

CIS017-1 – Computer Systems Structure 2021-2022
CIS095-1 – Databases and Computer Networking 2021-2022
Assignment 1 – Design and Implement a Database
University ID:2147440 Full Name: Santosh Tamang



CIS017-1 – Computer Systems Structure
CIS095-1 – Databases and Computer Networking 2021-2022
Assignment 1 – Design and Implement a Database

INDIVIDUAL REPORT

Student ID: 2147440 Full Name: Santosh Tamang

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Introduction/Overview

The given assignment is about designing and creating a database for a hotel online booking system. The database contains the entities customer, booking, types of room and hotel manager. The attributes of the customer entity are name, address, phone number, email address and credit card information. The attributes of booking are cancelled, check-in date and check-out date. The attributes of types of room are room no., single bedroom and double bedroom. The attributes of the manager entity are employee is no., address, email address and phone no. The data are represented in UNF. The UNF is normalized to 3Nf. The relation between the entities is identified. The ERM is created according to the normalized form and the relation is maintained. My SQL database was selected, and the database was created to fulfil the requirement of the assignment. The required data dictionary was created. The required queries were made to aid in the search of the data when required.

Task Description

A hotel is providing service for customers to book room, check and cancel through online medium. To make a booking, a customer is required to login. If the user is not registered the user should first be registered. A database needs to be created to store the login details (name, address, phone number, email and credit card information) of the customers as well as the booking made by them, with the room type. The verified booking should be allocated only one room as per the required room type. The room should be allocated by the manager. The manager should also login to allocate the room. A database should be created to store the details (name, address, phone number, email address and employee

number) of login. The hotel manager can see the existing bookings per room to check the availability of the requested room type. The availability of the room is checked by the system created and shown only to the manager.

Tasks:

Conceptual / Logical Database Design

- Entity Relationship Model

According to Guru99 (2022),

“ER Model stands for Entity Relationship Model, also known as ERM is a diagram that displays the relationship of entity sets stored in a database. In other words, ER models help to explain the logical structure of databases. ER models are created based on three basic concepts: entities, attributes and relationships.”

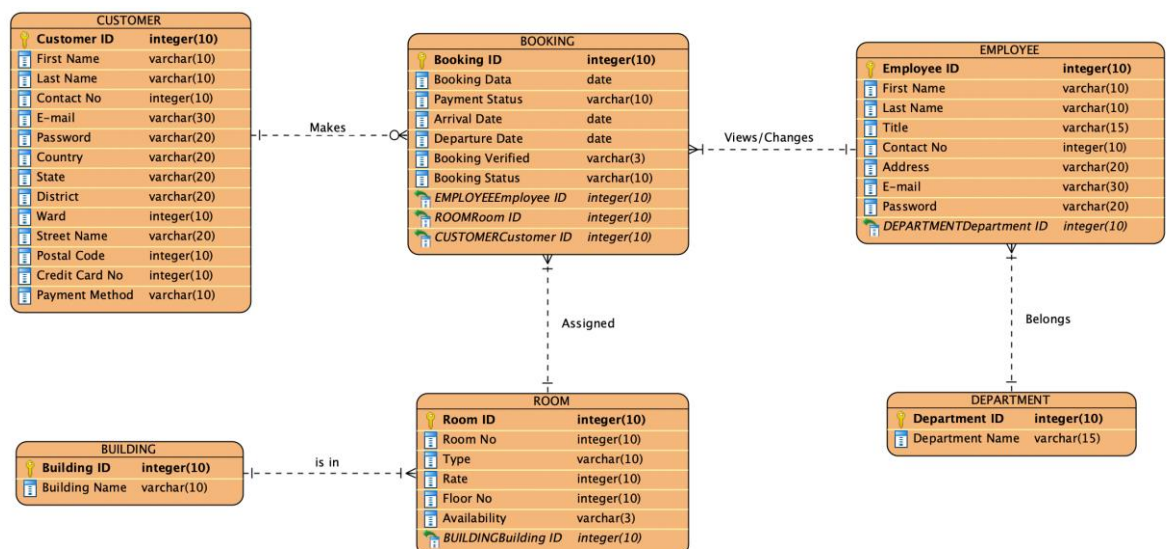


Fig:1: Entity Relation Module

Here a customer can make multiple bookings, but a booking is assigned only one room as requested by the customer. There are 3 types of rooms that the customer can choose from. A user must log in to book, check and even cancel the booking until the booking becomes active. If a user is not registered, they must register by providing valid credit card no. There are many staffs working in the hotel. They belong to only one department. They all can log in to the hotel's online platform however their actions are limited by their position. Only receptionists and the hotel manager can view the booking made by the user.

- Assumption

The made here are:

- A customer is allowed to book multiple rooms at a time.
- A customer having account may not book a room at all.
- There are a few 5- 10 story buildings.
- There are various departments, where there is at least one employee, and an employee is a member of only one department.
- Staff who are receptionists and manager are allowed to access the information about the booking made by the customer, however, only the manager has the authorization to make the changes in booking i.e., assigning the room as per requested by the users.

- Normalisation

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According to Techopedia (2022),

“Normalization is the process of reorganizing data in a database so that it meets two basic requirements:

1. There is no redundancy of data, all data is stored in only one place.
2. Data dependencies are logical, all related data items are stored together.

“

Normalisation – Hotel Booking System

UNF	1NF	2NF	3NF
Customer_ID	<u>Customer_ID</u>	<u>Customer_ID</u>	<u>Customer_ID</u>
First Name	First Name	First Name	First Name
Last Name	Last Name	Last Name	Last Name
Contact No.	Contact No.	Contact No.	Contact No.
E-Mail	E-Mail	E-Mail	E-Mail
Password	Password	Password	Password
Country	Country	Country	Country
State	State	State	State
District	District	District	District
Ward	Ward	Ward	Ward
Street Name	Street Name	Street Name	Street Name
Postal Code	Postal Code	Postal Code	Postal Code
Credit Card No.	Credit Card No.	Credit Card No.	Credit Card No.
Payment Method	Payment Method	Payment Method	Payment Method
Booking_ID			
Booking Date	Customer_ID*	Customer_ID*	Customer_ID*

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Payment Status	<u>Booking_ID</u>	<u>Booking_ID</u>	<u>Booking_ID</u>
Arrival Date	Booking Date	Booking Date	Booking Date
Departure Date	Payment Status	Payment Status	Payment Status
Booking Verified	Arrival Date	Arrival Date	Arrival Date
Booking Status	Departure Date	Departure Date	Departure Date
Room_ID	Booking Verified	Booking Verified	Booking Verified
Room No.	Booking Status	Booking Status	Booking Status
Floor No.	Room_ID	Room_ID*	Room_ID*
Type	Room No.	Employee_ID*	Employee_ID*
Rate (per day)	Floor No.		
Availability	Type	Room_ID	<u>Room_ID</u>
Building_ID	Rate (per day)	Room No.	Room No.
Building Name	Availability	Floor No.	Floor No.
Employee_ID	Building_ID	Type	Type
First Name	Building Name	Rate (per day)	Rate (per day)
Last Name	Employee_ID	Availability	Availability
Title	First Name	Building_ID	Building_ID*
Contact No.	Last Name	Building Name	
Address	Title		<u>Building_ID</u>
E-Mail	Contact No.	<u>Employee_ID</u>	Building Name
Password	Address	First Name	
Department_ID	E-Mail	Last Name	<u>Employee_ID</u>
Name	Password	Title	First Name
	Department_ID	Contact No.	Last Name
	Name	Address	Title
	Booking Verified	E-Mail	Contact No.

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		Password	Address
		Department_ID	E-Mail
		Name	Password
			Department_ID*
			<u>Department_ID</u>
			Name

Table No:1: Normalization Table

The table no.1 shows the normalisation at different phases i.e., 1NF, 2NF and 3NF. According to the rules of 1NF, the repeating data (group) is separated from the main table. Here, the details of the customers are repeating groups, so it is separated from the main table and a composite key is made at the second table.

As per the 2NF rules, the table having a composite key is checked for the partial-key dependency. The group having full dependency in the key is kept as it is and the group having partial dependency to the key is separated from the table and another table is formed with the composite key (on which the data are related) as primary key. In table no.1, booking id and customer id is created on one table other data are separated.

For the 3NF, the non-key attributes depending on another non-key attribute is checked. In table no.1, department name is only depended on department id, type is only depended on type id and building name is depended on building id only, so they are separated from to form a different table.

Physical Database Design (including Data Dictionary)

This includes:

Skeleton Tables

CUSTOMER(Customer_ID, First Name, Last Name, Contact No., E-Mail, Password, Country, State, District, Ward, Street Name, Postal Code, Credit Card No., Payment Method)

ROOM(Room_ID, Room No., Floor No., Type, Rate (per day), Availability, Building_ID*)

BUILDING(Building_ID, Building Name)

EMPLOYEE(Employee_ID, First Name, Last Name, Title, Contact No., Address, E-mail, Password, Department_ID*)

DEPARTMENT(Department_ID, Department Name)

BOOKING(Booking_ID, Booking Date, Payment Status, Arrival Date, Departure Date, Booking Verified, Booking Status, Room_ID*, Employee_ID*, Customer ID*)

Data Dictionary (for each table)

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According to Techopedia (2022)’

“A data dictionary is a file or a set of files that contains a database's metadata.

The data dictionary contains records about other objects in the database, such as data ownership, data relationships to other objects, and other data.”

CUSTOMER							
Description: Customer details							
Field Name	Datatype	Length	Index	Null	Default	Validation rule	Description
Customer ID (Primary)	Int (10)	10	PK	No			Autoincremented Uniquely identifies every customer
First Name	Varchar (10)	10		No			First name of customer
Last Name	Varchar (10)	10		No			Last name of customer
Contact No	Int (10)	10		No			Customer contact details
Email	Varchar (30)	30		No		Must be email format containing an @ and a ‘.’ Regex expression used	Email of customer
Password	Varchar (20)	20		No		Must contain at least 8	Customer password

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						characters with number, text and symbols	
Country	Varchar (20)	20		No			Customer home country
State	Varchar (20)	20		No			Name of the state customer is living at
District	Varchar (20)	20		No			Name of the district customer id living at
Ward	Int (10)	10		No			Ward no. of the area customer is living at
Street Name	Varchar (20)	20		No			Exact location of the customer
Postal Code	Int (10)	10		No			Postal code of the area of the customer
Credit Card No	Varchar (15)	15		No			Customer credit card detail
Payment Method	Varchar (10)	10		No			Medium to pay the bill at the end

Index

Key name	Type	Unique	Column	Null
PRIMARY	BTREE	Yes	Customer ID	No

DEPARTMENT

Description: Department details

Field Name	Datatype	Length	Index	Null	Default	Validation rule	Description
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Department ID (Primary)	Int (10)	10	PK	No			Autoincremented Uniquely identifies every department
Department Name	Varchar (15)	15		No			Name of the departments

Index

Key name	Type	Unique	Column	Null
PRIMARY	BTREE	Yes	Department ID	No

EMPLOYEE

Description: Employee details

Field Name	Datatype	Length	Index	Null	Default	Validation rule	Description
Employee ID (Primary)	Int (10)	10	PK	No			Autoincremented Uniquely identifies every employee
First Name	Varchar (10)	10		No			First name of employee
Last Name	Varchar (10)	10		No			Last name of employee
Title	Varchar (15)	15		No			Designation of the employee
Contact No	Int (10)	10		No			Employee contact details
Address	Varchar (20)	20		No			Address of the employee
Email	Varchar (30)	30		No		Must be email format	Email of employee

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						containing an @ and a ‘.’ Regex expression used	
Password	Varchar (20)	20		No		Must contain at least 8 characters with number, text and symbols	Employee password
Department ID	Int (10)	10	MUL	No			Uniquely identifies the department

Index

Key name	Type	Unique	Column	Null
PRIMARY	BTREE	Yes	Employee ID	No
FOREIGN	BTREE	No	Department ID	No

BUILDING

Description: Building details

Field Name	Datatype	Length	Index	Null	Default	Validation rule	Description
Building ID (Primary)	Int (10)	10	PK	No			Autoincremented Uniquely identifies every building

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Building Name	Varchar (15)	15		No			Name of the building
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Index

Key name	Type	Unique	Column	Null
PRIMARY	BTREE	Yes	Building ID	No

ROOM

Description: Room details

Field Name	Datatype	Length	Index	Null	Default	Validation rule	Description
Room ID (Primary)	Int (10)	10	PK	No			Autoincremented Uniquely identifies every room
Room No	Int (10)	10		No			The room no
Type	Varchar (10)	10		No			The room type
Rate	Int (10)	10		No			The cost of the room per night
Floor No	Int (10)	10		No			The floor no of the room
Availability	Varchar (3)	3		No		Yes or No only	The status of the room (empty or occupied)
Building ID	Int (10)	10	MUL	No			Uniquely identifies the building

Index

Key name	Type	Unique	Column	Null
PRIMARY	BTREE	Yes	Room ID	No
FOREIGN	BTREE	No	Building ID	No

BOOKING							
Description: Booking details							
Field Name	Datatype	Length	Index	Null	Default	Validation rule	Description
Booking ID (Primary)	Int (10)	10	PK	No			Autoincremented Uniquely identifies every booking
Booking Date	Date			No		Must be in the format of yyyy-mm-dd	The date of booking the room by the customer
Payment Status	Varchar (10)	10		No	Not Paid		The advance payment status of the customer
Arrival Date	Date			No		Must be in the format of yyyy-mm-dd	The guest check in date
Departure Date	Date			No		Must be in the format of yyyy-mm-dd	The checkout date of the guest
Booking Verified	Varchar (3)	3		No	No	Yes or No only	The status of the booking verification
Booking Status	Varchar (10)	10		No	Pending		The status of the room assigned
Employee ID	Int (10)	10	MUL	No			Uniquely identifies the employee
Room ID	Int (10)	10	MUL	No	0		Uniquely identifies the rooms

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Customer ID	Int (10)	10	MUL	No			Uniquely identifies the customers
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Index

Key name	Type	Unique	Column	Null
PRIMARY	BTREE	Yes	Booking ID	No
FOREIGN	BTREE	No	Employee ID	No
FOREIGN	BTREE	No	Room ID	No
FOREIGN	BTREE	No	Customer ID	No

Implementation of the Database

The RDMS used to create the database for this assignment is MySQL database.

```
mysql> CREATE DATABASE HOTEL;
[Query OK, 1 row affected (0.00 sec)]
```

Fig:2: Database creation

The query creates database where we can create various table inside this database.

```
[mysql> use hotel
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
```

Fig:3: Using created database

The query uses the database already created previously.

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```
mysql> CREATE TABLE CUSTOMER(  
-> Customer_ID INT PRIMARY KEY,  
-> First_Name VARCHAR(10) NOT NULL,  
-> Last_Name VARCHAR(10) NOT NULL,  
-> Contact_No INT NOT NULL,  
-> Email VARCHAR(30) NOT NULL,  
-> Password VARCHAR(20) NOT NULL,  
-> Country VARCHAR(20) NOT NULL,  
-> State VARCHAR(20) NOT NULL,  
-> District VARCHAR(20) NOT NULL,  
-> Ward INT NOT NULL,  
-> Street_Name VARCHAR(20) NOT NULL,  
-> Postal_Code INT NOT NULL,  
-> Credit_Card_No VARCHAR(15) NOT NULL,  
-> Payment_Method VARCHAR(10) NOT NULL  
-> );  
Query OK, 0 rows affected (0.02 sec)
```

Fig:4: Creating customer table

The query creates a table customer with the primary key customer id and the various attributes with the required constraints.

```
mysql> INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email, Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No, Payment_M  
ethod) VALUES(1,'Santosh','Tamang',98678,'santosh@gmail.com','sdfhjks3','Nepal','Bagmati','Nuwakot',13,'Ajingere',44990,'437-6567-3233','Card');  
Query OK, 1 row affected (0.01 sec)  
  
mysql> INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email, Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No, Payment_M  
ethod) VALUES(2,'Baibhav','Poudel',96780,'baibhav@gmail.com','dfgdiuer3','Nepal','Bagmati','Kathmandu',4,'New Road',44983,'345-2345-3455','Not');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email, Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No, Payment_M  
ethod) VALUES(3,'Krishal','Pudasaini',94673,'krishal@gmail.com','efhjjiurfh4','Nepal','Bagmati','Kathmandu',5,'Fedi',44983,'345-3245-5332','Cash');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email, Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No, Payment_M  
ethod) VALUES(4,'Anoj','Aryal',98989,'anoj@gmail.com','eryth34','Nepal','Bagmati','Bhaktapur',3,'Lolani',44234,'235-6543-5644','Not');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email, Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No, Payment_M  
ethod) VALUES(5,'Prabin','Labh',69850,'prabin@gmail.com','dsfkggh43','Nepal','Madesh','Janakpur',2,'Kalanki',44345,'765-3456-4356','Online');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email, Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No, Payment_M  
ethod) VALUES(6,'Kushal','Kafle',87546,'kushal@gmail.com','fgkhufj34','Nepal','Madesh','Janakpur',4,'Samakoshi',44345,'546-6784-4566','Not');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email, Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No, Payment_M  
ethod) VALUES(7,'Rupesh','Chaudhary',71047,'rupesh@gmail.com','dsfhrghm4','Nepal','Madesh','Janakpur',8,'Gongabu',44345,'456-7563-3452','Card');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email, Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No, Payment_M  
ethod) VALUES(8,'Sushant','Shrestha',82995,'sushant@gmail.com','fdjshbsd8','Nepal','Madesh','Janakpur',12,'Chabahil',44345,'344-4536-4657','Cash');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email, Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No, Payment_M  
ethod) VALUES(9,'Sudarshan','Bam',89345,'sudarshan@gmail.com','dfkhjrfds5','Nepal','Gandaki','Mustang',9,'Gyaneshwor',44563,'766-5433-4354','Online');  
Query OK, 1 row affected (0.01 sec)  
  
mysql> INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email, Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No, Payment_M  
ethod) VALUES(10,'Rusar','Pardhan',98435,'rusar@gmail.com','sdkj4err','Nepal','Gandaki','Mustang',13,'Boudha',44563,'676-3456-4566','Online');  
Query OK, 1 row affected (0.00 sec)
```

Fig:5: Inserting data into the table customer

The query inserts data into the already created table customer.

```
mysql> CREATE TABLE DEPARTMENT(  
->     Department_ID INT PRIMARY KEY,  
->     Department_Name VARCHAR(15) NOT NULL  
-> );  
Query OK, 0 rows affected (0.02 sec)
```

Fig:6: Creating department table

The creates a table department with a primary key department id and department name as an attribute.

```
mysql> INSERT INTO DEPARTMENT(Department_ID, Department_Name) VALUES(1, 'Admin');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO DEPARTMENT(Department_ID, Department_Name) VALUES(2, 'Management');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO DEPARTMENT(Department_ID, Department_Name) VALUES(3, 'Security');  
Query OK, 1 row affected (0.01 sec)  
  
mysql> INSERT INTO DEPARTMENT(Department_ID, Department_Name) VALUES(4, 'IT');  
Query OK, 1 row affected (0.00 sec)
```

Fig:7: Inserting data into department table

The query inserts data into department table.

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```
mysql> CREATE TABLE EMPLOYEE(  
->     Employee_ID INT PRIMARY KEY,  
->     First_Name VARCHAR(10) NOT NULL,  
->     Last_Name VARCHAR(10) NOT NULL,  
->     Title VARCHAR(15) NOT NULL,  
->     Contact_No INT NOT NULL,  
->     Address VARCHAR(20) NOT NULL,  
->     Email VARCHAR(30) NOT NULL,  
->     Password VARCHAR(20) NOT NULL,  
->     Department_ID INT NOT NULL,  
->     FOREIGN KEY (Department_ID) REFERENCES DEPARTMENT(Department_ID)  
-> );  
Query OK, 0 rows affected (0.02 sec)
```

Fig:8: Creating table employee

The query creates a table employee with a primary key employee id and other attributes along with department id as foreign.

```
mysql> INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No, Address, Email, Password, Department_ID) VALUES(1, 'Salin', 'Shah', 'Manager', 9876, 'Luton-4', 'salin@gmail.com', 'fdhsddfjkjfdh', 1);  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No, Address, Email, Password, Department_ID) VALUES(2, 'Niroj', 'Shrestha', 'Receptionist', 98765, 'Luton-5', 'niroj@gmail.com', 'dsfkdsjfkf', 2);  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No, Address, Email, Password, Department_ID) VALUES(3, 'Ninta', 'Tamang', 'Receptionist', 87654, 'Luton-6', 'ninta@gmail.com', 'sdfcgdsd', 2);  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No, Address, Email, Password, Department_ID) VALUES(4, 'Nilam', 'Ghale', 'Receptionist', 76543, 'Luton-7', 'nilam@gmail.com', 'dskhgfadshfj', 2);  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No, Address, Email, Password, Department_ID) VALUES(5, 'Jamuna', 'Shah', 'Cleaner', 65432, 'Luton-8', 'jamuna@gmail.com', 'sdfjhdsdf', 2);  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No, Address, Email, Password, Department_ID) VALUES(6, 'Sajina', 'Tamang', 'Cleaner', 54321, 'Luton-9', 'sajina@gmail.com', 'dffdsff', 2);  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No, Address, Email, Password, Department_ID) VALUES(7, 'Rupa', 'Magar', 'Cook', 23409, 'Luton-10', 'rupa@gmail.com', 'sdfhdjfd', 2);  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No, Address, Email, Password, Department_ID) VALUES(8, 'Dipsana', 'Tamang', 'Cook', 98367, 'Luton-11', 'dipsana@gmail.com', 'dfghjksdf', 2);  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No, Address, Email, Password, Department_ID) VALUES(9, 'Subash', 'Baskota', 'Security', 36885, 'Luton-12', 'subash@gmail.com', 'adfhjkfsd', 3);  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No, Address, Email, Password, Department_ID) VALUES(10, 'Sabin', 'Nayaju', 'Webpage Handler', 14806, 'Luton-13', 'sabin@gmail.com', 'sdfhfdsk', 4);  
Query OK, 1 row affected (0.00 sec)
```

Fig:9: Inserting data into employee table

The query inserts data into employee table.

```
mysql> CREATE TABLE BUILDING(  
    ->     Building_ID INT PRIMARY KEY,  
    ->     Building_Name VARCHAR(10) NOT NULL  
    -> );  
Query OK, 0 rows affected (0.02 sec)
```

Fig:10: Creating table building

The query creates table building with primary key building id.

```
mysql> INSERT INTO BUILDING(Building_ID, Building_Name) VALUES(1, 'Rose');  
Query OK, 1 row affected (0.01 sec)  
  
mysql> INSERT INTO BUILDING(Building_ID, Building_Name) VALUES(2, 'Daffodils');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO BUILDING(Building_ID, Building_Name) VALUES(3, 'Daisy');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO BUILDING(Building_ID, Building_Name) VALUES(4, 'Iris');  
Query OK, 1 row affected (0.00 sec)  
  
mysql> INSERT INTO BUILDING(Building_ID, Building_Name) VALUES(0, 'NoBuilding');  
Query OK, 1 row affected (0.00 sec)
```

Fig:11: Inserting data into building table

The query inserts data into building table.

```
mysql> CREATE TABLE ROOM(  
    ->     Room_ID INT PRIMARY KEY,  
    ->     Room_No INT NOT NULL,  
    ->     Type VARCHAR(10) NOT NULL,  
    ->     Rate INT NOT NULL,  
    ->     Floor_No INT NOT NULL,  
    ->     Availability VARCHAR(3) NOT NULL,  
    ->     Building_ID INT NOT NULL,  
    ->     FOREIGN KEY (Building_ID) REFERENCES BUILDING(Building_ID)  
    -> );  
Query OK, 0 rows affected (0.02 sec)
```

Fif:12: Creating table room

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The query creates room table with primary key room id and building id as foreign key.

```
mysql> INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Availability, Building_ID) VALUES(123, 100, 'Double', 20000, 5, 'Yes', 1);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Availability, Building_ID) VALUES(3422, 239, 'Twin', 15000, 6, 'Yes', 4);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Availability, Building_ID) VALUES(345, 345, 'Single', 10000, 7, 'Yes', 3);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Availability, Building_ID) VALUES(655, 334, 'Single', 10000, 1, 'Yes', 2);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Availability, Building_ID) VALUES(544, 334, 'Double', 20000, 2, 'Yes', 4);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Availability, Building_ID) VALUES(456, 566, 'Twin', 15000, 9, 'Yes', 1);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Availability, Building_ID) VALUES(0, 0, 'Null', 0, 0, 'No', 0);
Query OK, 1 row affected (0.00 sec)
```

Fig:13: Inserting data into table room

The query inserts data into room table.

```
mysql> CREATE TABLE BOOKING(
->   Booking_ID INT PRIMARY KEY,
->   Payment_Status VARCHAR(10) DEFAULT 'Not Paid',
->   Booking_Date DATE NOT NULL,
->   Arrival_Date DATE NOT NULL,
->   Departure_Date DATE NOT NULL,
->   Booking_Verified VARCHAR(3) DEFAULT 'No',
->   Booking_Status VARCHAR(10) DEFAULT 'Pending',
->   Customer_ID INT NOT NULL,
->   Employee_ID INT NOT NULL,
->   Room_ID INT DEFAULT 0,
->   FOREIGN KEY (Customer_ID) REFERENCES CUSTOMER(Customer_ID),
->   FOREIGN KEY (Employee_ID) REFERENCES EMPLOYEE(Employee_ID),
->   FOREIGN KEY (Room_ID) REFERENCES ROOM(Room_ID)
-> );
Query OK, 0 rows affected (0.04 sec)
```

Fig:14: Creating table booking

The query creates booking table with primary key booking id and customer id, employee id and room id as foreign key.

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```
mysql> INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status, Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID, Employee_ID) VALUES (1, 1, '2022-04-01', 'Paid', '2022-05-01', '2022-05-03', 'Yes', 'Booked', 123, 1);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status, Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID, Employee_ID) VALUES (2, 2, '2022-03-02', 'Not Paid', '2022-05-02', '2022-05-04', 'Yes', 'Booked', 3422, 2);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status, Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID, Employee_ID) VALUES (3, 3, '2022-4-21', 'Paid', '2022-5-3', '2022-5-5', 'No', 'Pending', 0, 2);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status, Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID, Employee_ID) VALUES (4, 4, '2022-3-4', 'Not Paid', '2022-5-4', '2022-5-6', 'No', 'Pending', 0, 2);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status, Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID, Employee_ID) VALUES (5, 5, '2022-05-05', 'Paid', '2022-05-05', '2022-05-07', 'Yes', 'Booked', 345, 2);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status, Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID, Employee_ID) VALUES (6, 6, '2022-04-03', 'Not Paid', '2022-05-06', '2022-05-08', 'Yes', 'Booked', 655, 3);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status, Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID, Employee_ID) VALUES (7, 7, '2022-05-23', 'Paid', '2022-05-07', '2022-05-09', 'Yes', 'Booked', 544, 3);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status, Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID, Employee_ID) VALUES (8, 8, '2021-10-30', 'Paid', '2022-5-8', '2022-5-10', 'No', 'Pending', 0, 3);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status, Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID, Employee_ID) VALUES (9, 9, '2021-12-31', 'Paid', '2022-05-09', '2022-05-11', 'No', 'Pending', 0, 3);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status, Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID, Employee_ID) VALUES (10, 10, '2021-11-09', 'Paid', '2022-05-10', '2022-05-12', 'Yes', 'Booked', 456, 3);
Query OK, 1 row affected (0.00 sec)
```

Fig:15: Inserting data into table booking

The query inserts data into the booking table.

Query Design and Implementation

Queries

- Show all the user's detail with the no. of booking they made.

```
mysql> SELECT c.Customer_Id, CONCAT(c.First_Name, ' ', c.Last_Name) C
ustomer_Name, COUNT(b.Booking_Id) Total_Booking
-> FROM CUSTOMER c left join BOOKING b
-> on c.Customer_Id = b.Customer_Id
-> GROUP BY c.Customer_Id, c.First_Name, c.Last_Name;
```

Customer_Id	Customer_Name	Total_Booking
1	Santosh Tamang	1
2	Baibhav Poudel	1
3	Krishal Pudasaini	1
4	Anoj Aryal	1
5	Prabin Labh	1
6	Kushal Kafle	1
7	Rupesh Chaudhary	1
8	Sushant Shrestha	1
9	Sudarshan Bam	1
10	Rusar Pardhan	1

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

Fig:16: Query to show user's detail with no. of booking made

The query utilizes the concat function and the left outer join to view all user's detail who have logged in. To provide some discount to the customer who comes more frequently than others.

- Show the month which has max no. of guests checked in.

```
mysql> SELECT t.Months, MAX(t.Total) Max_Booking
-> FROM(
-> SELECT MONTHNAME(Arrival_date) Months, COUNT(*) Total
-> FROM booking GROUP BY MONTHNAME(Arrival_date)
-> )t
-> GROUP BY t.Months;
```

Months	Max_Booking
May	10

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

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Fig:17: Query to show the month and no. of booking made with highest no. of guest came

The query utilizes sub-query to show the month in which maximum no. of guest came. This helps to prepare for the future stocking.

- Update when the booking is cancelled.

```
mysql> UPDATE BOOKING SET BOOKING_STATUS = 'CANELLED' WHERE Booking_id = 4;  
Query OK, 1 row affected (0.02 sec)  
Rows matched: 1   Changed: 1   Warnings: 0
```

Fig:18: Query to update when cancellation is done

The query updates the booking table and make the booking status “cancelled”. To make the room available for the future use.

- Show the rooms that are currently occupied.

```
mysql> SELECT r.Room_Id, r.Room_No, r.AVIALABILITY, b.building_NAME  
-> FROM ROOM r JOIN BUILDING b  
-> ON r.Building_Id = b.Building_Id  
-> WHERE AVIALABILITY = 'No';  
+-----+-----+-----+-----+  
| Room_Id | Room_No | AVIALABILITY | building_NAME |  
+-----+-----+-----+-----+  
|      0  |      0  | No          | NoBuilding    |  
|      46 |     546 | No          | Iris          |  
|      56 |     560 | No          | Daisy         |  
+-----+-----+-----+-----+  
3 rows in set (0.00 sec)
```

Fig:19: Query to show the occupied room

The query utilizes inner join to show the required data only. To make a queue of booking.

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- Show the total bill.

```
mysql> Select c.Customer_id, concat(c.first_name,' ', c.last_name) Customer
_Name, r.Type, r.Rate, (b.Departure_date - b.Arrival_date) Duration, (r.Rate
* (b.Departure_date - b.Arrival_date)) Total_Cost from CUSTOMER c, BOOKING
b, ROOM r WHERE c.Customer_id = b.Customer_id AND b.Room_id = r.Room_id A
ND r.Type <> 'Null';
```

Customer_id	Customer_Name	Type	Rate	Duration	Total_Cost
1	Santosh Tamang	Double	20000	2	40000
2	Baibhav Poudel	Twin	15000	2	30000
5	Prabin Labh	Single	10000	2	20000
6	Kushal Kafle	Single	10000	2	20000
7	Rupesh Chaudhary	Double	20000	2	40000
10	Rusar Pardhan	Twin	15000	2	30000

6 rows in set (0.00 sec)

Fig:20: Query to calculate the bill

The query utilizes concat function to show the customer's name and calculates the bill. For the user to pay their due.

- Show the customer details where the booking is pending.

```
mysql> SELECT c.Customer_Id, CONCAT(c.First_Name, c.Last_Name) Customer_Name, c.Credit_C
ard_No, b.Booking_Id, r.Type, b.Booking_Status
-> FROM CUSTOMER c, BOOKING b, ROOM r
-> WHERE c.Customer_Id = b.Customer_Id
-> and r.Room_Id= b.Room_Id
-> and b.Booking_status = 'Pending';
```

Customer_Id	Customer_Name	Credit_Card_No	Booking_Id	Type	Booking_Status
3	KrishalPudasaini	345-3245-5332	3	Null	Pending
8	SushantShrestha	344-4536-4657	8	Null	Pending
9	SudarshanBam	766-5433-4354	9	Null	Pending

3 rows in set (0.03 sec)

Fig:21: Query to show the pending booking

The query shows the customer detail whose booking status is pending. The staff should assign the room.

- Show the detail of the staff with the no. of rooms they assigned till now.

```
mysql> SELECT CONCAT(e.First_name, ' ', e.Last_name) Employee_Name,
e.Employee_Id, e.Title, COUNT(b.Booking_id) RoomAssigned
-> FROM EMPLOYEE e LEFT JOIN BOOKING b
-> ON e.employee_id = b.employee_id
-> GROUP BY e.Employee_Id, e.Title, e.first_Name, e.Last_name;
```

Employee_Name	Employee_Id	Title	RoomAssigned
Salin Shah	1	Manager	1
Niroj Shrestha	2	Receptionist	4
Ninta Tamang	3	Receptionist	5
Nilam Ghale	4	Receptionist	0
Jamuna Shah	5	Cleaner	0
Sajina Tamang	6	Cleaner	0
Rupa Magar	7	Cook	0
Dipsana Tamang	8	Cook	0
Subash Baskota	9	Security	0
Sabin Nayaju	10	Webpage Handler	0

10 rows in set (0.00 sec)

Fig:22: Query to show the employee detail

The query shows the employee detail utilizing left join and the no. of room assigned to the customer. To know who has checked the user request.

Discussion / Critical Analysis / Reflection

The requirement for the assignment is fulfilled. The customer can log in and register in the hotel. They can book rooms of their preferences. The hotel staff can view the user's booking details and assign a room according to the user's preferences.

Yes, the time allotted for the assignment was sufficient for the assignment to be completed prior to the submission due date. No, the assignment was not harder than my expectation. Even so, there were many small errors which affected the performance. The error made this time will not be made next time.

The enhancement of the knowledge of the database was done.

Conclusion

The given assignment asked to create a database system for the hotel that wants to provide the services like booking, cancelling, and checking the booking status through an online medium. For the completion of the assignment, MySQL database was used. Yes, the requirements were fulfilled as per the need of the client.

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Appendix

--CREATING BUILDING TABLE

```
CREATE TABLE BUILDING (  
    Building_ID INT PRIMARY KEY,  
    Building_Name VARCHAR(10) NOT NULL  
);
```

--INSERTING DATA INTO BUILDING TABLE

```
INSERT INTO BUILDING(Building_ID, Building_Name) VALUES(1, 'Rose');  
INSERT INTO BUILDING(Building_ID, Building_Name) VALUES(2, 'Daffodils');  
INSERT INTO BUILDING(Building_ID, Building_Name) VALUES(3, 'Daisy');  
INSERT INTO BUILDING(Building_ID, Building_Name) VALUES(4, 'Iris');  
INSERT INTO BUILDING(Building_ID, Building_Name) VALUES(0, 'NoBuilding');
```

--CREATING ROOM TABLE

```
CREATE TABLE ROOM(  
    Room_ID INT PRIMARY KEY,  
    Room_No INT NOT NULL,  
    Type VARCHAR(10) NOT NULL,  
    Rate INT NOT NULL,  
    Floor_No INT NOT NULL,  
    Availability VARCHAR(3) NOT NULL,  
    Building_ID INT NOT NULL,
```

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```
FOREIGN KEY (Building_ID) REFERENCES BUILDING(Building_ID)
);
```

--INSERTING DATA INTO ROOM TABLE

```
INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Avialability,
Building_ID) VALUES(123, 100, 'Double', 20000, 5, 'Yes', 1);
INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Avialability,
Building_ID) VALUES(3422, 239, 'Twin', 15000, 6, 'Yes', 4);
INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Avialability,
Building_ID) VALUES(345, 345, 'Single', 10000, 7, 'Yes', 3);
INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Avialability,
Building_ID) VALUES(655, 334, 'Single', 10000, 1, 'Yes', 2);
INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Avialability,
Building_ID) VALUES(544, 334, 'Double', 20000, 2, 'Yes', 4);
INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Avialability,
Building_ID) VALUES(456, 566, 'Twin',15000, 9, 'Yes', 1);
INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Avialability,
Building_ID) VALUES(46, 546, 'Twin',15000, 8, 'Yes', 4);
INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Avialability,
Building_ID) VALUES(56, 560, 'Twin',15000, 6, 'Yes', 3);
INSERT INTO ROOM(Room_ID, Room_No, Type, Rate, Floor_No, Avialability,
Building_ID) VALUES(0, 0, 'Null', 0, 0, 'No', 0);
```

--CREATING DEPARTMENT TABLE

```
CREATE TABLE DEPARTMENT(
    Department_ID INT PRIMARY KEY,
    Department_Name VARCHAR(15) NOT NULL
);
```

--INSERTING DEPARTMENT TABLE

```
INSERT INTO DEPARTMENT(Department_ID, Department_Name) VALUES(1, 'Admin');
```

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```
INSERT INTO DEPARTMENT(Department_ID, Department_Name) VALUES(2,
'Management');
INSERT INTO DEPARTMENT(Department_ID, Department_Name) VALUES(3,
'Security');
INSERT INTO DEPARTMENT(Department_ID, Department_Name) VALUES(4, 'IT');
```

--CREATING EMPLOYEE TABLE

```
CREATE TABLE EMPLOYEE(
    Employee_ID INT PRIMARY KEY,
    First_Name VARCHAR(10) NOT NULL,
    Last_Name VARCHAR(10) NOT NULL,
    Title VARCHAR(15) NOT NULL,
    Contact_No INT NOT NULL,
    Address VARCHAR(20) NOT NULL,
    Email VARCHAR(30) NOT NULL,
    Password VARCHAR(20) NOT NULL,
    Department_ID INT NOT NULL,
    FOREIGN KEY (Department_ID) REFERENCES DEPARTMENT(Department_ID)
);
```

--INSERTING EMPLOYEE TABLE

```
INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No,
Address, Email, Password, Department_ID) VALUES(1, 'Salin', 'Shah', 'Manager', 9876,
'Luton-4', 'salin@gmail.com', 'fdhsddfkjfdh', 1);
INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No,
Address, Email, Password, Department_ID) VALUES(2, 'Niroj', 'Shrestha',
'Receptionist', 98765, 'Luton-5', 'niroj@gmail.com', 'dsfkdsjfkf', 2);
INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No,
Address, Email, Password, Department_ID) VALUES(3, 'Ninta', 'Tamang',
'Receptionist', 87654, 'Luton-6', 'ninta@gmail.com', 'sdfcgdsd', 2);
```

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```
INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No,
Address, Email, Password, Department_ID) VALUES(4, 'Nilam', 'Ghale',
'Receptionist', 76543, 'Luton-7', 'nilam@gmail.com', 'dskhgfadshfj', 2);
INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No,
Address, Email, Password, Department_ID) VALUES(5, 'Jamuna', 'Shah', 'Cleaner',
65432, 'Luton-8', 'jamuna@gmail.com', 'sdfjhdsf', 2);
INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No,
Address, Email, Password, Department_ID) VALUES(6, 'Sajina', 'Tamang',
'Cleaner', 54321, 'Luton-9', 'sajina@gmail.com', 'dffdfff', 2);
INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No,
Address, Email, Password, Department_ID) VALUES(7, 'Rupa', 'Magar', 'Cook',
23409, 'Luton-10', 'rupa@gmail.com', 'sdfhdjf', 2);
INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No,
Address, Email, Password, Department_ID) VALUES(8, 'Dipsana', 'Tamang',
'Cook', 98367, 'Luton-11', 'dipsana@gmail.com', 'dfghjksdf', 2);
INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No,
Address, Email, Password, Department_ID) VALUES(9, 'Subash', 'Baskota',
'Security', 36085, 'Luton-12', 'subash@gmail.com', 'adfhjkfsd', 3);
INSERT INTO EMPLOYEE(Employee_ID, First_Name, Last_Name, Title, Contact_No,
Address, Email, Password, Department_ID) VALUES(10, 'Sabin', 'Nayaju', 'Webpage
Handler', 14806, 'Luton-13', 'sabin@gmail.com', 'sdfhfdsk', 4);
```

--CREATING CUSTOMER TABLE

```
CREATE TABLE CUSTOMER(
Customer_ID INT PRIMARY KEY,
First_Name VARCHAR(10) NOT NULL,
Last_Name VARCHAR(10) NOT NULL,
Contact_No INT NOT NULL,
Email VARCHAR(30) NOT NULL,
Password VARCHAR(20) NOT NULL,
Country VARCHAR(20) NOT NULL,
State VARCHAR(20) NOT NULL,
```

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```
District VARCHAR(20) NOT NULL,  
Ward INT NOT NULL,  
Street_Name VARCHAR(20) NOT NULL,  
Postal_Code INT NOT NULL,  
Credit_Card_No VARCHAR(15) NOT NULL,  
Payment_Method VARCHAR(10) NOT NULL  
);
```

--INSERTING DATA INTO CUSTOMER

```
INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email,  
Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No,  
Payment_Method) VALUES(1, 'Santosh', 'Tamang', 95678,  
'santosh@gmail.com', 'sdfhjka3', 'Nepal', 'Bagmati', 'Nuwakot', 13,  
'Ajingare', 44990, '437-6567-3233', 'Card');
```

```
INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email,  
Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No,  
Payment_Method) VALUES(2, 'Baibhav', 'Poudel', 96780,  
'baibhav@gmail.com', 'dfgdiuer3', 'Nepal', 'Bagmati', 'Kathmandu', 4,  
'New Road', 44903, '345-2345-3455', 'Not');
```

```
INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email,  
Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No,  
Payment_Method) VALUES(3, 'Krishal', 'Pudasaini', 94673,  
'krishal@gmail.com', 'ejfhjeiurfh4', 'Nepal', 'Bagmati', 'Kathmandu', 5,  
'Fedi', 44903, '345-3245-5332', 'Cash');
```

```
INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email,  
Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No,  
Payment_Method) VALUES(4, 'Anoj', 'Aryal', 98989, 'anoj@gmail.com', 'eryth34',  
'Nepal', 'Bagmati', 'Bhaktapur', 3, 'Lolang', 44234, '235-6543-5644',  
'Not');
```

```
INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email,  
Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No,  
Payment_Method) VALUES(5, 'Prabin', 'Labh', 69850, 'prabin@gmail.com',
```


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```
'dsfkgghg43', 'Nepal','Madesh', 'Janakpur', 2, 'Kalanki', 44345,  
'765-3456-4356', 'Online');
```

```
INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email,  
Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No,  
Payment_Method) VALUES(6, 'Kushal', 'Kafle', 87546, 'kushal@gmail.com',  
'fgkhufj34', 'Nepal','Madesh', 'Janakpur', 4, 'Samakoshi', 44345,  
'546-6784-4566', 'Not');
```

```
INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email,  
Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No,  
Payment_Method) VALUES(7, 'Rupesh', 'Chaudhary', 71047,  
'rupesh@gmail.com', 'dsfhrgnm4', 'Nepal','Madesh', 'Janakpur', 8,  
'Gongabu', 44345, '456-7563-3452', 'Card');
```

```
INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email,  
Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No,  
Payment_Method) VALUES(8, 'Sushant', 'Shrestha', 82995,  
'sushant@gmail.com', 'fdjshbsd8', 'Nepal','Madesh', 'Janakpur', 12,  
'Chabahil', 44345, '344-4536-4657', 'Cash');
```

```
INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email,  
Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No,  
Payment_Method) VALUES(9, 'Sudarshan', 'Bam', 89345, 'sudarsan@gmail.com',  
'dfkhjrfsd5', 'Nepal','Gandaki', 'Mustang', 9, 'Gyaneshwor', 44563,  
'766-5433-4354', 'Online');
```

```
INSERT INTO CUSTOMER(Customer_ID, First_Name, Last_Name, Contact_No, Email,  
Password, Country, State, District, Ward, Street_Name, Postal_Code, Credit_Card_No,  
Payment_Method) VALUES(10, 'Rusar', 'Pardhan', 98435, 'rusar@gmail.com',  
'sdkjh4err', 'Nepal','Gandaki', 'Mustang', 13, 'Bouddha', 44563,  
'675-3456-4566', 'Online');
```

--CREATING BOOKING TABLE

```
CREATE TABLE BOOKING(  
Booking_ID INT PRIMARY KEY,  
Payment_Status VARCHAR(10) NOT NULL Not Paid,
```

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```
Booking_Date DATE NOT NULL,  
Arrival_Date DATE NOT NULL,  
Departure_Date DATE NOT NULL,  
Booking_Verified VARCHAR(3) NOT NULL No,  
Booking_Status VARCHAR(10) NOT NULL Pending,  
Customer_ID INT NOT NULL,  
Employee_ID INT NOT NULL,  
Room_ID INT NOT NULL DEFAULT 0,  
FOREIGN KEY (Customer_ID) REFERENCES CUSTOMER(Customer_ID),  
FOREIGN KEY (Employee_ID) REFERENCES EMPLOYEE(Employee_ID),  
FOREIGN KEY (Room_ID) REFERENCES ROOM(Room_ID)  
);  
  
--INSERTNG DATA INTO BOOKING  
INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status,  
Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID,  
Employee_ID) VALUES (1, 1, '2022-04-01', 'Paid', '2022-05-01', '2022-05-03', 'Yes',  
'Booked', 123, 1);  
INSERT INTO BOOKING(Customer_ID, Booking_ID, Booking_Date, Payment_Status,  
Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID,  
Employee_ID) VALUES (2, 2, '2022-03-02', 'Not Paid', '2022-05-02', '2022-05-04',  
'Yes', 'Booked', 3422, 2);  
INSERT INTO BOOKING(Customer_ID, Booking_ID, Booking_Date, Payment_Status,  
Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID,  
Employee_ID) VALUES(3, 3, '2022-4-21', 'Paid', '2022-5-3', '2022-5-5',  
'No', 'Pending', 0, 2);  
INSERT INTO BOOKING(Customer_ID, Booking_ID, Booking_Date, Payment_Status,  
Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID,  
Employee_ID) VALUES(4, 4, '2022-3-4', 'Not Paid', '2022-5-4', '2022-5-6',  
'No', 'Pending', 0, 2);  
INSERT INTO BOOKING(Customer_ID, Booking_ID, Booking_Date, Payment_Status,  
Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID,
```

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```
Employee_ID) VALUES(5 , 5, '2022-05-05', 'Paid', '2022-05-05', '2022-05-07',  
'Yes', 'Booked', 345, 2) ;  
  
INSERT INTO BOOKING(Customer_ID, Booking_ID, Booking_Date, Payment_Status,  
Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID,  
Employee_ID) VALUES (6, 6, '2022-04-03', 'Not Paid', '2022-05-06', '2022-05-08',  
'Yes', 'Booked', 655, 3) ;  
  
INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status,  
Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID,  
Employee_ID) VALUES (7, 7, '2022-05-23', 'Paid', '2022-05-07', '2022-05-09',  
'Yes', 'Booked', 544, 3) ;  
  
INSERT INTO BOOKING(Customer_ID, Booking_ID, Booking_Date, Payment_Status,  
Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID,  
Employee_ID) VALUES(8, 8, '2021-10-30', 'Paid', '2022-5-8', '2022-5-10',  
'No', 'Pending', 0, 3);  
  
INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status,  
Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID,  
Employee_ID) VALUES (9 , 9, '2021-12-31', 'Paid', '2022-05-09', '2022-05-11',  
'No', 'Pending', 0, 3);  
  
INSERT INTO BOOKING (Customer_ID, Booking_ID, Booking_Date, Payment_Status,  
Arrival_Date, Departure_Date, Booking_Verified, Booking_Status, Room_ID,  
Employee_ID) VALUES(10, 10, '2021-11-09', 'Paid', '2022-05-10', '2022-05-12',  
'Yes', 'Booked', 456, 3) ;
```

Query

```
SELECT c.Customer_Id, CONCAT(c.First_Name, ' ', c.Last_Name) Customer_Name,  
COUNT(b.Booking_Id) Total_Booking  
FROM CUSTOMER c left join BOOKING b  
on c.Customer_Id = b.Customer_Id  
GROUP BY c.Customer_Id, c.First_Name, c.Last_Name;  
  
UPDATE BOOKING SET BOOKING_STATUS = 'CANELLED' WHERE Booking_id = 4
```

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```
SELECT r.Room_Id, r.Room_No, r.AVIALABILITY
FROM ROOM r
WHERE AVIALABILITY = 'No';
```

```
SELECT c.Customer_Id, CONCAT(c.First_Name, ' ', c.Last_Name)
Customer_Name, r.Type, r.Rate, (b.Departure_Date - b.Arrival_Date) Duration, (r.Rate *
(b.Departure_Date - b.Arrival_Date)) Total_Cost
FROM CUSTOMER c, ROOM r, BOOKING b
where c.Customer_Id = b.Customer_Id
and b.Room_Id = r.Room_Id
and r.Type <> 'Null';
```

```
SELECT c.Customer_Id, CONCAT(c.First_Name, c.Last_Name) Customer_Name,
c.Credit_Card_No, b.Booking_Id, r.Type, b.Booking_Status
FROM CUSTOMER c, BOOKING b, ROOM r
WHERE c.Customer_Id = b.Customer_Id
and r.Room_Id= b.Room_Id
and b.Booking_status = 'Pending';
```

```
SELECT CONCAT(e.First_name, ' ', e.Last_name) Employee_Name, e.Employee_Id,
e.Title, COUNT(b.Booking_id) RoomAssigned
FROM EMPLOYEE e, BOOKING b
WHERE e.employee_id = b.employee_id
GROUP BY e.Employee_Id, e.Title, e.first_Name, e.Last_name;
```