

## **CSI 2132 - Deliverable 1**

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### **Entities:**

Hotel\_Chain (hq\_address, num\_of\_hotels, email, phone\_number)

Hotel (hotel\_id, hq\_address, stars, num\_of\_rooms, address, email, phone\_number)

Employee (employee\_id, hotel\_id, employee\_name, address, SSN, position)

Room (room\_number, hotel\_id, customer\_id, price, amenities, capacity, views, extension, damages)

Customer (customer\_id, SSN, name, address, registration\_date)

### **Relations:**

Employee MANAGES Hotel. Hotel is MANAGED by an Employee.

Customer BOOKS Room. Room is BOOKED by a Customer.

Customer CHECKS\_IN Hotel. Hotel is CHECKED\_IN by a Customer. This relation has attributes such as employee\_id, and date.

Room IS\_IN Hotel. Hotel HAS a Room.

Customer RENTS Room. Room IS RENTED by a Customer. This relation has attributes such as date, cc\_info, price, employee, id.

Employee HELPS Customer. Customer are HELPED by an Employee.

### **Primary Keys:**

The primary keys for the entities are:

Hotel Chain → hq\_address [CANDIDATE KEY]

Hotel → {hotel\_id, hq\_address} [SUPERKEY]

Employee → {employee\_id, hotel\_id} [SUPERKEY]

Room → {room\_number, hotel\_id, customer\_id} [SUPERKEY]

Customer → customer\_id [CANDIDATE KEY]

### **Cardinalities:**

A hotel chain owns many hotels : A hotel is owned by 1 of the 5 hotel chains

A hotel contains many working employees : An employee can only work in 1 hotel

A hotel can be checked in by many customer : A customer check in to 1 hotel

A hotel can be managed by many employees : An employee can only manage 1 hotel

A customer can rent multiple rooms : Many rooms can be rented by many customers

A customer can book multiple rooms : Many rooms can be booked by many customers

A hotel has many rooms : A room is in 1 hotel

An employee helps 1 customer : A customer can be helped by many employees

A employee manages many(including 1) hotels | Many hotels is managed by 1 employee

## **Integrity Constraints:**

### **Referential Integrity Constraint:**

- Hotel: The hq\_address attribute should reference the Hotel chain primary key hq\_address.
- Room: The hotel\_id attribute should reference the Hotel primary key hotel\_id. The customer\_id attribute should reference the Customer primary key customer\_id.
- Employee: The hotel\_id attribute should reference the Hotel primary key hotel\_id.

### **Entity Integrity Constraint:**

- Hotel Chain: The primary key {hq\_address} attribute is NOT NULL
- Hotel: The primary key {hotel\_id, hq\_address} is NOT NULL.
- Customer: The primary key {customer\_id} attribute is NOT NULL
- Employee: The primary key {employee\_id} attribute is NOT NULL
- Room: The primary key {room\_number, hotel\_id} attribute is NOT NULL

### **Domain Integrity:**

- Id and SSN INTEGER values are a unique number between 4-9 digits
- Price, and room number is INTEGER
- All unspecified attributes of type VARCHAR
- Hotel
  - Stars: D = {1,2,3,4,5} is INTEGER
- Room
  - Amenities: D = {television, air\_conditioner, fridge, microwave, oven, dishwasher, laundry} is VARCHAR
  - Capacity: D = {single, double} is VARCHAR
  - Views: D = {sea\_view, mountain\_view, city\_view} is VARCHAR
  - Extension: D = {yes, no} is VARCHAR
- Employee
  - Position: D = {manager, cleaner, front\_desk, cook, repair\_man, gardener} is VARCHAR

### **User Defined:**

- First, middle, last names start with Capital
- Registration data in format: yyyy-mm-dd