

Relational Schema

```
Employee(  
    Id:int,  
    Name:varchar,  
    PhoneNumber:varchar,  
    DateofBirth:date,  
)
```

```
Nurse(  
    EmployeeId:int,  
    Name: varchar,  
    PhoneNumber:varchar,  
    DateofBirth:date,  
)
```

```
Doctor(  
    EmployeeId:int,  
    Name:varchar,  
    PhoneNumber:varchar,  
    DateofBirth:date,  
    SpecialtyId:int  
)
```

```
Specialty(  
    Id:int,  
    Name:varchar  
)
```

```
Hospital(  
    Id:int,  
    Name:varchar,
```

```
    PhoneNumber:varchar,  
    Address:varchar,  
    XCoordinate:varchar,  
    YCoordinate:varchar,  
    Location:varchar,  
    EmergencyServices:bool,  
    EHS:bool,  
    CityId:int,  
    StatId:int,  
    ZipcodeId:int,  
    CountyName:int,  
    HospitalTypeId:int,  
    HospitalOwnershipId:int  
)  
City(  
    Id:int,  
    Name:varchar  
)  
State(  
    Id:int,  
    Name:varchar  
)  
Zipcode(  
    Id:int,  
    Name:varchar  
)  
County Name(  
    Id:int,  
    Name:varchar
```

)

Hospital Type(

Id:int,

Name:varchar

)

Hospital Ownership(

Id:int,

Name:varchar

)

Hospital Overall Rating(

Id:int,

Rating:int

)

National Comparison(

Id:int,

Description:varchar,

FootnoteNote:varchar

)

Footnote(

Note:varchar

)

Mortality(

Id:int,

Description:varchar,

FootnoteNote:varchar

)

Safety of Car(

Id:int,

Description:varchar,

```
FootnoteNote:varchar
)
Readmission(
    Id:int,
    Description:varchar,
    FootnoteNote:varchar
)
Patient Experience(
    Id:int,
    Description:varchar,
    FootnoteNote:varchar
)
Effectiveness of care(
    Id:int,
    Description:varchar,
    FootnoteNote:varchar
)
Timeliness of care(
    Id:int,
    Description:varchar,
    FootnoteNote:varchar
)
Efficient use of medical imaging(
    Id:int,
    Description:varchar,
    FootnoteNote:varchar
)
Rating (
    HospitalId:int,
```

HospitalOverallRatingId:int,
MortalityId:int,
SafetyOfCareId:int,
ReadmissionId:int,
PatientExperienceId:int,
EffectivenessOfCareId:int,
TimelinessOfCareId:int,
EfficientUseOfMedicalImagingId:int
)

Works at(

HospitalId:int,
EmployeeId:int
)

Constraints

1. A hospital must have a hospital ownership, a hospital type, county name, zipcode, state and city.
2. A hospital rating must be comprised of a hospital overall rating, a mortality, safety of care, readmission, patient experience, effectiveness of care, timeliness of care, efficient use of medical imaging.
3. Each national comparison must have a footnote even if its blank.
4. Every doctor must supervise at least 1 nurse.
5. Every doctor must have a specialty.
6. A hospital must have at least 1 doctor and nurse.

Functional Dependencies

Employee (Id, PhoneNumber, DateOfBirth, Name)

Id -> PhoneNumber, DateOfBirth, Name

Nurse (Id, PhoneNumber, DateOfBirth, Name)

Id -> PhoneNumber, DateOfBirth, Name

Doctor (Id, PhoneNumber, DateOfBirth, Name, SpecialtyId)

Id -> PhoneNumber, DateOfBirth, Name, SpecialtyId

Specialty (Id, Name)

Id -> Name

SupervisedBy (DoctorId, NurseId)

Work At (HospitalId, EmployeeId)

Hospital (Id, Name, PhoneNumber, Address, CityId, StateId, ZipcodeId, CountyNameId, HospitalTypeId, HospitalOwnershipId, X coordinate, Y coordinate, Location, Emergency Services, EHS)

Id -> Name, PhoneNumber, Address, CityId, StateId, ZipcodeId, CountyNameId, HospitalTypeId, HospitalOwnershipId, X coordinate, Y coordinate, Location, Emergency Services, EHS

Rating (HospitalId, HospitalOverallRatingId, MortalityId, SafetyOfCareId, ReadmissionId, PatientExperienceId, EffectivenessOfCareId, TimelinessOfCareId, EfficientUseOfMedicalImagingId)

Hospital Overall Rating (Id, Rating)

Id -> Rating

National Comparison (Id, Description, FootnoteNote)

Id -> Description, FootnoteNote

Mortality (Id, Description, FootnoteNote)

Id -> Description, FootnoteNote

Safety of Care (Id, Description, FootnoteNote)

Id -> Description, FootnoteNote

Readmission (Id, Description, FootnoteNote)

Id -> Description, FootnoteNote

Patient Experience (Id, Description, FootnoteNote)

Id -> Description, FootnoteNote

Effectiveness of Care (Id, Description, FootnoteNote)

Id -> Description, FootnoteNote

Timeliness of Care (Id, Description, FootnoteNote)

Id -> Description, FootnoteNote

Efficient use of Medical Imaging (Id, Description, FootnoteNote)

Id -> Description, FootnoteNote

Footnote (Note)

Additional Notes

I checked my diagram and made sure that it did comply with the BCNF rules. I did not have any flaws in my database schema that I could tell. Yes, there are opportunities to combine relations without introducing redundancy. There are not examples of non-BCNF relation schemas in my database.