CSE3055 Database Systems – Homework 1

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I hereby swear that the work done on this homework is totally my own; and on my honor, I have neither given nor received any unauthorized and/or inappropriate assistance for this homework. I understand that by the school code, violation of these principles will lead to a zero grade and is subject to harsh discipline issues.

1)

e	disjointness constraint
c	weak entity
d	attribute
j	subtype discriminator
f	cardinality constraint
g	degree
a	completeness constraint
h	identifier
i	ternary
b	composite key

a) Whether an instance of a supertype must also be a member of at least one subtype

b) contains two (or more) attributes

c) Depends on the existence of another entity type

d) Property of an entity

e) Whether an instance of a supertype may simultaneously be a member of two (or more) subtypes

f) Specifies maximum and minimum number of instances

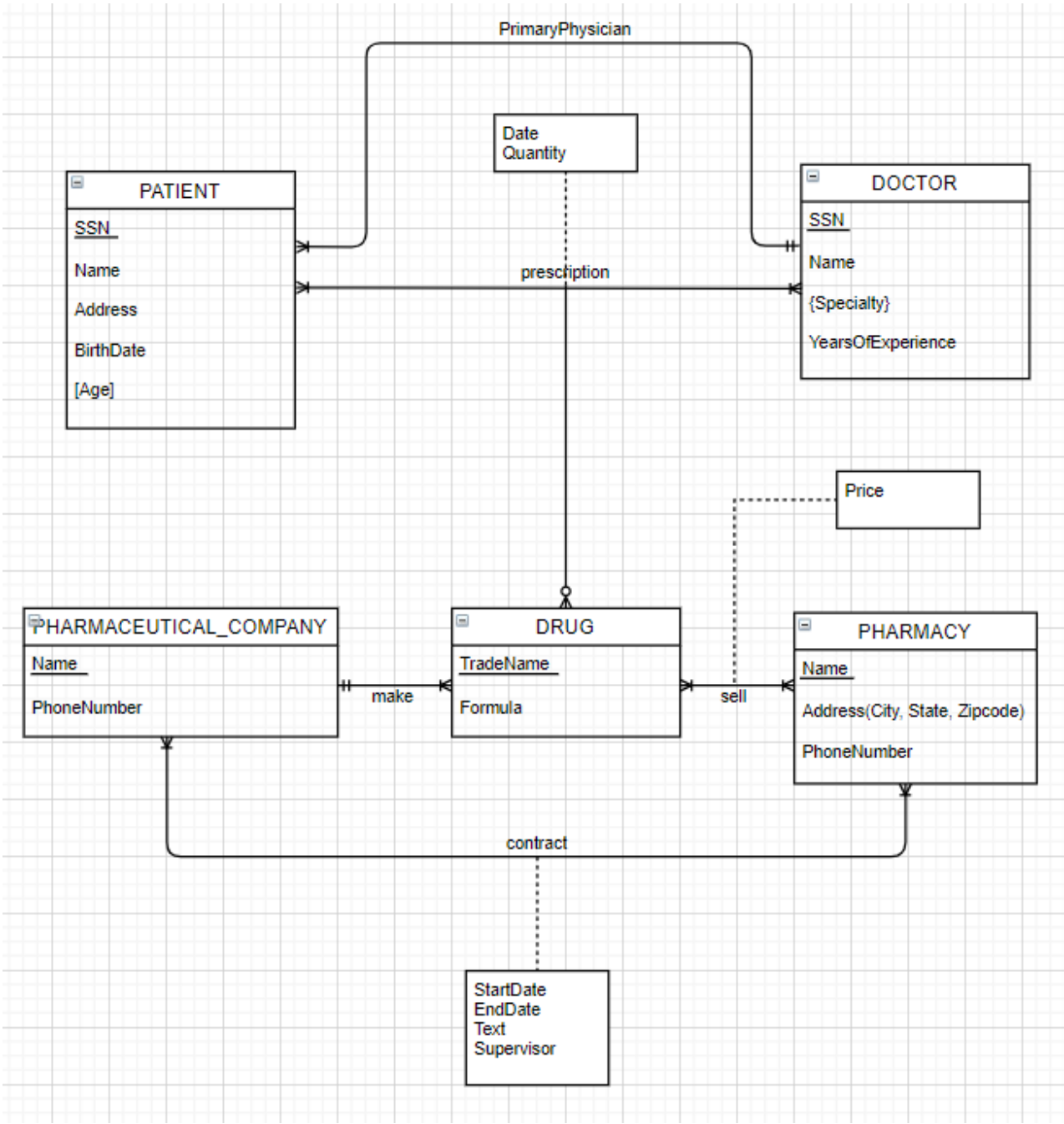
g) Number of participating entity types in relationship

h) Uniquely identifies entity instances

i) Relationship of degree 3

j) An attribute of the supertype whose values determine the target subtype(s)

2.a)


PrimaryPhysician
Date
Quantity
PATIENT
SSN
Name
Address
BirthDate
[Age]
prescription
DOCTOR
SSN
Name
{Specialty}
YearsOfExperience
Price
PHARMACEUTICAL_COMPANY
Name
PhoneNumber
make
DRUG
TradeName
Formula
sell
PHARMACY
Name
Address(City, State, Zipcode)
PhoneNumber
contract
StartDate
EndDate
Text
Supervisor

2.b) In order to establish a fixed price, so that in the relationship between drug and pharmacy this can apply to all selling operation, there are 2 steps needs to done:

- Firstly, in the original diagram, price attribute that is associated with the relationship between drug and pharmacy needs to be removed. That is because, it is not wanted to be varying from one pharmacy to another.
- Secondly, a fixed price attribute (can be called as “FixedPrice”) needs to be added to the “Drug” entity.

2.c) One or many things need to considered in this problem. First, it needs to be mentioned that original diagram does not allow us to store multiple prescriptions. Because of this, there should be a component which can help us store this information with attributes including date and quantity.

- Firstly, in the original diagram, prescription relationship’s attributes (date and quantity) and its relationship to the prescription relationship needs to be removed.

- Secondly, as I mentioned, as a component that would allow us to store more than one record, a new entity needs to be created. This entity will be consisting of the attributes previously removed from the original diagram – “date” and “quantity”. And it needs to be connected to the 3-way relationship between patient, doctor, and drug entities. Also, optional many relationship type needs to be put. It can be visualized as below after applying the changes: