#1 Task 1

Purpose of the database

Hotels are known all over the world for their convenience for people who travel. No matter what one intends to do in a foreign country, state, or even the next city over, hotels are there to book with different amenities available based on how big a budget is. A database is a great way to store this information, because the desk attendant can easily book rooms for a guest over the phone, look up information regarding a guest's stay, check guests in and out at the beginning and end of their stay, and look up or change other information regarding the hotel employees or day to day activities.

Guests should also be able to book a stay online, find out basic information such as price and availability, as well as canceling their stay or making a change. Employees of the hotel should be able to change their shift or find out if they have been moved to a different operation for a certain shift.

Website / UI Requirements

For the website to access this database, there will be a home page from which one can access:

- Contact page: hours of the hotel, phone number, address, city and state
- Booking page: calendar to choose dates of stay, how much the security deposit is based on what room the customer chooses, and a place to include identification information
- General pricing page: includes examples of each room available, including how many beds each has, what amenities each has access to, and how many are available at time of booking

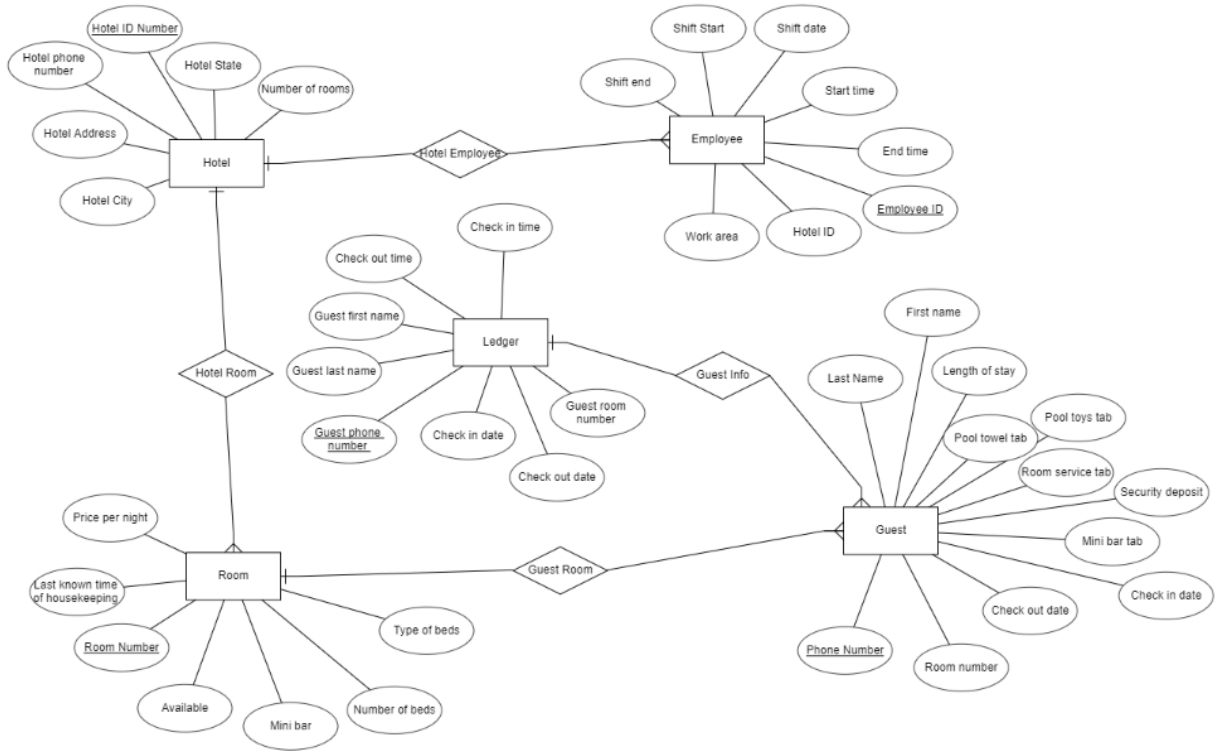
Data Requirements

- Hotel
    - Hotel ID number
    - Hotel City
    - Hotel State
    - Hotel phone number
    - Hotel address
    - Number of total rooms
- Desk Attendant / Management at the hotel
    - Timestamp of check in time
    - Timestamp of check out time

    - First Name of guest
    - Last Name of guest
    - Phone number of guest
    - Room Number of guest
    - Check in date of guest
    - Check out date of guest

    - Room
        - Available (boolean)
        - Room number
        - Mini bar (boolean)
        - Number of beds
        - Type of beds
        - Last known time of housekeeping
        - Price per night
- Employee
    - Shift start
    - Shift end
    - Shift date
    - Timestamp of start of shift
    - Timestamp of end of shift
    - Work area for that shift
- Guest
    - Name
    - phone number
    - room number
    - check out date
    - Check in date
    - Mini bar tab
    - Room service tab
    - VIP room service tab
    - Length of stay
    - Security deposit
    - Over security deposit
    - Pool towel tab
    - Pool toys tab

#2 Database Conceptual Design



#3 Notation Explanation

- Hotel Room
    - Many rooms -> one hotel
- Hotel Employee
    - Many employees -> one hotel
- Guest Info
    - Many guests -> one ledger
- Guest Room
    - Many guests -> one room

#4 Relationships Among Entity Sets

- Hotel Room
    - We chose to make this relationship between the Hotel entity and the Room entity because a room cannot be separate from a hotel. A room that someone registered at the hotel stays in is part of the hotel, so we showed that in the ER diagram.
- Hotel Employee
    - We chose to make this relationship between the Hotel entity and the Employee entity because employees are employed by a hotel company. This needs to happen so that the

Hotel company can pay employees. This relationship can also distinguish between hired hotel employees and contractors that are temporary employees.

- Guest Info
    - We chose to make this relationship between the Guest entity and the Ledger entity because each guest needs to be a part of some sort of record system in the hotel, which is the ledger in this case. This is important so that all employees and the hotel manager have a record of who stayed in the hotel and during what time. It also shows the direct relationship between the guest and the hotel.
- Guest Room
    - We chose to make this relationship between the Guest entity and the Room entity because when a guest registers to stay at a hotel, they stay in a room.

#5 Convert ER Diagram to Relational Schema

Hotel(Hotel_ID_number, Hotel_phone_number, Hotel_address, Hotel_city, Num_rooms)

Hotel_Employee(Hotel_ID_number, Employee_ID_number)

Employee(Shift_start, Shift_end, Shift_date, Start_time, End_time, Employee_ID_number, Hotel_ID_number, Work_area)

Hotel_Room(Hotel_ID_number, Room_number)

Ledger(Check_in_time, Check_out_time, Guest_first_name, Guest_last_name, Guest_phone_number, Check_in_date, Check_out_date, Room_number)

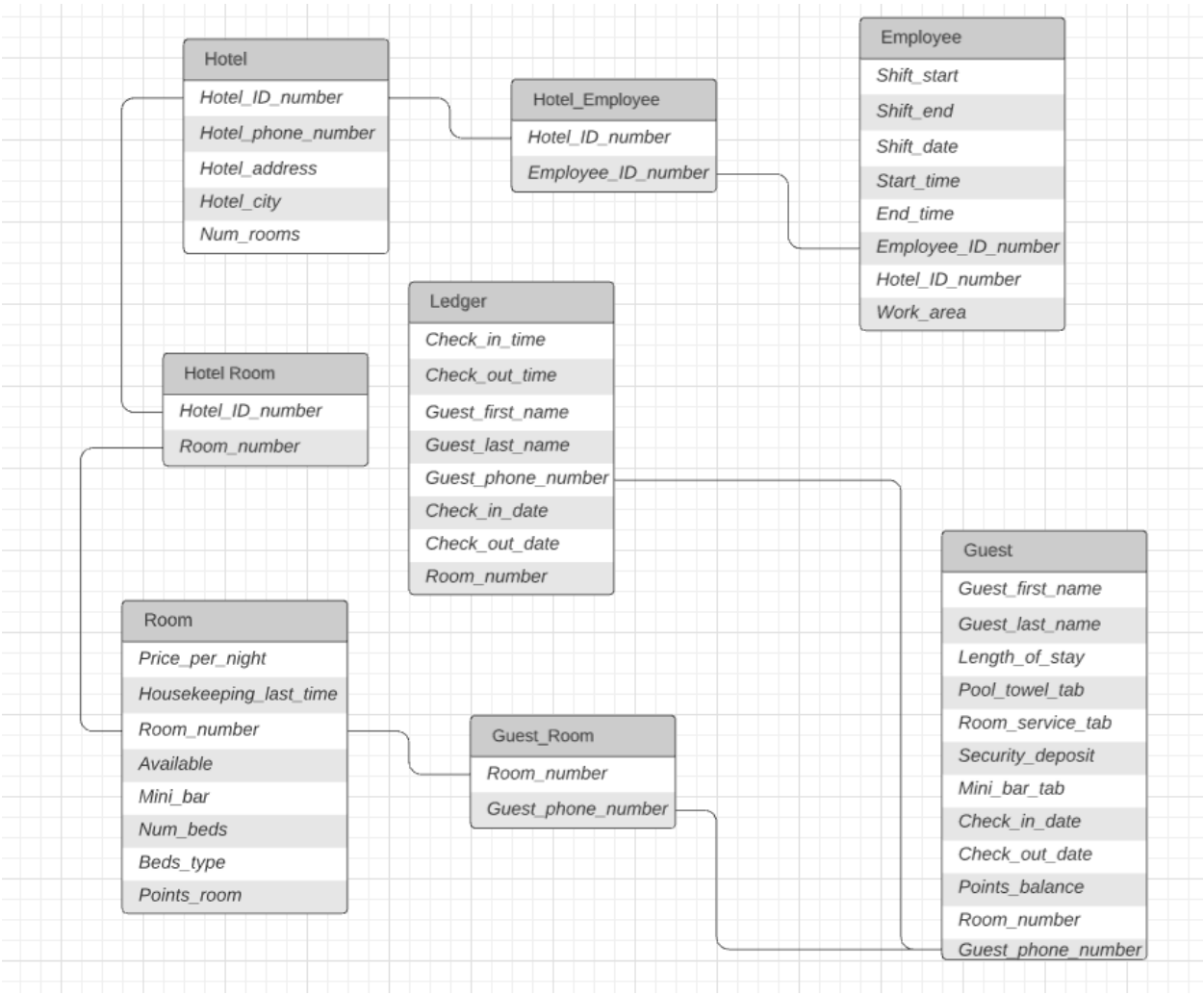
Guest_Info(Room_number)

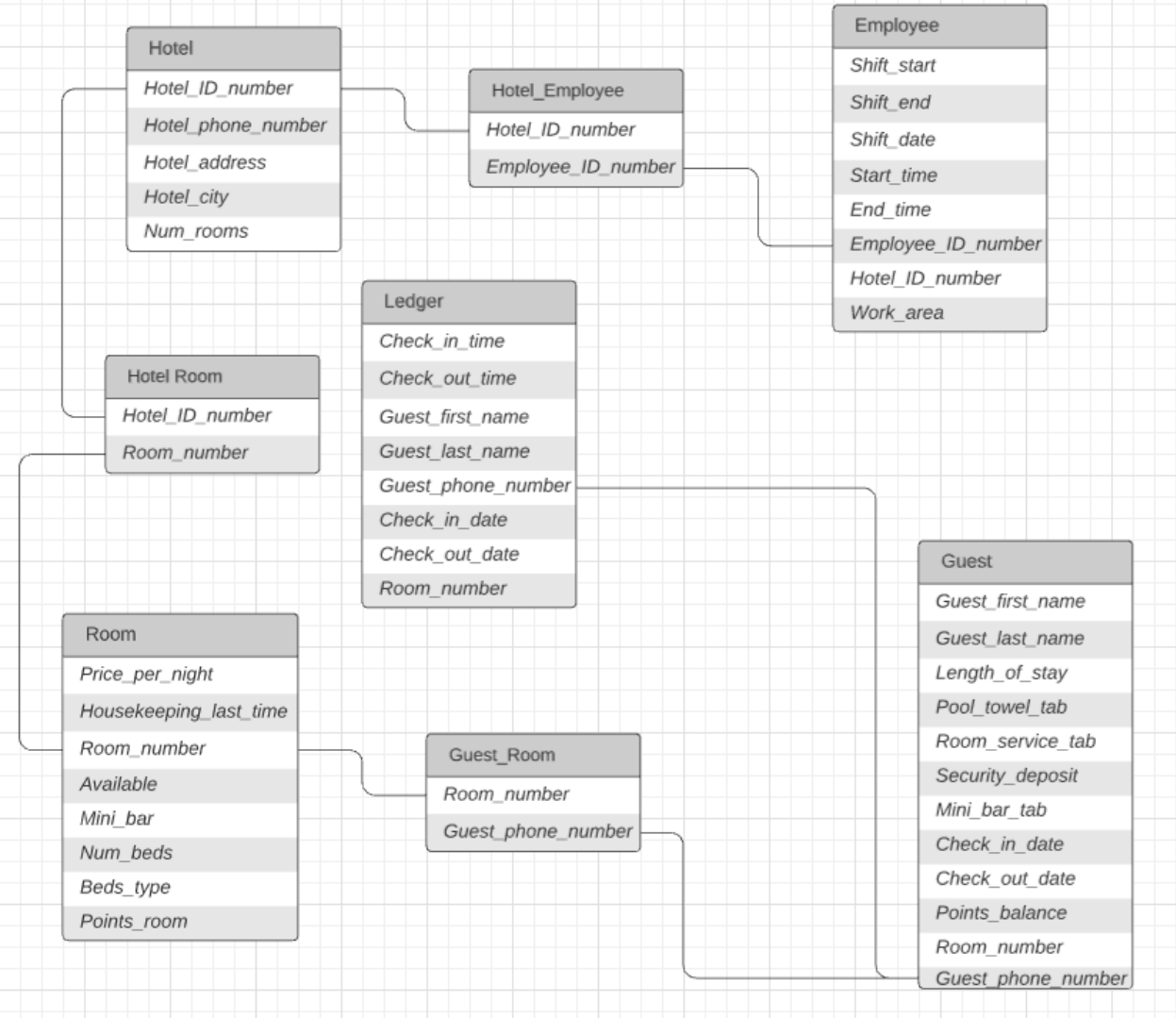
Guest(Guest_first_name, Guest_last_name, Length_of_stay, Pool_towel_tab, Room_service_tab, Security_deposit, Mini_bar_tab, Check_in_date, Check_out_date, Room_number, Guest_phone_number)

Guest_Room(Room_number, Guest_phone_number)

Room(Price_per_night, Housekeeping_last_time, Room_number, Available, Mini_bar, Num_beds, Beds_type)

#6 Draw schema diagram


Hotel
Hotel_ID_number
Hotel_phone_number
Hotel_address
Hotel_city
Num_rooms
Hotel_Employee
Hotel_ID_number
Employee_ID_number
Employee
Shift_start
Shift_end
Shift_date
Start_time
End_time
Employee_ID_number
Hotel_ID_number
Work_area
Ledger
Check_in_time
Check_out_time
Guest_first_name
Guest_last_name
Guest_phone_number
Check_in_date
Check_out_date
Room_number
Hotel Room
Hotel_ID_number
Room_number
Guest
Guest_first_name
Guest_last_name
Length_of_stay
Pool_towel_tab
Room_service_tab
Security_deposit
Mini_bar_tab
Check_in_date
Check_out_date
Points_balance
Room_number
Guest_phone_number
Room
Price_per_night
Housekeeping_last_time
Room_number
Available
Mini_bar
Num_beds
Beds_type
Points_room
Guest_Room
Room_number
Guest_phone_number



#7 SQL Queries (insert, delete, update, joins, view, trigger, etc)

https://docs.google.com/document/d/1Rz5El3TqvzXv8gIJFG_abaPnxx-vYo_aE8hkkNMnSwE/edit