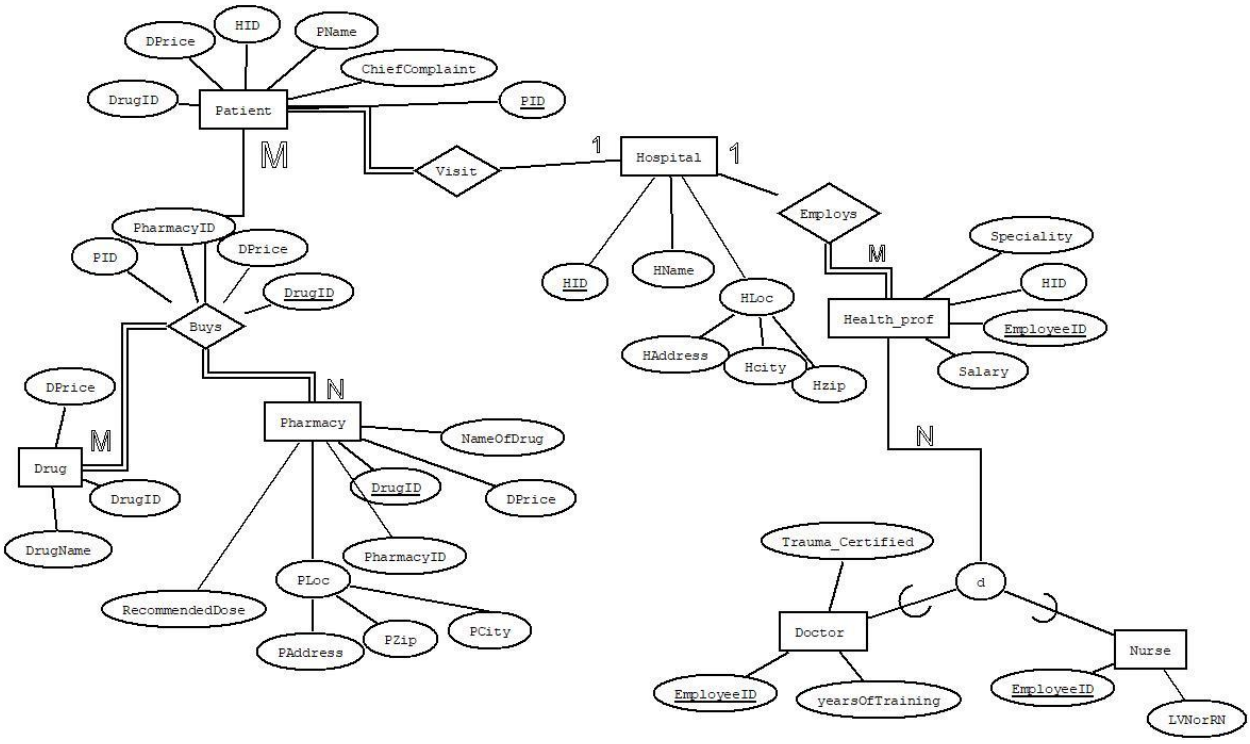

The Entity

This database records data about a Hospital. For Each Hospital in the database we will record, Patient, Pharmacy, Drug, Health_prof, Doctor and Nurse

The Attributes

HOSPITAL

For each HOSPITAL, there will be one and only one HID. The value of HID will not be subdivided

For each HOSPITAL, there will be one and only one HName. The value of Hname will not be subdivided.

For each HOSPITAL, we will record HLoc which is composed of HAddress, Hcity and Hzip. (HAddress, Hcity, Hzip) are components parts of HLoc

Key: For each HOSPITAL We will have the following primary key: HID

PATIENT

For Each PATIENT, there will be one and only one PID. The value of PID will not be subdivided

For Each PATIENT, there will be one and only one chief compliant. The value of chief compliant will not be subdivided

For Each PATIENT, there will be one and only one HID. The value of HID will not be subdivided

For Each PATIENT, there will be one and only one PName. The value of PName will not be subdivided.

For Each PATIENT, there will be one DrugID. The value of DrugID will not be subdivided.

subdivided

For each PATIENT, there will be one and only one Dprice. There value of Dprice will not be subdivided

Key: For Each PATIENT. We will have the following primary key: PID

DRUG

For each DRUG, there will be one and only one DrugID. The value of DrugID will not be subdivided

For each DRUG, there will be one and only one DrugName. There value of DrugName will not be subdivided

For each DRUG, there will be one and only one Dprice. There value of Dprice will not be subdivided

Key: For each DRUG. We will have the following foreign key: DrugID

BUYS

For Each BUYS, there will be one and only one DrugID. The value of DrugID will not be subdivided

For each BUYS, there will be only and only one Pharmacy ID. The value of PharmacyID will not be subdivided

For Each BUYS, there will be one and only one PatientID. The value of PatientID will not be subdivided

For each BUYS, there will be one and only one DrugPrice. The value of DrugPrice will not be subdivided.

Key: For each BUYS, we will have the following primary key: DrugID

PHARMACY

For each PHARMACY, there will be one and only one PharmacyID. The value of the PharmacyID will not be subdivided.

For each PHARMACY, there will be one and only one DrugID. The value of DrugID will not be subdivided

For Each PHARMACY, there will be one and only one NameofDrug. The value of NameofDrug will not be subdivided.

For each PHARMACY, there will be one and only one RecommendedDose. The value of RecommendedDose will not be subdivided.

For Each PHARMACY, there will be one and only one DPrice. The value of Dprice will not be subdivided.

For each PHARMACY, we will record PLOC which is composed of PAddress, PCity and Pzip. (PAddress, PCity and PZip) are component parts of PLoc

Key: For each PHARMACY, we will have the following primary key: PharmacyID

HEALTH_PROF

For each HEALTH_PROF there will be one and only one EmployeeID. The value of EmployeeID will not be subdivided.

For Each HEALTH_PROF there will be one and only one HID. The value of HID will not be subdivided

For Each HEALTH_PROF we will record one and only one Specialty. The value of Specialty will not be subdivided.

For each HEALTH_PROF there will be one and only one Salary. The value of Salary will not be subdivided

Key: For each HEALTH_PROF we will have the following primary key: EmployeeID

DOCTOR

For each DOCTOR, there will be one and only one EmployeeID. The value of EmployeeID will not be subdivided

For each DOCTOR, there will be one and only one TraumaCertified. The value of trauma_certified will not be subdivided.

For each DOCTOR, there will be one and only one yearsOfTraining. The value of yearsOfTraining will not be subdivided.

Key: For each DOCTOR, we will have the following foreign key: EmployeeID

NURSE

For each NURSE, there will be one and only one EmployeeID. The value of EmployeeID will not be subdivided

For each NURSE, there will be one and only one LVNorRN the value of LVNorRN will not be subdivided.

Key: For each NURSE, we will have the following foreign key: EmployeeID

Relationships

Hospital: Patient: 1:M

A Hospital but not necessarily all hospitals, may be visited by many patients
Patients must visit one and only one Hospital.

Supplier: Pharmacy: Drug: Patient: M:M: N Full/Partial Participation:

For each relationship between Pharmacy, Drug, and Patient we record a DrugPrice. The DrugPrice attribute depends on Patient, Pharmacy and Drug.

PATIENT (one or more), which are recorded in the database, may BUY many (one or more) DRUGS from many (one or more) PHARMACIES

DRUGS (one or more) which are recorded in the database, must be BOUGHT by many (one or more) PATIENTS from many PHARMACIES (one or more).

PHARMACIES (one or more) which are recorded in the database must let PATIENTS (one or more) BUY many(one or more) DRUGS.

Health_Prof: 1:M

A Hospital but not necessarily all hospitals may employ Health_professionals

Many Health_Professionals must be employed by one hospital

Health_Prof: Super-Sub

For each specialty, we do not assume any attribute is unique enough to identify individual entities. Since specialty does not have a candidate key each EMPLOYEE will be identified by the key inherited by HEALTH_PROF i.e. EmployeeID. Further the HEALTH_PROF do not overlap. HEALTH_PROF cannot be a DOCTOR and a NURSE. The individual health professional is identified by a defining predicate EmployeeID which will be contained in HEALTH_PROF. Since a person cannot be both a DOCTOR and a NURSE the defining predicate is a single valued attribute. The specialty we will record are DOCTOR and NURSE. These types are disjoined.

Mapping

Hospital (HID, HName, HLOC)

Patient (PID, Name, HID, ChiefComplant, DrugID, DPrice)

BUYS (DrugID, PharmacyID, PID, Dprice)

Drug (DrugID, Dprice, DrugPrice)

Pharmacy (PharmacyID, DrugID, NameofDrug, DPrice, RecommendedDose, PLOC)

Health_Prof (EmployeeID, HID, Specialty, Salary)

Doctor (EmployeeID, TraumaCertified, yearsOfTraining)

Nurse (EmployeeID, LVNorRN)

Creation of Tables

```
CREATE TABLE HOSPITAL

(HID NUMBER (9) CONSTRAINT HID_PK PRIMARY KEY,
 Hname VARCHAR (20) not null,
Hloc VARCHAR (20) not null);
 ---------------------------------------------------------------------------------------------------

CREATE TABLE PATIENT
(PID NUMBER (9) CONSTRAINT PID_PK PRIMARY KEY,
ChiefComplant VARCHAR (300) not null,
HID NUMBER (9),
PName VARCHAR (10),
DrugID NUMBER (6)
CONSTRAINT HID_fk REFERENCES HOSPITAL(HID)
CONSTRAINT DrugID_fk REFERENCES DRUG(DrugID));
---------------------------------------------------------------------------------------------------


CREATE TABLE DRUG
(DrugID Number (6) CONSTRAINT DrugID_PK PRIMARY KEY,
DrugName VARCHAR (20) not null,
Dprice NUMBER (4,2));
```

```
Create Table BUYS
(DrugID NUMBER (6) CONSTRAINT DRUGID_PK PRIMARY KEY,
PharmacyID Number (9),
PatientID Number (9),
DrugPrice Number (5)
CONSTRAINT DrugID_fk REFERENCES Drug(DrugID)
CONSTRAINT PharmacyID_fk REFERENCES Pharmacy (PharmacyID)
CONSTRAINT PatientID_fk REFERENCES Patient(PID));
---------------------------------------------------------------------------------------------------

CREATE TABLE PHARMACY
(PharmacyID NUMBER (9) CONSTRAINT PharmacyID_PK PRIMARY KEY,
DrugID Number (6),
NameofDrug VARCHAR (20),
RecommendedDose VARCHAR (10),
DPrice NUMBER (4,2),
PLOC VARCHAR (30) not null
CONSTRAINT DrugID_fk REFERENCES Drug(DrugID)
CONSTRAINT Dprice_fk REFERENCES Supplier(Dprice));
---------------------------------------------------------------------------------------------------

CREATE TABLE HEALTH_PROF
```

```
(EmployeeID (9) CONSTRAINT Employee ID_PK PRIMARY KEY,
HID NUMBER (9),
Specialty VARCHAR (10) not null,
Salary NUMBER (8,2) not null.
CONSTRAINT HID_fk REFERENCES HOSPITAL(HID));
```

```
CREATE TABLE DOCTOR
(EmployeeID (9) CONSTRAINT Employee_ID_PK PRIMARY KEY,
 TraumaCertified CHAR (1),
yearsOfTraining NUMBER (2));
```

```
CREATE TABLE NURSE
(EmployeeID (9) CONSTRAINT Employee_ID_PK PRIMARY KEY,
LVNorRN VARCHAR (3));
```

CANNED QUERIES

1. SELECT Hname,EmployeeID
   FROM HOSPITAL, HEALTH_PROF
   WHERE Health_PROF.HID = Hospital.HID AND
   Health_PROF.Salary > 100000
   ORDER BY Hname;

2. SELECT EmployeeID, Speciality,yearsOfTraining
   FROM Health_PROF,DOCTOR
   WHERE HEALTH_PROF.EmployeeID = DOCTOR.EmployeeID AND
   DOCTOR.Trauma_Certified = 'Yes'
   ORDER BY EmployeeID;

3. SELECT EmployeeID, Speciality,yearsOfTraining
   FROM Health_PROF.Nurse
   WHERE HEALTH_PROF.EmployeeID = Nurse.Employee AND
   Nurse.LVNorRN = 'RN'
   ORDER BY EmployeeID;

4. SELECT PharmacyID,DrugID, COUNT(*)
   FROM DRUG,PHARMACY
   WHERE Drug.DRUGID = Pharmacy.PharmacyID
   AND PHARMACY.RecommendDose LIKE '%___q.d'
   GROUP BY PharmacyID,DrugID
   ORDER BY COUNT(*) DESC ;

5. SELECT Hname,Pname, AVG(DrugPrice)
   FROM Patient,Hospital
   WHERE Patient.PID = Hospital.PID
   GROUP BY Hname;