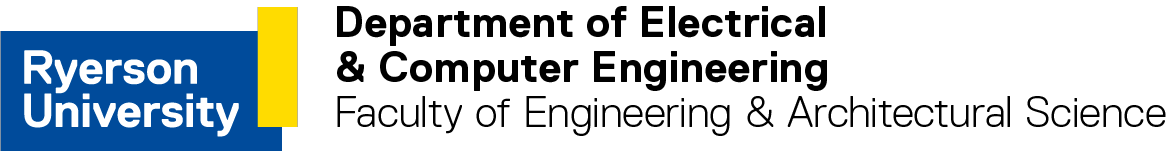
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| **Course Title:** | Fundamentals of Data Engineering |
| --- | --- |
| **Course Number:** | COE 848 |
| **Semester/Year (e.g.F2016):** | W2024 |

| **Instructor:** | Faezeh Ensan |
| --- | --- |

| *Assignment/Lab Number:* | 3 |
| --- | --- |
| *Assignment/Lab Title:* | Database Design |

| *Submission Date:* | Feb 26, 2024 |
| --- | --- |
| *Due Date:* | Feb 26, 2024 |

| **Student**  **LAST Name** | **Student**  **FIRST Name** | **Student**  **Number** | **Section** | **Signature \*** |
| --- | --- | --- | --- | --- |
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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*,

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 | HotelCode: foreign key used by Room entity. |
| 1..1 Hotel has 1..many Staff | HotelCode: foreign key used by Staff entity. |
| 1..many Room has 1..many Booking | RoomNo: foreign key used by Booking entity. |
| 1..many Booking made by 1..1 Guest | GuestID: foreign key used by Booking entity. |
| 1..many Booking has 1..1 Bill | BookingID: foreign key used by Bill entity. |

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