**Jeffrey A. Sirocki jasirocki CS 3431 November 10, 2014 Homework 1**

**Problem 1: Hospital Database**

* **Has Access (Emp)**
* **Has (Patient)**
* **Has (Doctor)**
* **Has (EType)**

**Relationships**

* **Is A (Emp)**
* **Manages (Emp)**
* **Provides (Service)**
* **Is type (Equipment)**
* **Schedules (Patient)**
* **Stays In (Room)**

**Entities**

* **Employees**
* **Doctors**
* **Patients**
* **Rooms**
* **Equipment**
* **Equipment Type**

Actions

* Room Status
* Equipment Status
* Patient Stays/Scheduling
* Room Access
* Doctor Interactions

**Other (Relationships)**

time\_in time\_out doctor\_comments

**General Manager (ISA)**

**Service (Weak)**

service\_type

**Division Mananager (ISA)**

**Regular** (ISA)

**Employee**

emp\_id first\_name last\_name title salary office\_num

**Equipment Type**

type model description instructions quantity

**Doctor**

Doc\_id fname lname specialty gender

**Equipment**

serial\_number purchase\_year last\_inspection

**Patient**

ssn fname lname address phone

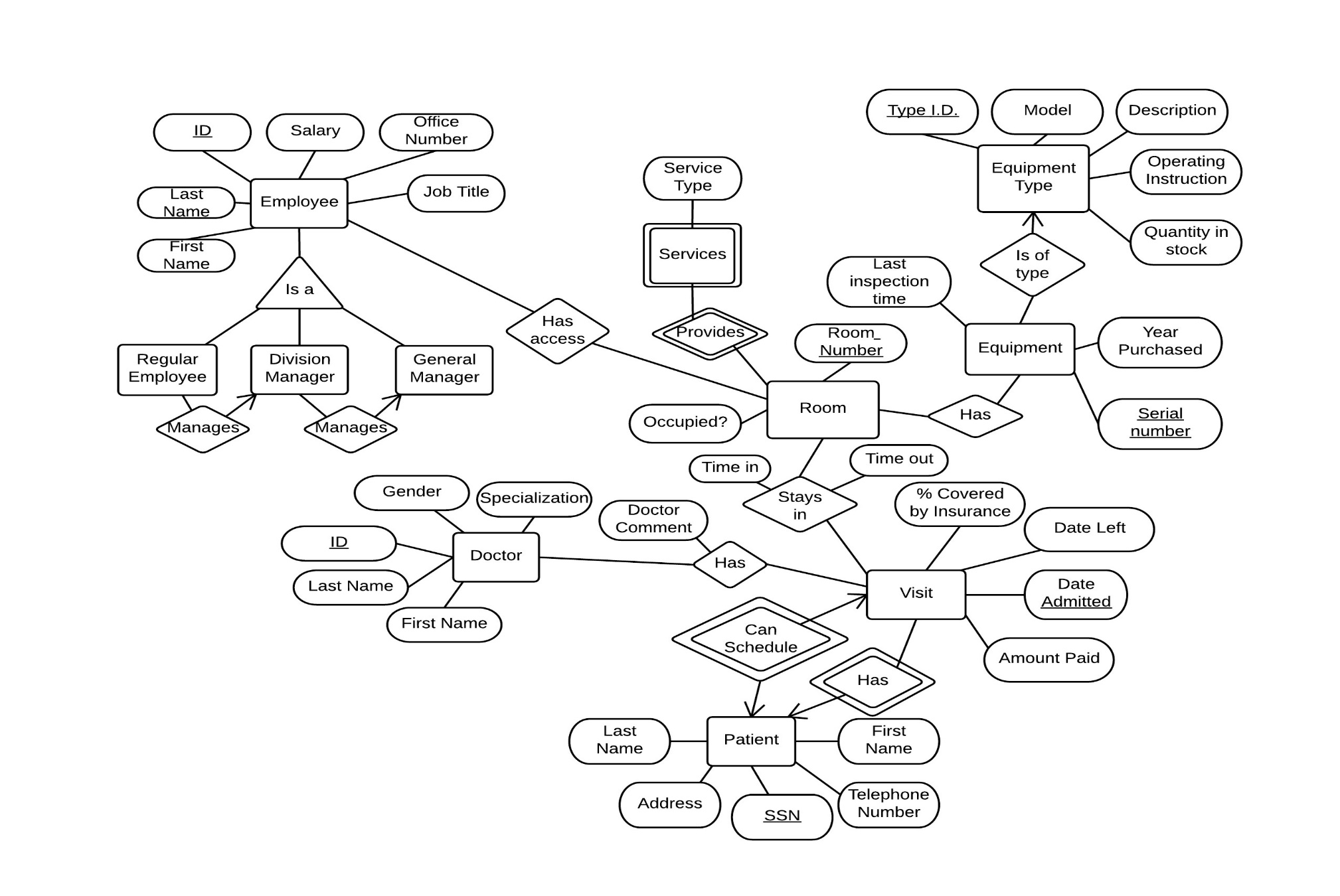
**Room**

room\_num occupied\_flag equipment

**Visit (Weak)**

admitted\_date leave\_date amount\_paid %\_by\_insurance

**ER Diagram**



**Relational Model:**

ASSUME

* Major and Minor are accessed by ID
* Name is mandatory
* Courses need a semester

Doctor(doc\_id, first\_name, last\_name, specialty, gender)

Patient(SSN, first\_name, last\_name)

Visit(SSN, date\_admitted, date\_left, amount\_paid, %\_insurace\_paid)

HasDoctor(date\_admitted, doc\_id, doctor\_comments)

StaysIn(room\_num, date\_admitted, time\_in, time\_out)

Room(room\_num, occupied\_flag)

roomContains(room\_num, serial\_number)

Service(room\_num, service\_type)

Equipment(serial\_number, year\_purchased, last\_inspection)

Equipment-Type(type\_id, model, description, instructions, quantity

Employee(emp\_id, first\_name, last\_name, salary, office\_num, title)

HasAcces(emp\_id, room\_num)

CREATE TABLE Room

(room\_num: Varchar2(10) Primary Key,

occupied\_flag: CHAR(1));

CREATE TABLE Doctors

(ID: CHAR(20) Primary Key,

first\_name: CHAR(20) NOT NULL,

last\_name: CHAR(20) NOT NULL,

specialty: CHAR(20),

gender: CHAR(1),

Contraint genderVal check(gender in (‘M’, ‘F’)) );

CREATE TABLE Patients

(ssn: CHAR(20) Primary Key,

first\_name: CHAR(20) NOT NULL,

last\_name: CHAR(20) NOT NULL,

address: Varchar2(255),

phone:CHAR(15),

gender: CHAR(1),

Contraint genderVal check(gender in (‘M’, ‘F’)) );

CREATE TABLE Equipment

(serial\_number: CHAR(20),

Purchase\_year: CHAR(4),

Last\_inspection: DATE);

CREATE TABLE Equipment\_Type

(ID: CHAR(20),

model: CHAR(20),

instructions: CHAR(255)

quantity: INTEGER);

CREATE TABLE Division\_Manager

(ID: CHAR(20));

CREATE TABLE Employee

(ID: CHAR(20) Primary Key,

first\_name: CHAR(20) NOT NULL,

last\_name: CHAR(20) NOT NULL,

job\_title: CHAR(20),

salary: INTEGER,

office\_num: INTEGER);

Contraint genderVal check(gender in (‘M’, ‘F’)) );

CREATE TABLE Division\_Manager

(ID: CHAR(20));

CREATE TABLE General\_Manager

(ID: CHAR(20));

CREATE TABLE Enrolled

(sid: CHAR(20),

cid: Varchar2(20),

semester: CHAR(2),

grade: CHAR(2),

Constraint pk Primary Key (sid, cid, semester),

Constraint fk\_sid Foreign Key (X) References Students (sid),

Constraint fk\_sid Foreign Key (X) References Courses (cid));