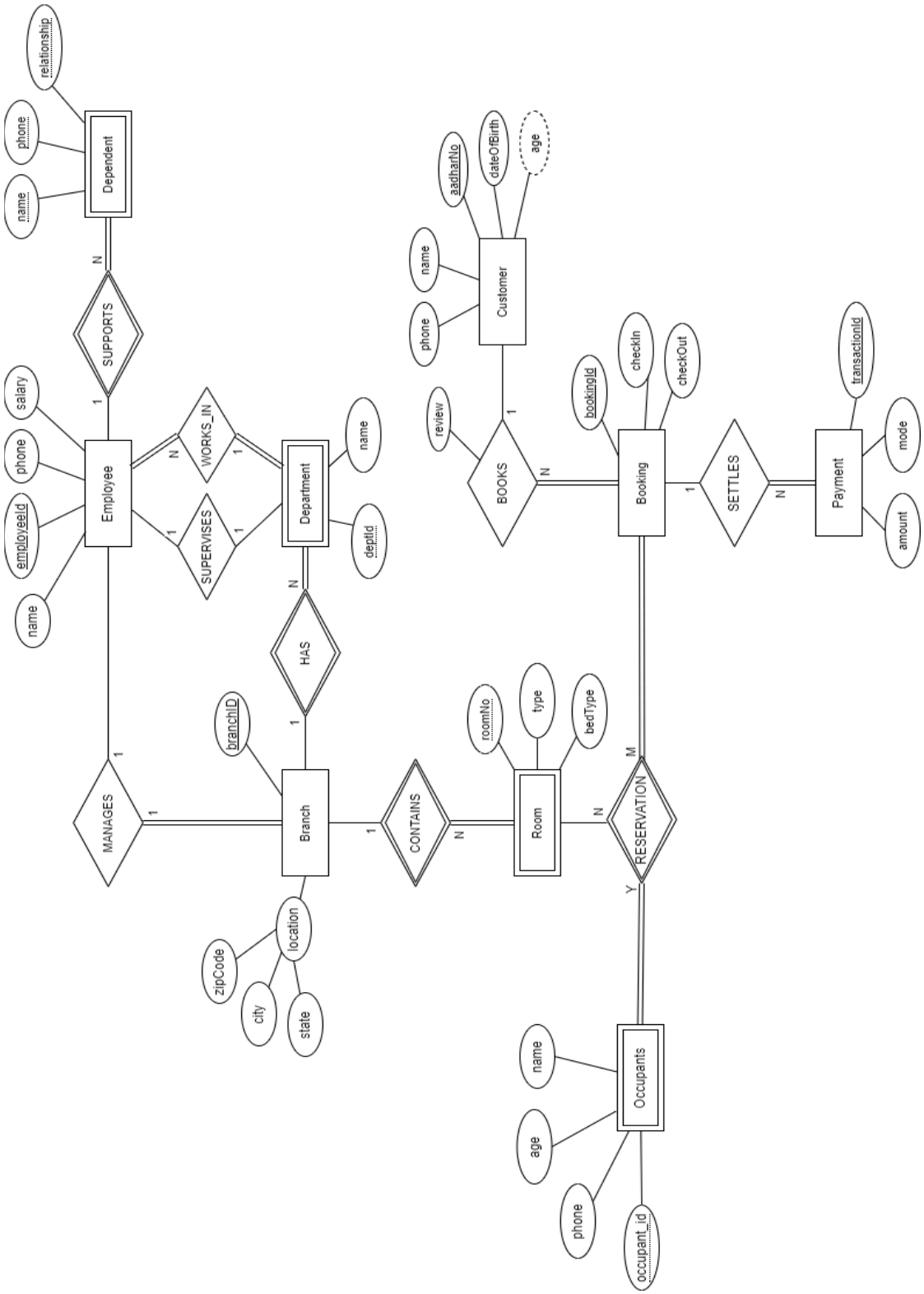
ASSIGNMENT - I

E/ R Model Diagram, Description &
Relational Model Schema

Data Management System :
Opulence Inn Hotel Chain

Group 7

E/ R Diagram :


relationship
phone
name
Dependent
N
SUPPORTS
1
salary
phone
employeeId
name
Employee
N
WORKS_IN
1
1
SUPERVISES
1
Department
name
deptId
N
HAS
1
branchID
MANAGES
1
1
Branch
1
CONTAINS
N
roomNo
type
bedType
Room
N
RESERVATION
M
Y
Occupants
name
age
phone
occupant_id
aadharNo
dateOfBirth
age
name
phone
Customer
1
review
BOOKS
N
bookingId
checkIn
checkOut
Booking
1
SETTLES
N
transactionId
mode
amount
Payment
location
zipCode
city
state

E/ R Description :

Opulence Inn is a chain of hotels with several branches. Each branch has a unique branch ID and its location characterised by its city, state, and zip code. Every branch of the hotel consists of several rooms, with the room number being unique to that branch. Each room has a designated bed type which may be King, Queen or a Twin, belonging to a specific category such as standard, suite or deluxe. In a branch, there are several employees. Each employee has a unique employee ID, salary, contact number and name. Each branch is managed by one employee, the manager. A branch has several departments, such as reception, kitchen, housekeeping, management, etc. Each department has a name, a department ID distinct to that branch. Several employees work under a department, and the department has at least one employee. An employee cannot belong to multiple departments. Each department is supervised by one employee, called the supervisor. An employee can support several dependents, who have a name, relationship with that employee, and a contact number. A customer has an aadhaar no, name, contact number, and date of birth. A booking reserves one or more rooms, each of which can have one or more occupants. Each occupant's name, age, phone no are noted along with an occupant id that is unique for that room and booking. Each booking is done by a single customer, but a customer can do several bookings. The customer also leaves a review for each booking. A booking has a check in time, check out time and a unique booking ID. Each booking can be settled by multiple payments , having an amount, mode and a unique transaction ID.

Relational Schema :

1. Entities :
    - Branch (Branch_Id, zip_code)
    - Location (zip_code , state, city)
    - Employee (Employee_Id, EName, Phone, Salary)
    - Dependent (Employee_Id, Name, Phone , Relationship)
    - Department (Branch_Id, dept_Id, dName)
    - Room (Branch_Id, RoomNo, Type, Bed)
    - Customer (Aadhar_No, DOB, Age, Name, phone)
    - Booking (Booking_Id, checkin_date, checkout_date)
    - Payment (Transaction_Id, Amount, Mode)
    - Occupant (Booking_Id, Branch_Id, Room_No, OccupantId, Name , Age , Phone)

2. Relationships & Relationship Attributes :
    - Reservation (Booking_Id, Branch_Id, Room_No)
    - Settles(Booking_Id, Transaction_Id)
    - Books (Booking_Id, Customer_Id)
    - Supervises (sId, Branch_Id, Dept_Id)
    - WorksIn (Branch_Id , Dept_id, eId)
    - Manages (Branch_Id, eId)
    - Review (Booking_Id, Customer_Id, rating)

3. RIC's :

Every attribute listed out as a foreign key in the below table should not have a dangling reference

Foreign Key	Is The Primary Key Of
Books. Booking_Id	Booking (Booking. Booking_Id)
Books. Customer_Id	Customer (Customer. Customer_Id)
Branch. zip_code	Location (Location. zip_code)
Department. Branch_Id	Branch (Branch. Branch_Id)
Dependent. Employee_Id	Employee (Employee. Employee_Id)
Manages. Branch_Id	Branch (Branch. Branch_Id)
Manages. eId	Employee (Employee. Employee_Id)
Occupant. { Branch_Id, Room_No }	Room (Room. { Branch_Id, Room_no })
Occupant. Booking_Id	Booking (Booking. Booking_Id)
Occupant. Branch_Id	Branch (Branch, Branch_Id)
Reservation. { Branch_ID, Room_No }	Room (Room. { Branch_Id, Room_no })
Reservation. Booking_Id	Booking (Booking. Booking_Id)
Reservation. Branch_Id	Branch (Branch. Branch_Id)
Review. Booking_Id	Booking (Booking. Booking_Id)
Review. Customer_Id	Customer (Customer. Customer_Id)
Room. Branch_Id	Branch (Branch. Branch_Id)
Settles. Booking_Id	Booking (Booking.Booking_Id)
Settles. Transaction_Id	Payment (Payment.Transaction_Id)
Supervises. { Branch_Id, Dept_Id }	Department (Department. { Branch_Id, Dept_Id })
Supervises. Branch_Id	Branch (Branch. Branch_Id)
Supervises. sId	Employee (Employee. Employee_Id)
WorkIn. eId	Employee (Employee. Employee_Id)
WorksIn. { Branch_Id, Dept_Id }	Department (Department. { Branch_Id, Dept_Id})
WorksIn. Branch_Id	Branch (Branch. Branch_Id)