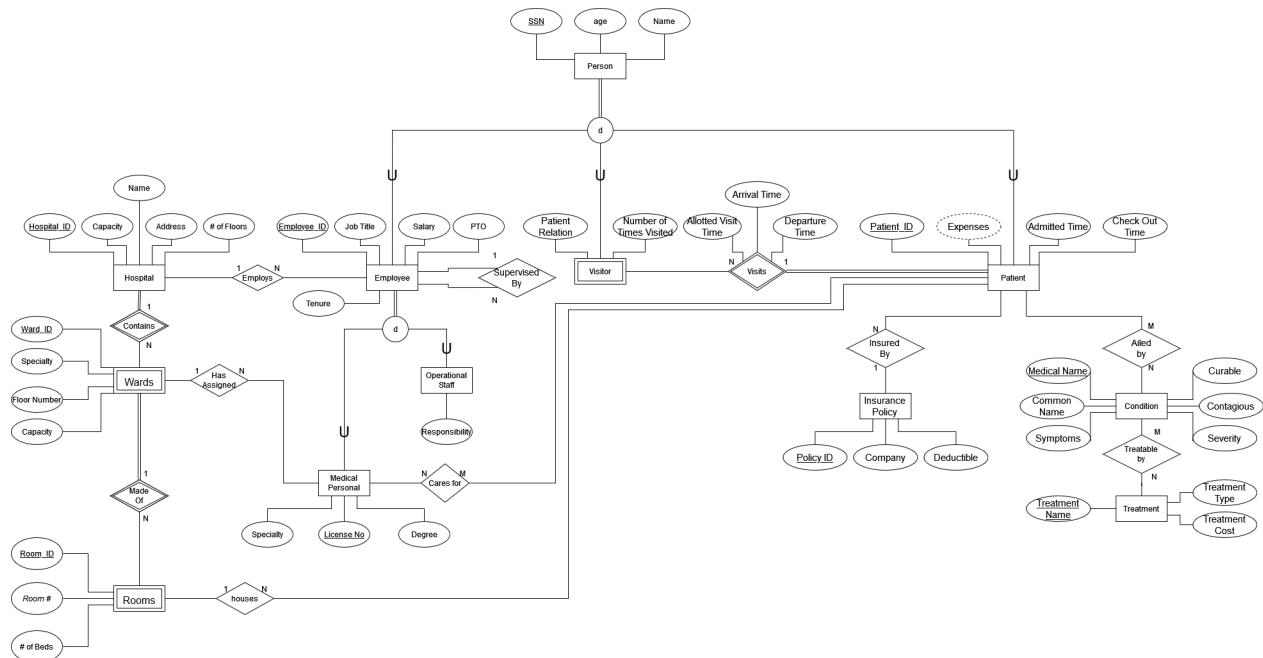**ER Diagram:**

ENTITY Dictionary

Entity: Conditions

Description: The state of a patient's health.
- Attributes:
    - Medical_Name, Varchar(80)
    - Common_Name, Varchar(80)
    - Symptoms, Varchar(320)
    - Severity, Int
    - Curable, Boolean
    - Contagious, Boolean

Primary Key: Medical Name

Entity: Employee (Subclass of Person)

Description: A person that works for the hospital.
- Attributes:
    - Employee ID, Varchar(80)
    - Salary, Int
    - Job Title, Varchar(80)
    - PTO, Int
    - Tenure, Boolean

Primary Key: Employee ID

Entity: Hospital

Description: An institution that is responsible for providing medical and surgical treatment and nursing care for sick or injured people.

- Attributes:
  - Hospital ID, Int
  - Name, Varchar(80)
  - Address, Varchar(80)
  - Capacity, Int
  - Num_of_Floors, Int

Primary Key: Hospital ID

Entity: Insurance Policy

Description: A legal agreement between two parties guaranteeing compensation for events such as injury or illness.

- Attributes:
  - Company, Varchar(80)
  - Deductible, Int
  - Policy ID, Int

Primary Key: Policy ID

Entity: Medical Personnel (Subclass of Employee)

Description: A person that works for the hospital, specifically handling medical tasks.

- Attributes:
  - Speciality, Varchar(80)
  - Degree, Varchar(80)
  - License_Number, Varchar(80)

Primary Key: License_Number

Entity: Operational Staff (Subclass of Employee)

Description: A type of Employee that contributes to the hospital that is not trained for medical procedures.

- Attributes:
  - Responsibility, Varchar(240)

Primary Key: N/A (Subclass of Employee, could be considered Employee ID)

Entity: Patient (Subclass of Person)

Description: Sick or injured people seeking service from the hospital.

- Attributes:
    - Patient ID, Varchar(80)
    - Check Out Time, TIMESTAMP
    - Admitted Time, TIMESTAMP
    - Expenses, Int

Primary Key: Patient ID

Entity: Person

Description: A human being.

- Attributes:
    - SSN, Int
    - Name, Varchar(80)
    - Age, Int

Primary Key: SSN

Entity: Rooms

Description: A room will be where a patient is either located for long term care or where they meet with their doctor for medical visits.

- Attributes:
    - Room_ID, Int
    - Room_Num, Int
    - Num of Beds, Int

Primary key: Room_ID

Entity: Treatment

Description: Medical care that a patient receives from the hospital.

- Attributes:
    - Treatment Name, Varchar(80)
    - Treatment Type, Varchar(80)
    - Treatment Cost, Int

Primary Key: Treatment Name

Entity: Visitors (Subclass of Person)

Description: A person who visits patients in the hospital.

- Attributes:
    - Patient Relation, Varchar(80)
    - Number of Times visited, Int

Primary Key: N/A (Subclass of Person, could be considered SSN)

Entity: Wards

Description: A section of the hospital dedicated to a specific practice or service.

- Attributes:
    - Ward ID, Int
    - Floor Number, Int
    - Capacity, Int
    - Speciality, Varchar(80)

Primary Key: Ward ID

Relationship Dictionary:

Relationship: Cares For

Description: Many Medical Personnel care for many Patients.

Entities: Medical Personnel, Patient

Cardinality: M:N (Many to Many)

Participation: Partial-to-Partial

Relationship: Contains

Description: 1 Hospital can contain many Wards

Entities: Hospital, Wards

Cardinality: 1:N (One to Many)

Participation: Partial-to-Total

Relationship: Employs

Description: The Hospital employs many Employee

Entities: Hospital, Employee

Cardinality: 1:N (One to Many)

Participation: Partial-to-Total

Relationship: Ailed by
Description: Many Patient are ailed by many Conditions
Entities: Patient, Conditions
Cardinality: M:N (Many to Many)
Participation: Partial-to-Partial

Relationship: Has Assigned
Description: A Ward has assigned many Medical Personnel.
Entities: Wards, Medical Personnel
Cardinality: 1:N (One to Many)
Participation: Partial-to-Total
Relationship: Houses
Description: A Room can house many patients
Entities: Room, Patients
Cardinality: 1:N (One to Many)
Participation: Partial-to-Partial

Relationship: Made Of
Description: A ward is made of rooms
Entities: Ward, Room
Cardinality: 1:N (One to Many)
Participation: Partial-to-Partial

Relationship: Insured by
Description: 1 Insurance pays for many Patients
Entities: Patients, Insurance Policy
Cardinality: 1:N (Many to One)
Participation: Partial-to-Partial

Relationship: Supervised By
Description: An Employee is supervised by another Employee
Entities: Employee, Employee
Cardinality: 1:N (One to Many)
Participation: Partial-to-Partial

Relationship: Treatable By
Description: Many Conditions can be treatable by many
Treatment Entities: Conditions, Treatment
Cardinality: M:N (Many to Many)
Participation: Partial-to-Partial

Relationship: Visits
Description: Many Visitors can visit one Patient.
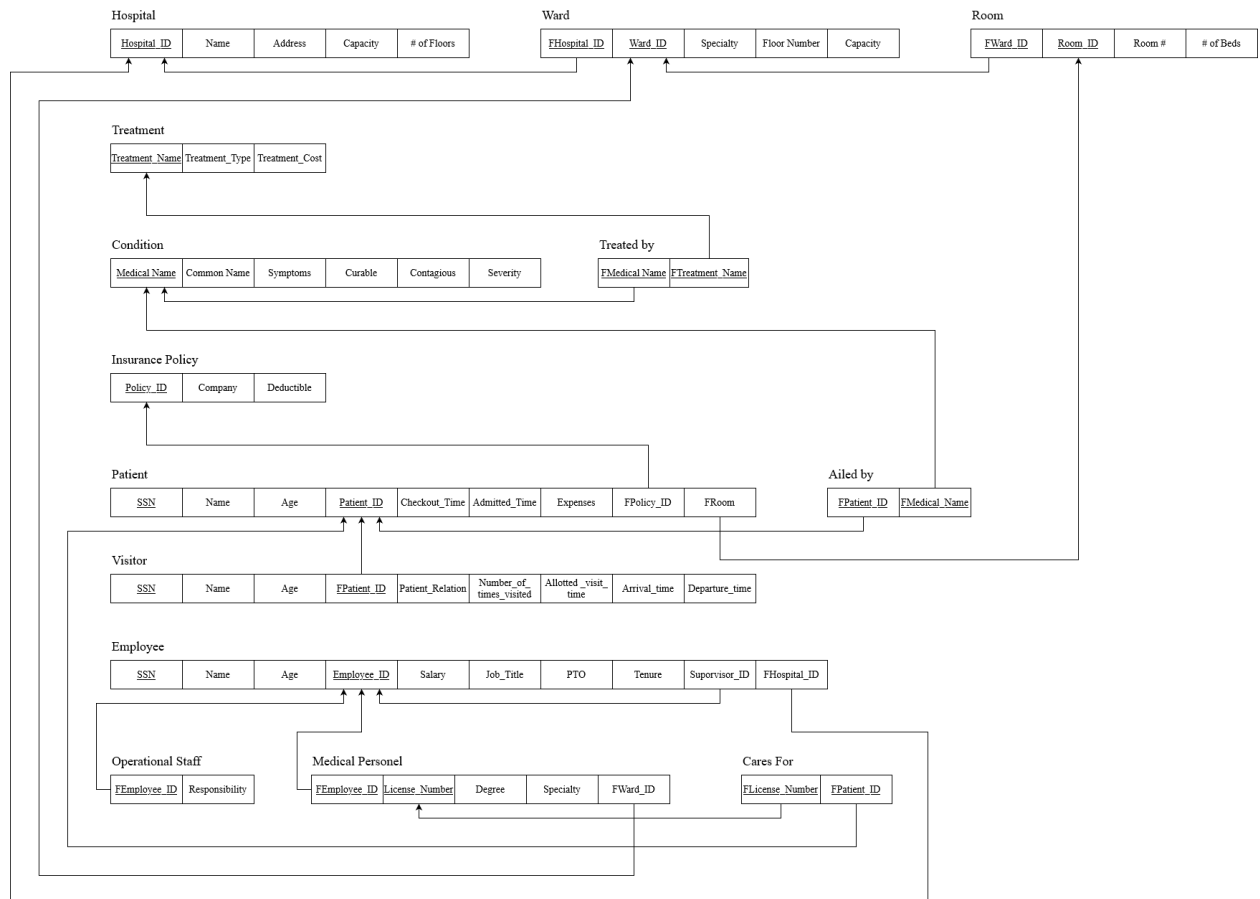Entities: Visitors, Patients
Attributes:
- Allotted Visit Time, Varchar(80)
- Arrival Time, Varchar(80)
- Departure Time, Varchar(80)

Cardinality: N:1 (Many to One)
Participation: Total-to-Partial

Schema Diagram

Hospital

Hospital_ID	Name	Address	Capacity	# of Floors

Ward

FHospital_ID	Ward_ID	Specialty	Floor Number	Capacity

Room

FWard_ID	Room_ID	Room #	# of Beds

Treatment

Treatment_Name	Treatment_Type	Treatment_Cost

Condition

Medical Name	Common Name	Symptoms	Curable	Contagious	Severity

Treated by

FMedical Name	FTreatment_Name

Insurance Policy

Policy_ID	Company	Deductible

Patient

SSN	Name	Age	Patient_ID	Checkout_Time	Admitted_Time	Expenses	FPolicy_ID	FRoom

Ailed by

FPatient_ID	FMedical_Name

Visitor

SSN	Name	Age	FPatient_ID	Patient_Relation	Number_of_times_visited	Allotted_visit_time	Arrival_time	Departure_time

Employee

SSN	Name	Age	Employee_ID	Salary	Job_Title	PTO	Tenure	Supervisor_ID	FHospital_ID

Operational Staff

FEmployee_ID	Responsibility

Medical Personel

FEmployee_ID	License_Number	Degree	Specialty	FWard_ID

Cares For

FLicense_Number	FPatient_ID

Schema Dictionary

Name: Ailed_By

Description: The patient is ailed by the condition.
- FPatient_ID: INT(9), a 9-digit ID assigned to the patient
- FMedical_Name: VARCHAR(80), the official medical name of the condition that the patient suffers from
- Primary Key: {FPatient_ID, FMedical_Name}
- Foreign Key: FPatient_ID references Patient (Patient_ID)
- Foreign Key: FMedical_Name references Condition(Medical_Name)

Name: Cares_For

Description: Record of which Medical Personnel take care of which patients.

- FPatient_ID: INT(9), a 9-digit number for the ID of the patient.
- FLicense_Number: VARCHAR(80), a combination of capitalized letters and numbers that is assigned to each individual authorized to administer medical operations in the state the license was gained in.
- Primary Key:{FLicense_Number, FPatient_ID}
- Foreign Key: FPatient_ID references Patient (Patient_ID)
- Foreign Key: FLicense_Number references Medical_Personnel(License_Number)

Name: Condition

Description: A health problem with certain characteristics or symptoms.

- Medical_Name: VARCHAR (80), the official name assigned to the condition ● Common_Name: VARCHAR(80), other names that are used to identify the condition ● Symptoms: VARCHAR(320), the physical manifestations of the condition the patient suffers from
- Curable: BOOLEAN, a value indicating whether it is curable
- Contagious: BOOLEAN, a value indicating whether it's contagious
- Severity: INT(2), a 2-digit value, ranging from 0-10 to evaluate the severity of the condition
- Primary Key: Medical_Name

Name: Employee

Description: A person that works for the hospital.

- SSN: INT(10), a 10-digit number that serves as the identifier of the staff in the hospital.
- Name: VARCHAR (80), the name used to
- Age: VARCHAR (80), the name used to identify the staff.
- Employee_ID: INT(9), a 9-digit number given to identify the employee.
- Job_Title: VARCHAR (80), the name used to identify the job.
- Salary: INT(9), a 9-digit number that identifies the yearly income the staff earns. ● PTO: INT(4), a 4-digit number that identifies the hours that the staff has paid time off. ● Tenure: BOOLEAN, a value indicating whether the staff is tenure or not. ● Supervisor_ID: INT(9), a 9-digit number that is the ID of the employee's supervisor (another employee that manages them).
- FHospitalID: INT(9), a 9-digit number for the ID of the hospital.
- Primary Key: {SSN, Employee_ID}
- Foreign Key: FHospital ID references Hospital (Hospital_ID)
- Foreign Key: Supervisor_ID references Employee (Employee_ID)

Name: Hospital

Description: An institution that is responsible for providing medical and surgical treatment and nursing care for sick or injured people.

- Hospital_ID: INT(9), a 9-digit number for the ID
- Name: VARCHAR (80), a name assigned for identifying the hospital
- Address: VARCHAR (80), an address to identify the location of the hospital
- Capacity: INT(5), a 5-digit number that serves to identify the number of patients that a hospital can facilitate
- Num_of_Floors: INT(2), a 2-digit number that serves to identify the number of floors within the hospital
- Primary Key: Hospital_ID

Name: Insurance_Policy

Description: A legal contract between the insurance company and the patient to cover the costs associated with the treatment received in exchange for a deductible paid by the patient. ● Policy_ID: INT(9), a 9-digit value given to the policy being implemented ● Company: VARCHAR(80), a value given for the name of the policy ● Deductible: INT(6), a value for the amount that the patient should pay to the insurance company

- Primary Key: Policy_ID

Name:Medical_Personnel

Description: A medically qualified person that works for the hospital to care for patients.

- FEmployee_ID: INT(9), a 9-digit number for the ID of the employee ● License_Number: VARCHAR(80), a combination of capitalized letters and numbers that is assigned to each individual authorized to administer medical operations in the state the license was gained in.
- Degree: VARCHAR(80), the title of the degree obtained to allow them to work as a medical professional.
- Speciality: VARCHAR(80), the specific subject matter in which the medical personnel works.
- FWard_ID: INT(9), a 9-digit number of the ward that the medical personnel is assigned to.
- Primary Key: {FEmployee_ID, License_Number}
- Foreign Key: FWard_ID references Ward (Ward_ID)
- Foreign Key: FEmployee_ID references Employee (Employee_ID)

Name:Operational_Staff

Description: A type of Employee that contributes to the hospital that is not trained for medical procedures.

- ● FEmployee_ID: INT(9), a 9-digit number for the ID of the employee ● Responsibility: VARCHAR(240), a brief description of the responsibilities that this staff member maintains.
- ● Foreign Key: FEmployee_ID references Employee (Employee_ID)

Name: Patient

Description: A person seeking services from the hospital to aid in their health. ● SSN: INT(10), a 10-digit number that serves as the identifier of the person who is the patient in the hospital

- ● Name: VARCHAR (80), the name used to identify the patient
- ● Age: INT(3), a 3-digit number that identifies the age of the patient.
- ● Patient_ID: INT(9), a 9-digit number that is assigned to each patient by the hospital as an identifier
- ● Admitted_Time: TIMESTAMP, a time value represented in Year-Month-Day Hour(24-hour)-Minute-Second, which is updated when a patient is admitted to the hospital
- ● Checkout_Time: TIMESTAMP, a time value represented in Year-Month-Day Hour(24-hour)-Minute-Second, which is updated when a patient is checked out of the hospital
- ● Expenses: INT(7), a 7-digit value of the cost associated with the patient's hospital visit
- ● FPolicy_ID: INT(9), a 9-digit number for the ID of the insurance policy the patient currently has
- ● FRoom_ID: INT(9), a 9-digit number for the ID of the room the patient is located in
- ● Primary Key:{SSN, Patient_ID}
- ● Foreign Key: FPolicy_ID references Insurance_Policy (Policy_ID)
- ● Foreign Key: FRoom_ID references Room (Room_ID)

Name: Room

Description: A room will be where a patient is either located for long term care or where they meet with their doctor for medical visits.

- FWard_ID: INT(9), a 9-digit number for the ID of the ward
- Room_ID: INT(9), a 9-digit number of the ID of the room
- Room_Num: INT(3), a 3-digit number for the number of the room
- Num_of_Beds: INT(2), a 2-digit number for the amount of beds located in the bed
- Capacity: INT(2), a 2-digit number for the amount of patients can be held in the room
- Primary Key: {FWard_ID, Room_ID}
- Foreign Key: FWard_ID references Ward (Ward_ID)

Name: Treatment

Description: A plan of medical operations to attempt to cure the ailment of the patient. ● Treatment_Name: VARCHAR(80), the name used to identify the treatment ● Treatement_Type: VARCHAR(80), the category of treatment that it falls under ● Treatment_Cost: INT(7), a 7-digit number that identifies the price of getting the treatment ● Primary Key: Treatment_Name

Name: Treated_By

Description: The condition is treated by the treatment.

- FMedical_Name: VARCHAR(80), the official medical name of the condition that is getting treated
- FTreatment_Name: VARCHAR(80), the name of the treatment that is trying to cure the condition
- Primary Key: {FMedical_Name, FTreatment_Name}
- Foreign Key: FMedical_Name references Condition (Medical_Name)
- Foreign Key: FTreatment_Name references Treatment (Treatment_Name)

Name: Visitor

Description: A person interacting with the miniworld to visit a patient already in the
hospital.

- SSN: A 9-digit number that serves as the identifier of the visitor in the hospital.
- Visitor_ID: A 9-digit number to identify the visitor.
- Name: VARCHAR (80), the name used to identify the visitor.
- Age: A 3-digit number that identifies the age of the visitor.
- FPatient_ID: A 9-digit number that identifies the patient.
- Patient_Relation: VARCHAR(80), a description of the relationship the visitor has to
   the patient.
- Number_of_times_visited: Integer, a count of the number of visits for the specific
   visitor-patient instance.
- Alloted_Visit_Time: INT(3), how many minutes the visitor is allotted to the
   patient.
- Arrival_Time: TIMESTAMP, a time value represented in Year-Month-Day
   Hour(24-hour)-Minute-Second, which is updated when a visitor arrives to the
   hospital
- Departure_Time: TIMESTAMP, a time value represented in Year-Month-Day
   Hour(24-hour)-Minute-Second, which is updated when a visitor departs the
   hospital.
- Primary Key:{SSN, FPatient_ID}
- Foreign Key: FPatient_ID references Patient (Patient_ID)

Name: Ward

Description: A section of the hospital dedicated to a specific practice or service. ●
FHospital_ID: INT(9), a 9-digit number for the ID of the hospital that contains the Ward ●
Ward_ID: INT(9), a 9-digit number that is assigned to the ward
- Speciality: VARCHAR(80), a description of the categories of conditions the ward treats
- Floor_Num: INT(2), a 2-digit number describing the specific floor number that the ward
is located on
- Capacity: INT(3), a 3-digit number that describes how many patients the ward can hold
- Primary Key:{FHospital_ID, Ward_ID}
- Foreign Key: FHospital_ID references Hospital (Hospital_ID)