoomId

-- SECOND NORMAL FORM

-- Partially dependent attribute on Primary key Identified in 1st NF

1. RoomTypeName
2. Cost
3. SmokeFriendly
4. PetFriendly
5. HotelId
6. HotelName

--Creating two tables Room and RoomType

```
CREATE TABLE Rooms.RoomType (  
    RoomTypeId INT IDENTITY (1,1),  
    Name NVARCHAR (20) NOT NULL UNIQUE,  
    Cost INT NOT NULL,  
    SmokeFriendly NVARCHAR (5) NOT NULL,  
    PetFriendly NVARCHAR (5) NOT NULL,  
    HotelId INT,
```

```

        HotelName NVARCHAR (50) NOT NULL,
        CONSTRAINT PK_RoomTypeId PRIMARY KEY (RoomTypeId),
        CONSTRAINT FK_HotelId_type FOREIGN KEY (HotelId) REFERENCES Hotels.Hotel(HotelID) ON
DELETE NO ACTION ON UPDATE NO ACTION
    );

```

```

CREATE TABLE Rooms.Room (
    RoomId INT IDENTITY (1,1),
    RoomNumber NVARCHAR (10) NOT NULL,
    HotelId INT,
    RoomTypeId INT,
    Available NVARCHAR (5) NOT NULL CHECK (Available IN ('Yes', 'No')) DEFAULT 'Yes',
    CONSTRAINT PK_RoomId PRIMARY KEY (RoomId),
    CONSTRAINT FK_HotelID_Room FOREIGN KEY (HotelId)
REFERENCES Hotels.Hotel (HotelId) ON DELETE CASCADE ON UPDATE NO ACTION,
    CONSTRAINT FK_RoomTypeID_Room FOREIGN KEY (RoomTypeId)
REFERENCES Rooms.RoomType (RoomTypeId) ON DELETE CASCADE ON UPDATE NO ACTION
);

```

```

-- THIRD NORMAL FORM
-- Identifying transitive dependencies
-- HotelName is transitively related to hotelId and can be omitted from the RoomType tabel

```

```

CREATE TABLE Rooms.RoomType (
    RoomTypeId INT IDENTITY (1,1),
    Name NVARCHAR (20) NOT NULL UNIQUE,
    Cost INT NOT NULL,
    SmokeFriendly NVARCHAR (5) NOT NULL,
    PetFriendly NVARCHAR (5) NOT NULL,
    HotelId INT,
    CONSTRAINT PK_RoomTypeId PRIMARY KEY (RoomTypeId),
    CONSTRAINT FK_HotelId_type FOREIGN KEY (HotelId) REFERENCES Hotels.Hotel(HotelID) ON
DELETE NO ACTION ON UPDATE NO ACTION
);

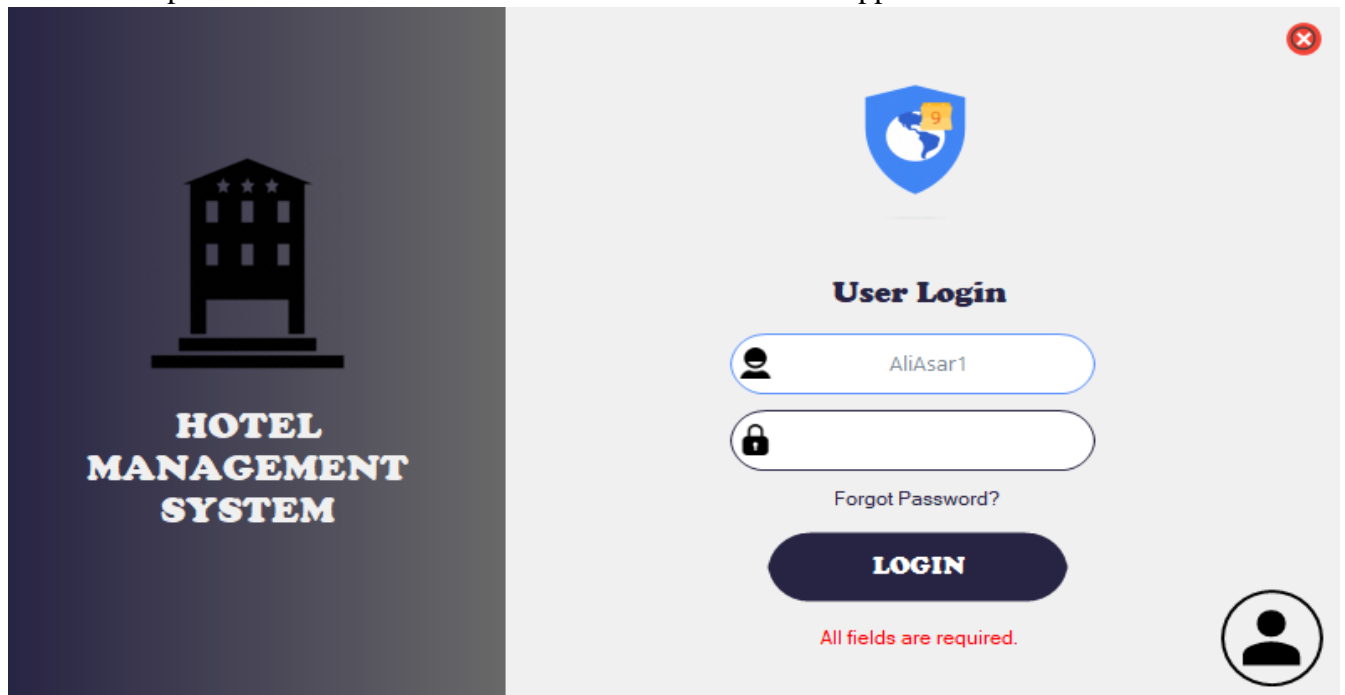
```

EACH TABLE WAS CONSTRUCTED IN A WAY THAT IT WAS NORMALIZED ALREADY TO BEGIN WITH

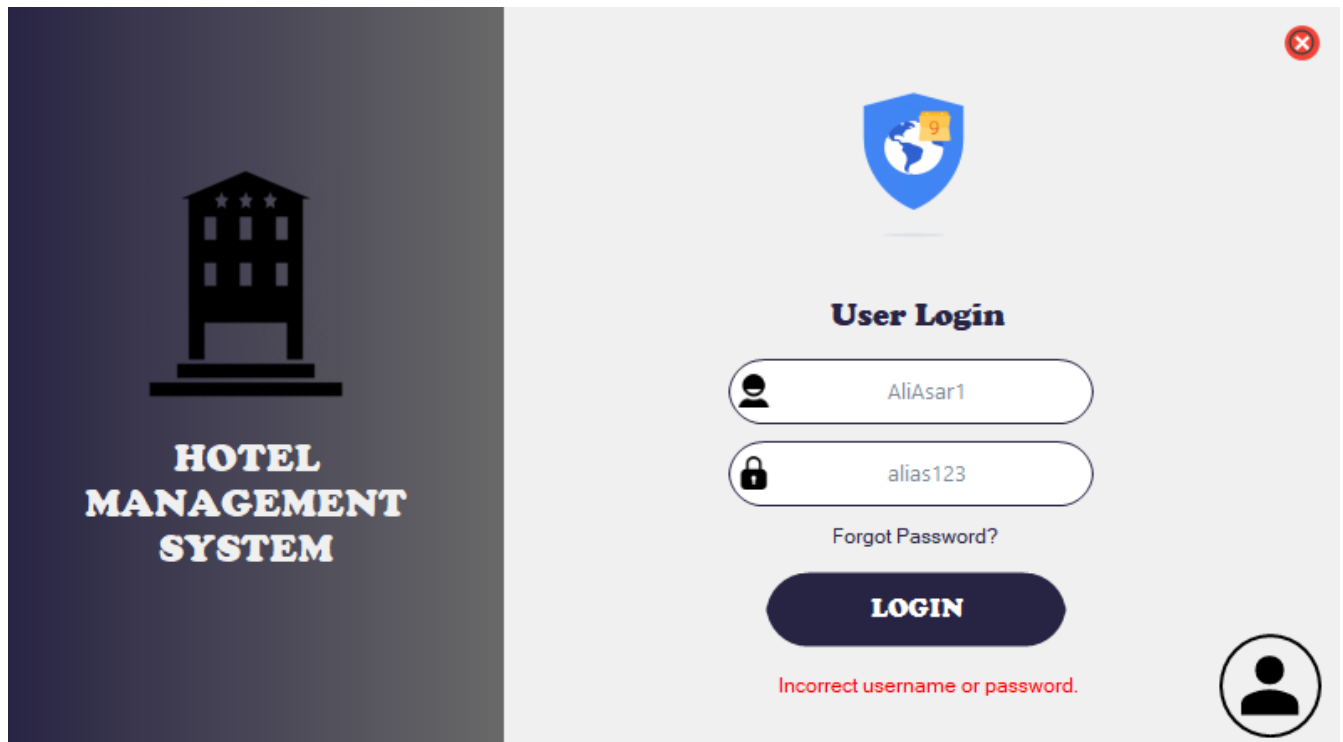
## OUTPUT



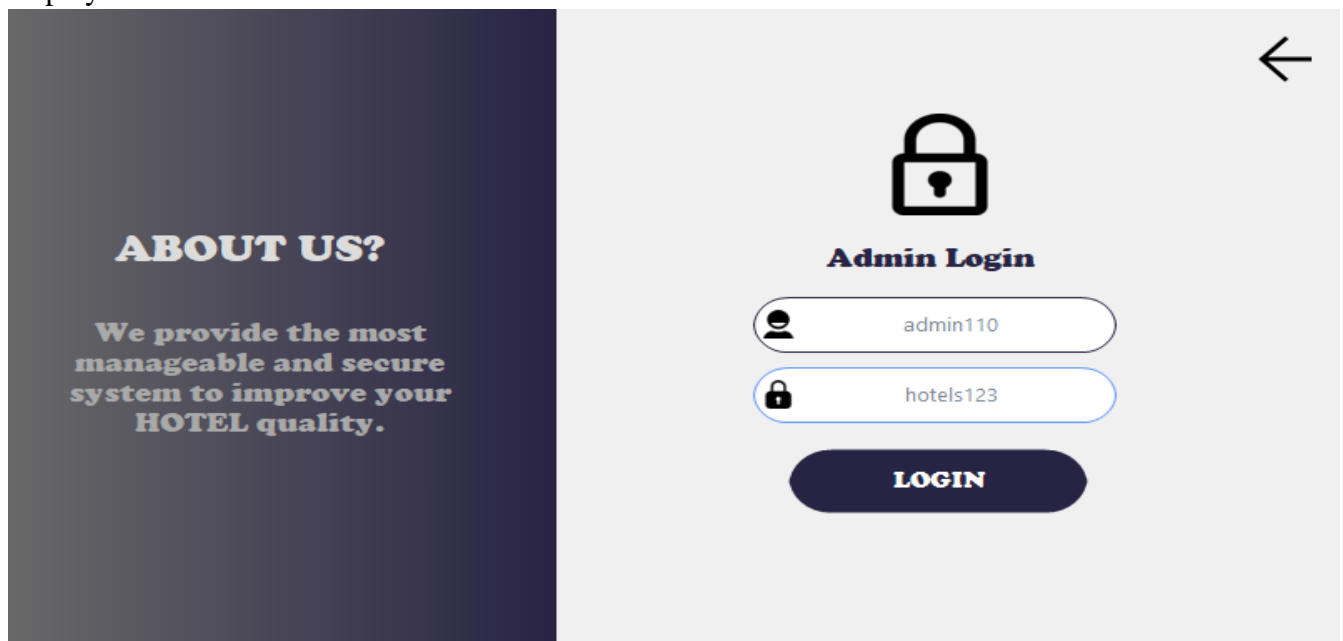
This is the Splash Screen which will be shown when we start the application.



After interval of 5 seconds, the user login screen will be displayed.



We have put some checks like for correct username and password and then a label which will be displayed.



If we click the bottom right icon of person, admin screen will be popup.

Hotels

ID	Name	Contact	Email	Website	Floors	Rooms	Address	Street	City	Zip	Country
3	Marriot...	033512...	marriot...	marriot...	10	100	Plot 31F	Clifton	Karachi	12345	Pakistan
1004	Embas...	033131...	embas...	embas...	10	50	Plot 44...	Clifton	Karachi	12345	Country
1005	Pearl H...	033198...	pearl@...	pearl.c...	10	1000	Plot 35-B	DHA	Karachi	42312	Pakistan

Hotel Id

Hotel Name

Contact Number

Email

Floor Count

Capacity

Address Line

City

Street

Country

Zip Code

Website

Description

ADD

UPDATE

CLEAR

DELETE

After entering correct credentials, admin screen will be shown where service provider can add hotels.

Hotels

ID	Name	Contact	Email	Website	Floors	Rooms	Address	Street	City	Zip	Country
3	Marriot...	033512...	marriot...	marriot...	10	100	Plot 31F	Clifton	Karachi	12345	Pakistan
1004	Embas...	033131...	embas...	embas...	10	50	Plot 44...	Clifton	Karachi	12345	Country
1005	Pearl H...	033198...	pearl@...	pearl.c...	10	1000	Plot 35-B	DHA	Karachi	42312	Pakistan

Hotel Id

Hotel Name

PC Hotel

Contact Number

03312211000

Email

pchotel@gmail.com

Floor Count

15

Capacity

120

Address Line

Plot 90-A

City

Karachi

Street

Khayban Itehad

Country

Pakistan

Zip Code

12333

Website

www.pchotel.com

Description

et with a glass of bubbly in hand

ADD

UPDATE

CLEAR

DELETE

Here we have CRUD operations to manipulate data. Search button will be used to get any specific record.

Hotels

ID	Name	Contact	Email	Website	Floors	Rooms	Address	Street	City	Zip	Country
3	Marriot...	033512...	marriot...	marriot...	10	100	Plot 31F	Clifton	Karachi	12345	Pakistan
1004	Embas...	033131...	embas...	embas...	10	50	Plot 44...	Clifton	Karachi	12345	Country
1005	Pearl H...	033198...	pearl@...	pearl.c...	10	1000	Plot 35-B	DHA	Karachi	42312	Pakistan

Hotel Id

Hotel Name

PC Hotel

Contact Number

03312211000

Email

pchotel@gmail.com

Floor Count

15

Capacity

120

Address Line

Plot 90-A

City

Karachi

Street

Khayban Itehad

Country

Pakistan

Zip Code

12333

Website

www.pchotel.com

Description

et with a glass of bubbly in hand.

ADD

UPDATE

CLEAR

DELETE

Success

'Hotel inserted successfully!'

OK

On entering correct information after validation checks, data will be inserted and populated.

Hotels

3	Marriot...	033512...	marriot...	marriot...	10	100	Plot 31F	Clifton	Karachi	12345	Pakistan
1004	Embas...	033131...	embas...	embas...							
1005	Pearl H...	033198...	pearl@...	pearl.c...							
3005	PC Hotel	033122...	pchotel...	www.pc...							

Hotel Id

Hotel Name

Contact Number

Email

Floor Count

Capacity

Address Line

City

Street

Country

Zip Code

Website

Description

ADD

UPDATE

CLEAR

DELETE

Account Details

PCHotel3005

471GK2D5GH

Make sure to change your password when you log in first time.

OK

A default username and password screen will be shown which will be used in order to access system. This password will be change when user login for the first time.



Hotels

Hotel Id

3005

ID	Name	Contact	Email	Website	Floors	Rooms	Address	Street	City	Zip	Country
3	Marriot...	033512...	marriot...	marriot...	10	100	Plot 31F	Clifton	Karachi	12345	Pakistan
1004	Embas...	033131...	embas...	embas...	10	50	Plot 44...	Clifton	Karachi	12345	Country
1005	Pearl H...	033198...	pearl@...	pearl.c...	10	1000	Plot 35-B	DHA	Karachi	42312	Pakistan
3005	PC Hotel	033122...	pchotel...	www.pc...	15	150	Plot 90-A	Khayba...	Karachi	12333	Pakistan

Success

Record updated successfully.

OK

Hotel Name

PC Hotel

Contact Number

03312211000

Email

pchotel@gmail.com

Floor Count

15

Capacity

150

Address Line

Plot 90-A

City

Karachi

Street

Khayban itehad

Country

Pakistan

Zip Code

12333

Website

www.pchotel.com

Description

et with a glass of bubbly in hand.

ADD

UPDATE

CLEAR

DELETE

We can also update data as shown above.

HOTEL  
MANAGEMENT  
SYSTEM

User Login

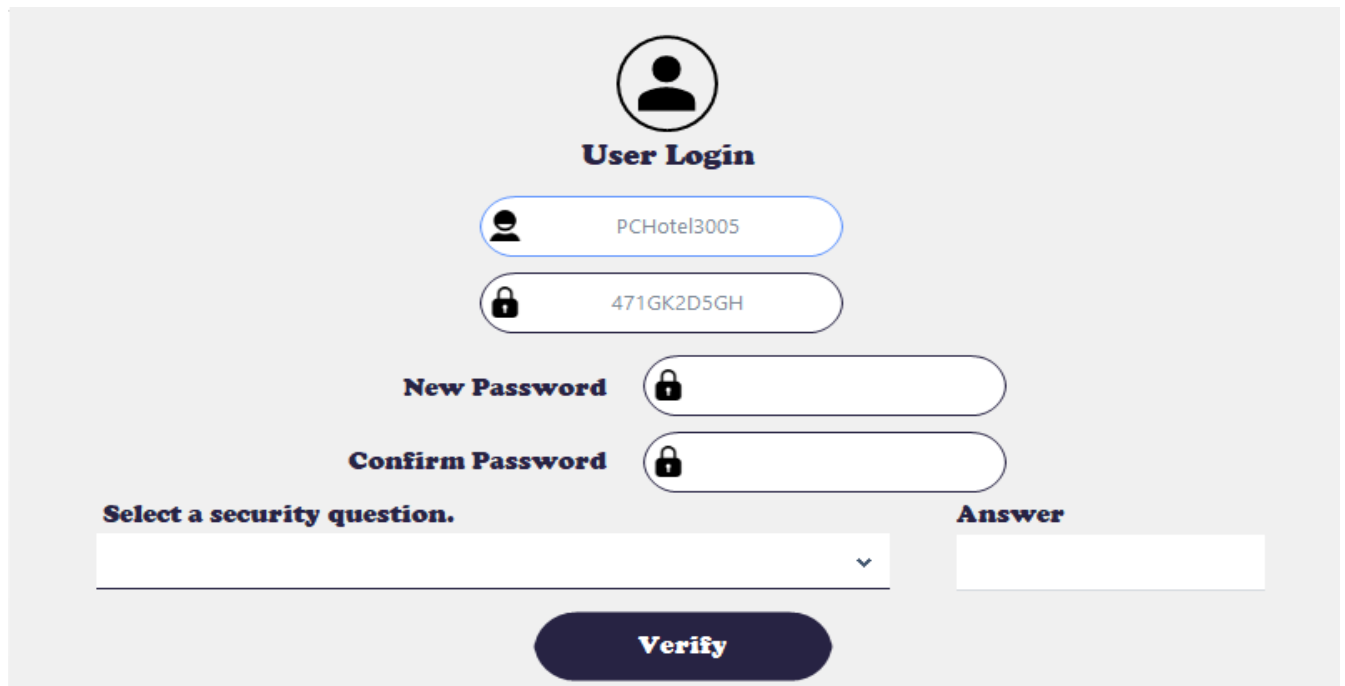
PCHotel3005

471GK2D5GH

Forgot Password?

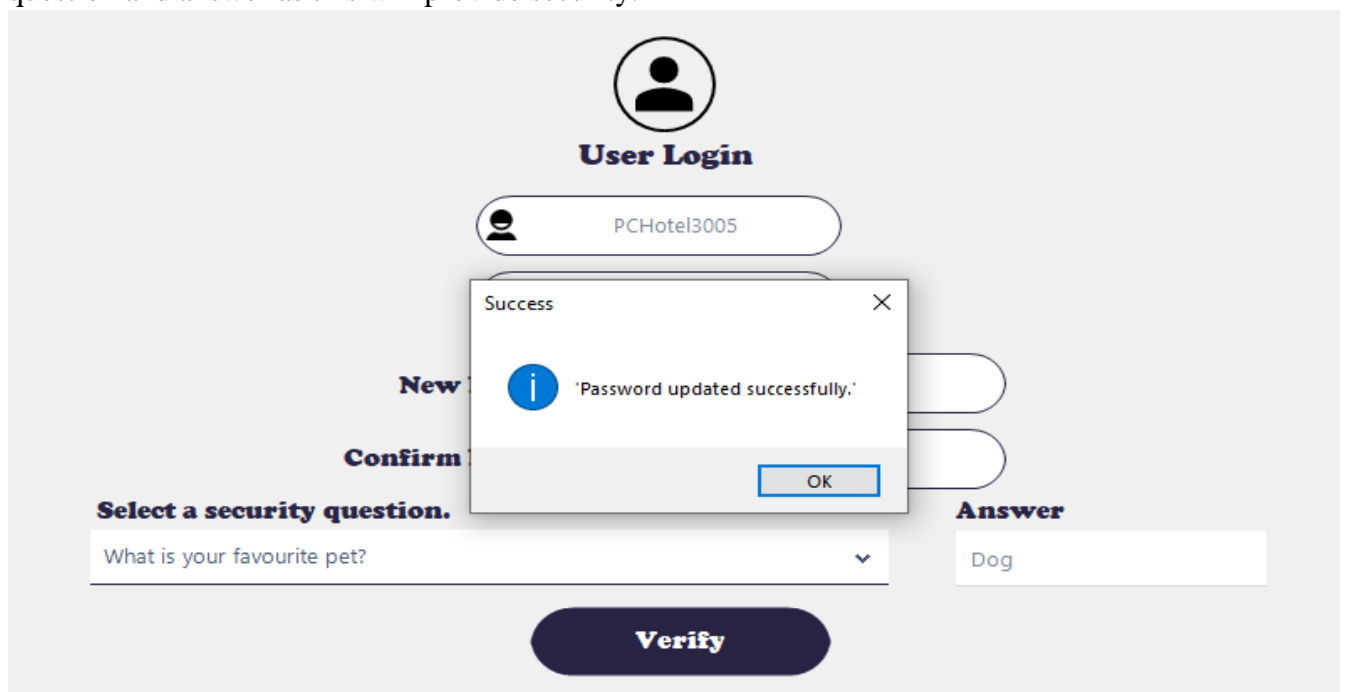
LOGIN

The default username and password will be used in order to access the system.



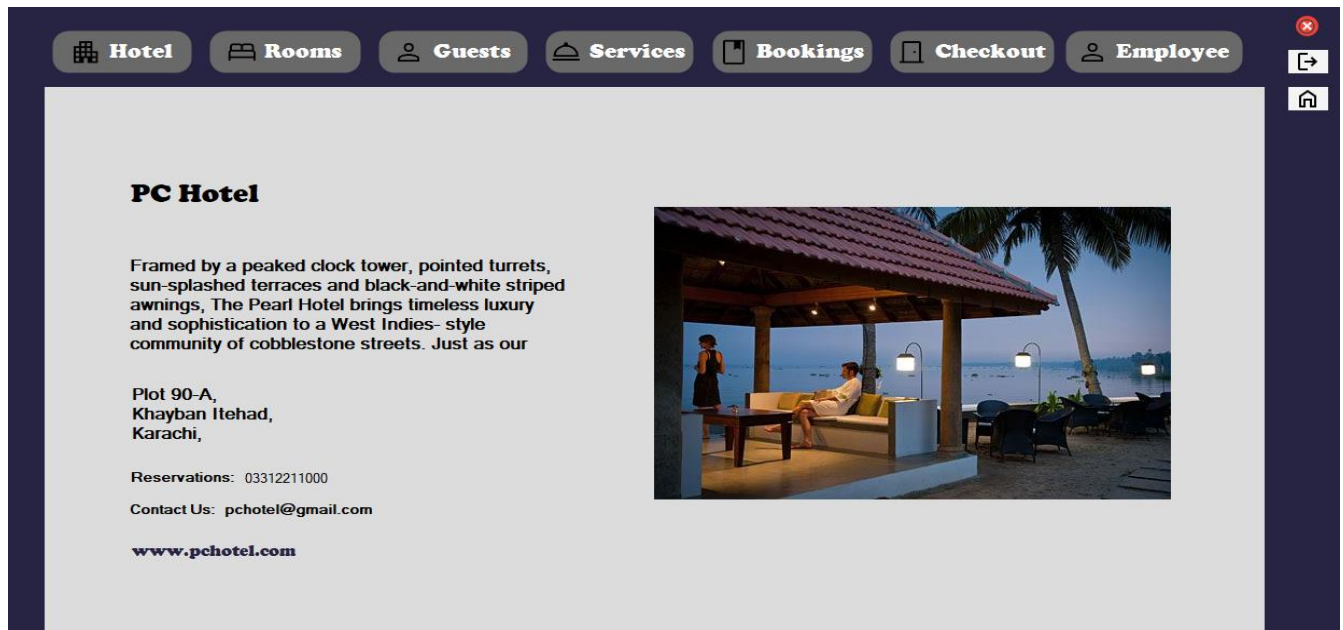
The form is titled "User Login" and features a user icon at the top. It includes input fields for a username (containing "PCHotel3005") and a password (containing "471GK2D5GH"). Below these are fields for "New Password" and "Confirm Password", each with a lock icon. A "Select a security question." dropdown menu is present, followed by an "Answer" input field. A "Verify" button is at the bottom.

This screen will be shown when user login for the first time. User have to set new password, security question and answer as this will provide security.

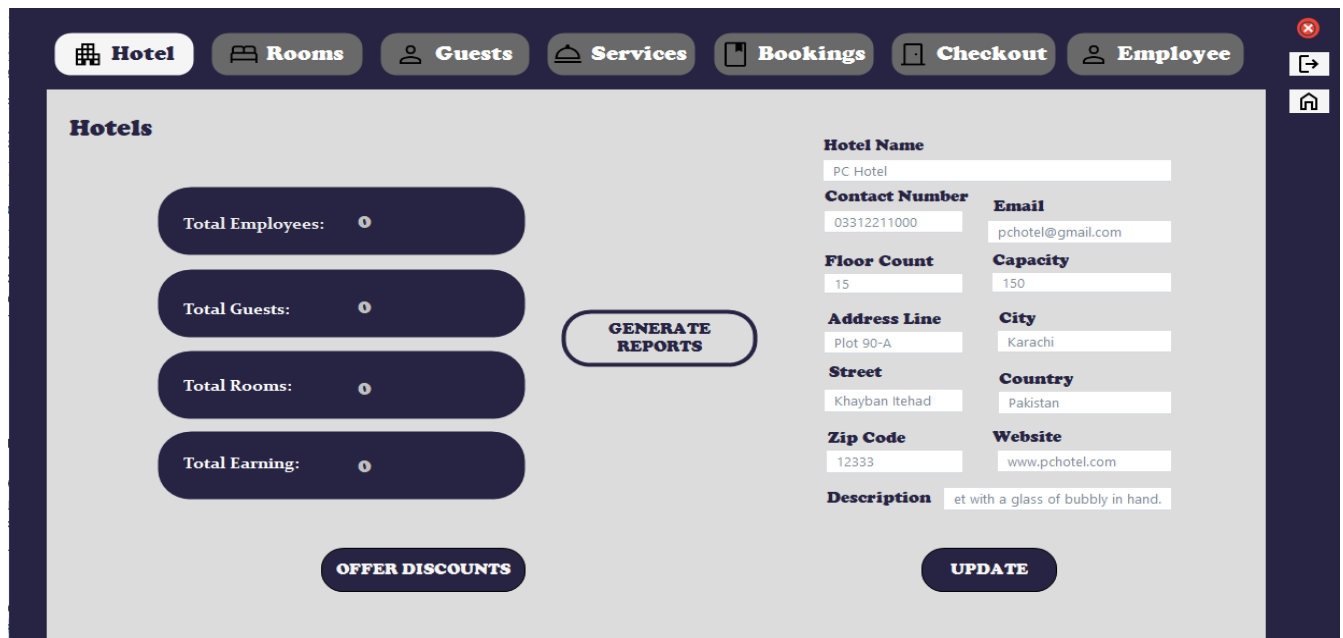


This screenshot shows the same "User Login" form as above, but with a success message overlay. The message box, titled "Success", contains an information icon and the text "Password updated successfully." with an "OK" button. The "Select a security question." dropdown now displays "What is your favourite pet?" and the "Answer" field contains "Dog". The "Verify" button remains at the bottom.

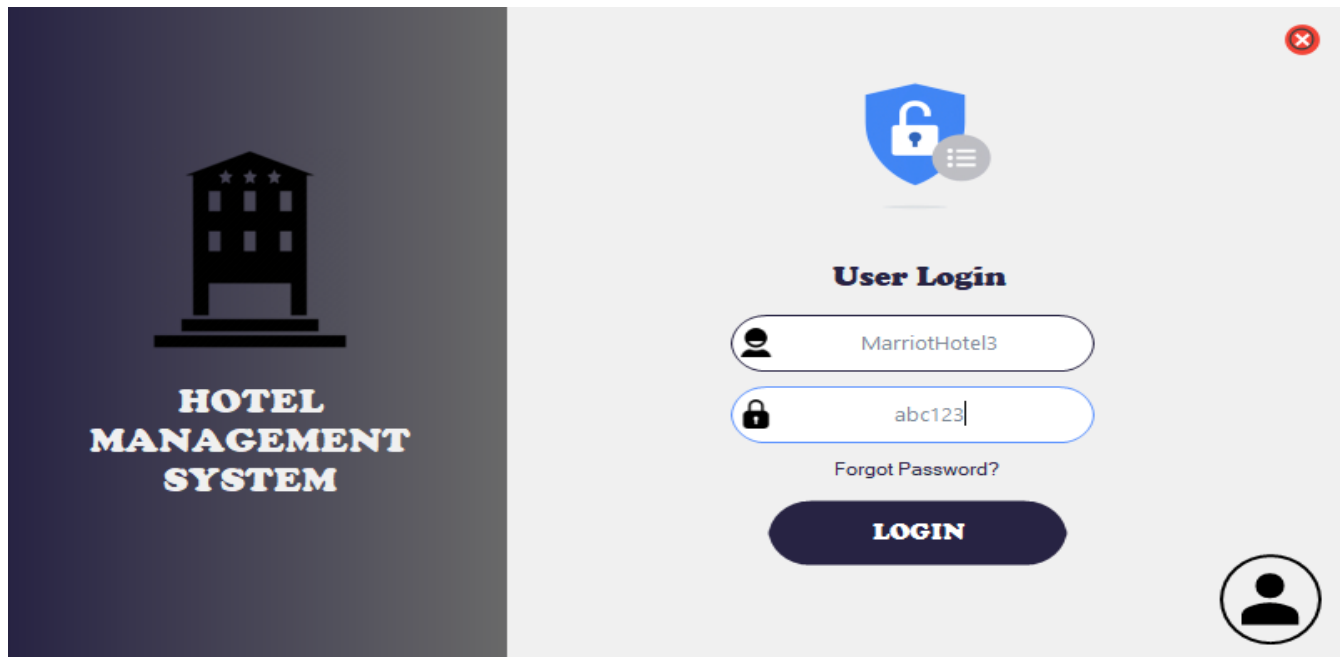
On entering valid details, the password will be updated on the database.



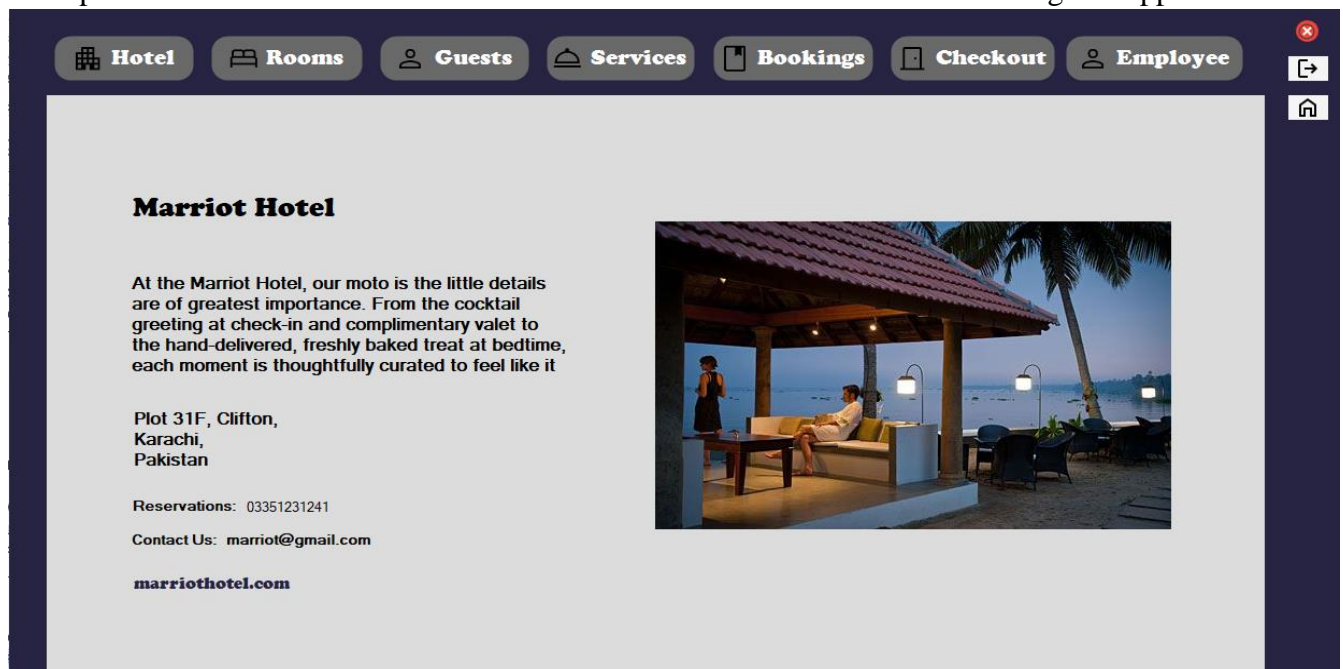
This is the main dashboard screen which will be populated by the data we provided when registering hotel.



This is the main hotel panel which can be updated by user and see some details as shown. This screen also have offer discount screen and can generate reports of bookings and payments.



Multiple hotels can be accessed as we can see now Marriot Hotel user is accessing this application.



This is the screen where all details of hotel will be rendered.

Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Hotels

Total Employees: 3

Total Guests: 3

Total Rooms: 7

Total Earning: 126247

OFFER DISCOUNTS

UPDATE

Hotel Name

Marriot Hotel

Contact Number

03351231241

Email

marriot@gmail.com

Floor Count

10

Capacity

100

Address Line

Plot 31F

City

Karachi

Street

Clifton

Country

Pakistan

Zip Code

12345

Website

marriothotel.com

Description

it was crafted especially for you.


Success


Excel file is downloaded on desktop.


OK


On clicking generate report button, an excel file will generated on desktop.

Hotel Report


Name	Date modified	Type	Size
 Report	18/06/2022 3:50 pm	Microsoft Excel W...	7 KB


 Cut


 Copy


 Format Painter

Clipboard


 Calibri


 11


 A

 A


Font










Alignment

 General


Number










Styles










Cells










Editing






A1







BookingId

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	BookingId	BookingD	StayDurat	CheckInD	CheckOut	Status	GuestId	GuestFirst	GuestLast	GuestCon	GuestPass	HotelId	Employee	Employee	Employee	Employee	PaymentI	PaymentS	PaymentAmount	
2	2032	44729	2	44707	44709	Checkout	11	Sheikh	Moosa	033123123	MAX12300	3	1	Ali Asar	Khowaja	033123124	7	Paid	32399	
3	2033	44729	7	44729	44736	Checkout	14	Sarim	Effendi	033131941	BMA12311	3	1	Ali Asar	Khowaja	033123124	8	Paid	42750	
4	2034	44729	3	44729	44732	Checkout	13	Ahmed	Kamran	033123125	ABC32333	3	1	Ali Asar	Khowaja	033123124	9	Paid	28799	
5	2035	44729	2	44707	44709	Checkout	14	Sarim	Effendi	033131941	BMA12311	3	1	Ali Asar	Khowaja	033123124	10	Paid	15299	
6	2038	44729	0	44707	44707	Checkout	14	Sarim	Effendi	033131941	BMA12311	3	1	Ali Asar	Khowaja	033123124	13	Paid	7000	
7																				
8																				

This is the excel data that would be fetched using multiple joins.

Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Rooms

Add Room Types

RoomId	RoomNumber	HotelId	RoomTypeId	Available
2	2	3	3	Yes
3	3	3	1	Yes
4	4	3	1	Yes
5	5	3	3	Yes
6	9	3	2	Yes
7	7	3	2	Yes
8	8	3	2	Yes

Room Id

Room No

Available

Room Type

Room Cost

ADD

UPDATE

CLEAR

DELETE

Here we can add rooms and room type. CRUD operations can be applied here.

Room Types

ID	Name	Cost	SmokeFriendly	PetFriendly
1	Gold	10000	Yes	No
2	Silver	7000	No	No
3	Platinum	14000	Yes	Yes

Room Type Id

Room Type Name

Cost

Smoke Friendly

Pet Friendly

ADD

UPDATE

CLEAR

DELETE

Room types can be add where we can select options as provided.

Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Guests

ID	FName	LName	Email	Contact	Address	City	Zip
11	Sheikh	Moosa	sheikh@gm...	03312312391	Plot 2 DHA	Lahore	45121
13	Ahmed	Kamran	ahmed@gm...	03312312931	House 11-V	Karachi	31231
14	Sarim	Effendi	sarim@gmai...	03313194129	Plot 33-C Sc...	Lahore	55111

Guest Id

First Name

Last Name

Email

Contact Number

CNIC Number

Passport Number

Street

Zip Code

City

Address Line

ADD

UPDATE

CLEAR

DELETE

Guest info can be added in this screen with all the CRUD operations.

Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Services

ID	Name	Description	Cost
1	Massage	Best massage.	3000
3	Boating	Best boating experience.	8000
1004	Hot spa	Mazedar	6000

Service Id

Service Name

Description

Cost

ADD

UPDATE

CLEAR

DELETE

Services can be added here along with specific costs which would be rendered to pick while booking.

Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Bookings

Filter

ID	BookingDate	CheckInDate	CheckOutDate	GuestId	DiscountId	EmployeeId	Status
2032	17/06/2022	26/05/2022	28/05/2022	11	1	1	Checkout
2033	17/06/2022	17/06/2022	24/06/2022	14	2	1	Checkout
2034	17/06/2022	17/06/2022	20/06/2022	13	1	1	Checkout
2035	17/06/2022	26/05/2022	28/05/2022	14	1	1	Checkout
2038	17/06/2022	26/05/2022	26/05/2022	14		1	Checkout

Booking Id

Check-in Date

2022-05-26

Services

☐ Boating  
☐ Hot spa  
☐ Massage

Promo Id

Guest Id

11

Room Type

Room Id

Total Amount

ADD

UPDATE

CLEAR

DELETE

Bookings can be added here which will show the total amount after all calculations.

Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Bookings

Filter

ID	BookingDate	CheckInDate	CheckOutDate	GuestId	DiscountId	EmployeeId	Status
2032	17/06/2022	26/05/2022	28/05/2022	11	1	1	Checkout
2033	17/06/2022	17/06/2022	24/06/2022	14	2	1	Checkout
2034	17/06/2022	17/06/2022	20/06/2022	13	1	1	Checkout
2035	17/06/2022	26/05/2022	28/05/2022	14	1	1	Checkout
2038	17/06/2022	26/05/2022	26/05/2022	14		1	Checkout

Booking Id

Check-in Date

2022-05-26

Services

☐ Boating  
☐ Hot spa  
☒ Massage

Promo Id

1

Guest Id

13

Check-out Date

2022-05-30

Room Type

Silver

Room Id

6

Total Amount

27899

ADD

UPDATE

CLEAR

DELETE



Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Bookings

Filter

ID	BookingDate	CheckInDate	CheckOutDate	GuestId	DiscountId	EmployeeId	Status
2032	17/06/2022	26/05/2022	28/05/2022	11	1	1	Checkout
2033	17/06/2022	17/06/2022	24/06/2022	14	2	1	Checkout
2034	17/06/2022	17/06/2022	20/06/2022	13	1	1	Checkout
2035	17/06/2022	26/05/2022	28/05/2022	14			
2038	17/06/2022	26/05/2022	26/05/2022	14			

Success

'Booking inserted successfully!'

OK

Booking Id

Guest Id

13

Check-in Date

2022-05-26

Check-out Date

2022-05-30

Services

Boating

Hot spa

Message

Room Type

Silver

Room Id

6

Promo Id

1

Total Amount

27899

ADD

UPDATE

CLEAR

DELETE

Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Checkout

ID	Status	TYPE	Amount	BookingId
7	Paid	Cash	32399	2032
8	Paid	Cash	42750	2033
9	Paid	Credit Card	28799	2034
10	Paid	Credit Card	15299	2035
13	Paid	Credit Card	7000	2038

Payment Id

Booking Id

3024

Payment Type

Cash

Status

Paid

Total Payable Amount

27899

Pay

CLEAR

This is checkout screen which will be shown to checkout guests.

Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Employees

Add Departments

ID	FName	LName	CNIC	Designation	Contact	Email	JDate	DeptId	HotelId
1	Ali Asar	Khowaja	42101-3...	Manager	0331231...	ali@gma...	28/05/20...	3	3
2	Hammad	Khan	41202-3...	Staff	0331231...	hammad...	28/05/20...	2	3
4	Bilal	Saeed	42101-3...	Manager	0331221...	bilal@g...	26/05/20...	1	3

Employee Id

First Name

Email

CNIC Number

Address Line

Street

Designation

Last Name

Department Name

Zip Code

City

Contact Number

Joining Date

2022-05-26

CLEAR

Here we can add employees and if an employee is from HR, Admin, Accounts department a default username and password will be provided to him.

Departments

ID	Name	Description	InitialSalary
1	Admin	Administration.	20000
2	Food	Serves food,	20000
3	HR	Manages people.	25000

Department Id

Department Name

Initial Salary

Description

ADD

UPDATE

CLEAR

DELETE

Here we can add departments. CRUD functionality is provided.

Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Employees

Add Departments

ID	FName	LName	CNIC	Designation	Contact	Email	JDate	DeptId	HotelId
1	Ali Asar	Khowaja	42101-3...	Manager	0331231...	ali@gma...	28/05/20...	3	3
2	Hammad	Khan	41202-3...	Staff	0331231...	hammad...	28/05/20...	2	3
4	Bilal	Saeed	42101-3...	Manager	0331221...	bilal@g...	26/05/20...	1	3

Employee Id

First Name

Ali

Last Name

Raza

Email

gmail.com

Department Name

Admin

Number

23131-1

Zip Code

00331

City

Karachi

Street

House 11-AC

Contact Number

03310202111

Designation

Manager

Joining Date

2022-06-18

CLEAR

Success

You are required to create account in order to register.

OK

Hotel

Rooms

Guests

Services

Bookings

Checkout

Employee

Employees

Add Departments

ID	FName	LName	CNIC	Designation	Contact	Email	JDate	DeptId	HotelId
1	Ali Asar	Khowaja	42101-3...	Manager					
2	Hammad	Khan	41202-3...	Staff					
4	Bilal	Saeed	42101-3...	Manager					
2004	Ali	Raza	42101-3...	Manager					

Employee Id

Last Name

Department Name

Zip Code

City

Contact Number

Designation

Joining Date

2022-06-18

CLEAR

Account Details

Ali2004

MSTOFMTV48

Make sure to change your password when you log in first time.

OK

This is how a default username and password will be shown.

# SOL QUERIES

```
CREATE DATABASE HotelManagementSystem;

USE HotelManagementSystem;

GO
CREATE SCHEMA Authentication;
GO

GO
CREATE SCHEMA Hotels;
GO

GO
CREATE SCHEMA Bookings;
GO

CREATE TABLE Authentication.Admin (
    AdminId INT IDENTITY (1,1),
    Username NVARCHAR (30) UNIQUE NOT NULL,
    Password NVARCHAR (30) NOT NULL,
    CONSTRAINT PK_AdminId PRIMARY KEY (AdminId)
);

CREATE TABLE Hotels.Hotel (
    HotelId INT IDENTITY (1,1),
    Name NVARCHAR (50) NOT NULL UNIQUE,
    ContactNumber NVARCHAR (15) NOT NULL UNIQUE,
    Email NVARCHAR (50) NOT NULL UNIQUE,
    Website NVARCHAR (50) UNIQUE,
    Description NVARCHAR (100),
    FloorCount INT NOT NULL,
    TotalRooms INT NOT NULL,
    AddressLine NVARCHAR(1000) UNIQUE NOT NULL,
    Street NVARCHAR(50) NOT NULL,
    City NVARCHAR(20) NOT NULL,
    Zip NVARCHAR(50) NOT NULL,
    Country NVARCHAR(30) NOT NULL,
    CONSTRAINT PK_HotelId PRIMARY KEY (HotelId)
);

CREATE TABLE Hotels.Departments (
    DepartmentId INT IDENTITY(1,1),
    DepartmentName NVARCHAR (50) NOT NULL,
    DepartmentDescription NVARCHAR (50) NOT NULL,
    InitialSalary INT NOT NULL,
    HotelId INT,
    Designation NVARCHAR (50) NOT NULL DEFAULT 'Intern',
```

```

        CONSTRAINT PK_DepartmentId PRIMARY KEY (DepartmentId),
        CONSTRAINT FK_HotelId_dep FOREIGN KEY (HotelId) REFERENCES Hotels.Hotel(HotelID) ON
DELETE NO ACTION ON UPDATE NO ACTION
    );

CREATE TABLE Hotels.Employees(
    EmployeeId INT IDENTITY (1,1),
    EmployeeFirstName NVARCHAR (50) NOT NULL,
    EmployeeLastName NVARCHAR (50) NOT NULL,
    EmployeeDesignation NVARCHAR (50) NOT NULL,
    EmployeeContactNumber NVARCHAR (15) NOT NULL,
    EmployeeEmailAddress NVARCHAR(50) NOT NULL UNIQUE,
    EmployeeJoiningDate DATE NOT NULL,
    AddressLine NVARCHAR(50) NOT NULL,
    Street NVARCHAR(50) NOT NULL,
    City NVARCHAR(20) NOT NULL,
    Zip NVARCHAR(50) NOT NULL,
    DepartmentId INT,
    HotelId INT NOT NULL,
    CNIC NVARCHAR(20) NOT NULL UNIQUE,
    CONSTRAINT PK_EmployeeId PRIMARY KEY (EmployeeId),
    CONSTRAINT FK_DepartmentId_Employee FOREIGN KEY (DepartmentId)
REFERENCES Hotels.Departments (DepartmentId) ON DELETE SET NULL ON UPDATE NO ACTION,
    CONSTRAINT FK_HotelId_Employee FOREIGN KEY (HotelId)
REFERENCES Hotels.Hotel(HotelId) ON DELETE CASCADE ON UPDATE NO ACTION
);

CREATE TABLE Authentication.Login (
    LoginId INT IDENTITY (1,1),
    Username NVARCHAR (30) NOT NULL UNIQUE,
    Password NVARCHAR (30) NOT NULL,
    EmployeeId INT,
    SecurityQuestion NVARCHAR(100),
    Answer NVARCHAR(50),
    HotelId INT NOT NULL,
    NewUser CHAR(5) CHECK (NewUser IN ('Yes', 'No')) DEFAULT 'Yes',
    CONSTRAINT PK_LoginId PRIMARY KEY (LoginId),
    CONSTRAINT FK_EmployeeId_Login FOREIGN KEY (EmployeeId)
REFERENCES Hotels.Employees (EmployeeId) ON DELETE CASCADE ON UPDATE NO ACTION,
    CONSTRAINT FK_HotelId_login FOREIGN KEY (HotelId) REFERENCES Hotels.Hotel(HotelId) ON
DELETE NO ACTION ON UPDATE NO ACTION
);

CREATE TABLE Hotels.Guests(
    GuestId INT IDENTITY (1,1),
    GuestFirstName NVARCHAR (50) NOT NULL,
    GuestLastName NVARCHAR (50) NOT NULL,
    GuestEmailAddress NVARCHAR(50) NOT NULL ,
    GuestContactNumber NVARCHAR (15) NOT NULL,
    GuestPassportNumber NVARCHAR(20) NOT NULL,
    GuestCnic NVARCHAR (30) NOT NULL,

```

```

        AddressLine NVARCHAR(50) NOT NULL,
        Street NVARCHAR(50) NOT NULL,
        City NVARCHAR(20) NOT NULL,
        Zip NVARCHAR(50) NOT NULL,
        HotelId INT NOT NULL,
        Status NVARCHAR(20) CHECK (Status IN ('Reserved', 'Not Reserved')) NOT NULL DEFAULT 'Not
Reserved',
        CONSTRAINT PK_GuestId PRIMARY KEY (GuestId),
        CONSTRAINT FK_HotelID_Guests FOREIGN KEY (HotelId)
        REFERENCES Hotels.Hotel(HotelId) ON DELETE CASCADE ON UPDATE NO ACTION,
    );

GO
CREATE SCHEMA HotelService;
GO

CREATE TABLE HotelService.Services (
    ServiceId INT IDENTITY(1,1),
    ServiceName NVARCHAR (50) NOT NULL,
    ServiceDescription NVARCHAR (50) NOT NULL,
    ServiceCost INT NOT NULL,
    HotelId INT NOT NULL,
    CONSTRAINT PK_ServicesId PRIMARY KEY (ServiceId),
    CONSTRAINT FK_HotelId_Services FOREIGN KEY (HotelId)
    REFERENCES Hotels.Hotel (HotelId) ON DELETE CASCADE ON UPDATE NO ACTION
);

CREATE TABLE Bookings.Discount(
    DiscountId INT IDENTITY (1,1),
    DiscountName NVARCHAR(50) NOT NULL UNIQUE,
    DiscountDescription NVARCHAR(50) NOT NULL,
    DiscountRate INT NOT NULL,
    EmployeeId INT NOT NULL,
    CONSTRAINT PK_DiscountID PRIMARY KEY (DiscountId),
    CONSTRAINT FK_EmployeeId_Discount FOREIGN KEY (EmployeeId)
    REFERENCES Hotels.Employees (EmployeeId) ON DELETE CASCADE ON UPDATE NO ACTION
);

CREATE TABLE Bookings.Booking(
    BookingId INT IDENTITY (1,1),
    BookingDate DATE NOT NULL,
    StayDuration INT NOT NULL,
    CheckInDate DATE NOT NULL,
    CheckOutDate DATE NOT NULL,
    BookingAmount INT NOT NULL,
    HotelId INT NOT NULL,
    EmployeeId INT NOT NULL,
    GuestId INT NOT NULL,
    DiscountId INT,
    Status NVARCHAR (10) NOT NULL CHECK (Status IN ('Checkin', 'Checkout')) DEFAULT
'Checkin',

```

```

CONSTRAINT PK_BookingId PRIMARY KEY (BookingId),
CONSTRAINT FK_HotelId_Booking FOREIGN KEY (HotelId)
REFERENCES Hotels.Hotel (HotelId) ON DELETE CASCADE ON UPDATE NO ACTION,
CONSTRAINT FK_EmployeeId_Booking FOREIGN KEY (EmployeeId)
REFERENCES Hotels.Employees (EmployeeId) ON DELETE NO ACTION ON UPDATE NO ACTION,
CONSTRAINT FK_GuestId_Booking FOREIGN KEY (GuestId)
REFERENCES Hotels.Guests (GuestId) ON DELETE NO ACTION ON UPDATE NO ACTION,
CONSTRAINT FK_DiscountId_Booking FOREIGN KEY (DiscountId)
REFERENCES Bookings.Discount (DiscountId) ON DELETE NO ACTION ON UPDATE NO ACTION
);

CREATE TABLE HotelService.ServicesUsed (
    ServicesUserId INT IDENTITY (1,1),
    ServiceId INT,
    BookingId INT NOT NULL,
    CONSTRAINT FK_ServiceId_ServicesUsed FOREIGN KEY (ServiceId)
REFERENCES HotelService.Services (ServiceId) ON DELETE CASCADE ON UPDATE NO ACTION,
CONSTRAINT FK_BookingId_ServicesUsed FOREIGN KEY (BookingId)
REFERENCES Bookings.Booking (BookingId) ON DELETE NO ACTION ON UPDATE NO ACTION
);

GO
CREATE SCHEMA Rooms;
GO

CREATE TABLE Rooms.RoomType (
    RoomTypeId INT IDENTITY (1,1),
    Name NVARCHAR (20) NOT NULL UNIQUE,
    Cost INT NOT NULL,
    SmokeFriendly NVARCHAR (5) NOT NULL,
    PetFriendly NVARCHAR (5) NOT NULL,
    HotelId INT,
    CONSTRAINT PK_RoomTypeId PRIMARY KEY (RoomTypeId),
    CONSTRAINT FK_HotelId_type FOREIGN KEY (HotelId) REFERENCES Hotels.Hotel (HotelID) ON
DELETE NO ACTION ON UPDATE NO ACTION
);

CREATE TABLE Rooms.Room (
    RoomId INT IDENTITY (1,1),
    RoomNumber NVARCHAR (10) NOT NULL,
    HotelId INT,
    RoomTypeId INT,
    Available NVARCHAR (5) NOT NULL CHECK (Available IN ('Yes', 'No')) DEFAULT 'Yes',
    CONSTRAINT PK_RoomId PRIMARY KEY (RoomId),
    CONSTRAINT FK_HotelID_Room FOREIGN KEY (HotelId)
REFERENCES Hotels.Hotel (HotelId) ON DELETE CASCADE ON UPDATE NO ACTION,
CONSTRAINT FK_RoomTypeID_Room FOREIGN KEY (RoomTypeId)
REFERENCES Rooms.RoomType (RoomTypeId) ON DELETE CASCADE ON UPDATE NO ACTION
);

CREATE TABLE Rooms.RoomBooked (

```

```

RoomBookedId INT IDENTITY (1,1),
BookingId INT NOT NULL,
RoomId INT NOT NULL,
CONSTRAINT PK_RoomBookedId PRIMARY KEY (RoomBookedId),
CONSTRAINT FK_BookingId_RoomBooked FOREIGN KEY (BookingId)
REFERENCES Bookings.Booking (BookingId) ON DELETE CASCADE ON UPDATE NO ACTION,
CONSTRAINT FK_RoomId_RoomBooked FOREIGN KEY (RoomId)
REFERENCES Rooms.Room (RoomId) ON DELETE NO ACTION ON UPDATE NO ACTION
);

CREATE TABLE Bookings.Payments(
PaymentId INT IDENTITY (1,1),
PaymentStatus NVARCHAR (6) NOT NULL,
PaymentType NVARCHAR(50) NOT NULL,
PaymentAmount INT NOT NULL,
BookingId INT NOT NULL,
CONSTRAINT PK_PaymentID PRIMARY KEY (PaymentId),
CONSTRAINT FK_BookingId_Payments FOREIGN KEY(BookingId)
REFERENCES Bookings.Booking(BookingId) ON DELETE CASCADE ON UPDATE CASCADE
);

```