


Course Title:	Fundamentals of Data Engineering
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<i>Assignment/Lab Number:</i>	3
<i>Assignment/Lab Title:</i>	Database Design

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*By signing above you attest that you have contributed to this written lab report and confirm that all work you have contributed to this lab report

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Entity Relationship Diagram

SQLite Dump

```
PRAGMA foreign_keys=OFF;
BEGIN TRANSACTION;
CREATE TABLE Hotel (
    HotelCode INTEGER PRIMARY KEY,
    Name TEXT,
    Address TEXT,
    NumRooms INTEGER,
    DeskPhone TEXT,
    ManagementPhone TEXT,
    StaffCount INTEGER,
);
CREATE TABLE Room (
    RoomNo INTEGER PRIMARY KEY,
    RoomType TEXT,
    HotelCode INTEGER,
    Services TEXT,
    FOREIGN KEY (HotelCode) REFERENCES Hotel (HotelCode)
);
CREATE TABLE Staff (
    StaffID INTEGER PRIMARY KEY,
    HotelCode INTEGER,
    FirstName TEXT,
    LastName TEXT,
    DOB DATE,
    Gender TEXT,
    Email TEXT,
    Phone TEXT,
    Password TEXT,
    Position TEXT,
    Salary REAL,
    FOREIGN KEY (HotelCode) REFERENCES Hotel (HotelCode)
);
CREATE TABLE Guest (
    GuestID INTEGER PRIMARY KEY,
    BookingID INTEGER,
    HotelCode INTEGER,
    GuestTitle TEXT,
```

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        FirstName TEXT,
        LastName TEXT,
        DOB DATE,
        Gender TEXT,
        Email TEXT,
        Phone TEXT,
        Password TEXT,
        Address TEXT,
        FOREIGN KEY (BookingID) REFERENCES Booking (BookingID),
        FOREIGN KEY (HotelCode) REFERENCES Hotel (HotelCode)
    );

CREATE TABLE Booking (
    BookingID INTEGER PRIMARY KEY,
    HotelCode INTEGER,
    RoomNo INTEGER,
    GuestID INTEGER,
    BookingDateTime DATETIME,
    CheckinDateTime DATETIME,
    CheckoutDateTime DATETIME,
    FOREIGN KEY (HotelCode) REFERENCES Hotel (HotelCode),
    FOREIGN KEY (RoomNo) REFERENCES Room (RoomNo),
    FOREIGN KEY (GuestID) REFERENCES Guest (GuestID)
);

CREATE TABLE Bill (
    InvoiceNum INTEGER PRIMARY KEY,
    BookingID INTEGER,
    GuestID INTEGER,
    RoomCharge REAL,
    Services TEXT,
    PaymentDate DATE,
    ExpireDate DATE,
    ChequeNo TEXT,
    FOREIGN KEY (BookingID) REFERENCES Booking (BookingID),
    FOREIGN KEY (GuestID) REFERENCES Guest (GuestID)
);

COMMIT;

```

Hotel - entity containing rooms, staff and resources.	
HotelCode	primary key for the hotel entity.

Name	name of hotel.
Address	contains address, postal code, city, country.
NumRooms	number of rooms within the hotel.
DeskPhone	desk phone number of the hotel.
ManagementPhone	management phone number of the hotel.
StaffCount	number of staff within the hotel.

Staff - entity that performs duties within the hotel and receives salary.	
StaffID	primary key of staff member.
HotelCode	foreign key of hotel entity.
FirstName	first name of staff member
LastName	last name of staff member
DOB	date of birth of staff member containing day, month, year.
Gender	gender of staff member.
Email	email of staff member.
Phone	phone number of staff member.
Password	password of staff member.
Position	position of employment of staff member.
Salary	salary of staff member.

Room - entity containing staff and customers.	
RoomNo	weak key attribute for Room entity.
RoomType	type of the room.
HotelCode	foreign key of hotel.
Services	list of services offered for the room.

Guest - entity that interacts with the hotel by purchasing rooms and services.

GuestID	primary key for the hotel entity.
BookingID	foreign key of booking.
FirstName	first name of guest.
LastName	last name of guest.
DOB	date of birth of guest.
Gender	gender of guest.
Email	email of guest.
Phone	phone number of guest.
Password	password of guest's hotel account.

Booking - entity that represents reservation for a room made by guest.	
BookingID	primary key for the hotel entity.
RoomNo	room number of booked room.
GuestID	foreign key of guest.
BookingDateTime	date and time of booking was made by guest.
CheckinDateTime	date and time guest checked in to hotel.
CheckoutDateTime	date and time guest checked out of hotel.

Bill - entity that represents list of expenses made by guests.	
InvoiceNum	invoice number of the bill.
BookingID	primary key of booking.
RoomCharge	cost of the booked room.
Services	list of services included in bill.
PaymentDate	date of payment by guest.
ExpireDate	date of expiry for payment.
ChequeNo	cheque number of bill.

Relationships	
1..1 Hotel has 1..many Room	<u>HotelCode</u> : foreign key used by Room entity.
1..1 Hotel has 1..many Staff	<u>HotelCode</u> : foreign key used by Staff entity.
1..many Room has 1..many Booking	<u>RoomNo</u> : foreign key used by Booking entity.
1..many Booking made by 1..1 Guest	<u>GuestID</u> : foreign key used by Booking entity.
1..many Booking has 1..1 Bill	<u>BookingID</u> : foreign key used by Bill entity.

