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,

StateId: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,

EfficientUseOfMedicialImagingId:int

)

Works at(

HospitalId:int,

EmployeeId:int

)

Constraints

1. A hopsital 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 Dependancies

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 complie 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.