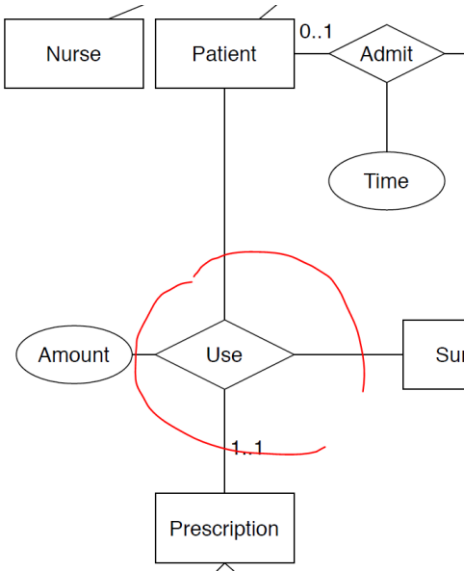
Description of ER2

For ER diagram in problem 2, I design a light diagram. There are some properties that the problem design is not reflected.

1. The problem 2's description tells me that the value of ID-number and Name are always known for person entity, but in my ER diagram, it will still work if a person's name is not known. This will not happen to ID-Number because ID-Number is the primary key of person entity. To handle this problem, we can add constraint for Name by SQL language.

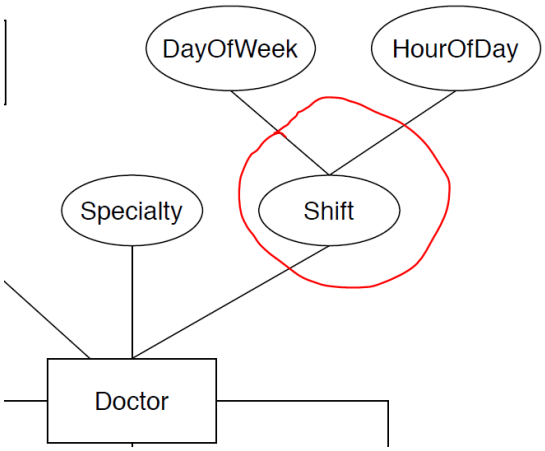
2. The problem 2's description tells me that the entity set doctor has an attribute Specialty, and the Specialty of Doctor must match the Specialty of Surgery. But in my ER diagram, this property or constraint can not be represented. If a doctor does not match the specialty of a surgery, this diagram still works, but it contradicts what we want. This problem can be solved when we are writing code to develop this database.

3. There is also some information that the problem 2 does not show us. For example, the description tells us that there is a ternary relationship Uses among Patient, Prescription, and Surgery and the relationship has an attribute Amount. Any entity in Prescription is used by exactly one Patient. However, we do not know whether a surgery can use more than one prescription or whether a patient can only take prescription without any surgery. The definition of this relationship is not clear. My ER diagram only allow for each prescription, it will used by one patient in one surgery. It does not support the situation that a prescription is used by a patient without any surgery.



4. The problem 2's description gives us a composite attribute Shift in doctor entity set. It contains two sub-attributes: DayOfWeek and HourOfDay. However, only use DayOfWeek or HourOfDay cannot represent the schedule period for doctor. We need to combine them together

in a new table. In truth, here we need to build a new relation to connect shift and doctor. I will do this in problem 3's relation diagram.



This is the reply from Prof. Wang:

Q1: A "shift" here simply means the "a scheduled period of work or duty". Therefore, "Day of Week" means Monday, Tuesday, ..., or Friday. "Hour of Day" means 8am, 10pm, etc.

Q2: Your decision. A publisher doesn't have to be a seller company. But it's OK if you decide to model a publisher as a seller company as well.

I hope this clears things up.

--Sean

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