Exercise 1. Consider the instance of the Students relation shown in the following table

| s'id	name	login	age	gpa
53831	Madayan	madayan@music	11	1.8
53832	Guldu	gllldll@music	12	2.0
53688	Smith	smith@ee	18	3.2
53650	Smith	smith@math	19	3.8
53666	Jones	jones@cs	18	3.4
50000	Dave	dave@cs	19	3.3

a) Give an example of an attribute (or set of attributes) that you can deduce is not a candidate key, based on this instance being legal

b) Is there any example of an attribute (or set of attributes) that you can deduce is a candidate key, based on this instance being legal?

Exercise 2. Consider the following relations:

Students(*sid:* string, *name:* string, *login:* string, *age:* integer, *gpa:* real)
Faculty(*fid:* string, *fname:* string, *sal:* real)
Courses(*cid:* string, *cname:* string, *credits:* integer)
Rooms(*rno:* integer, *address:* string, *capacity:* integer)
Enrolled(*sid:* string, *cid:* string, *grade:* string)
Teaches(*fid:* string, *cid:* string)
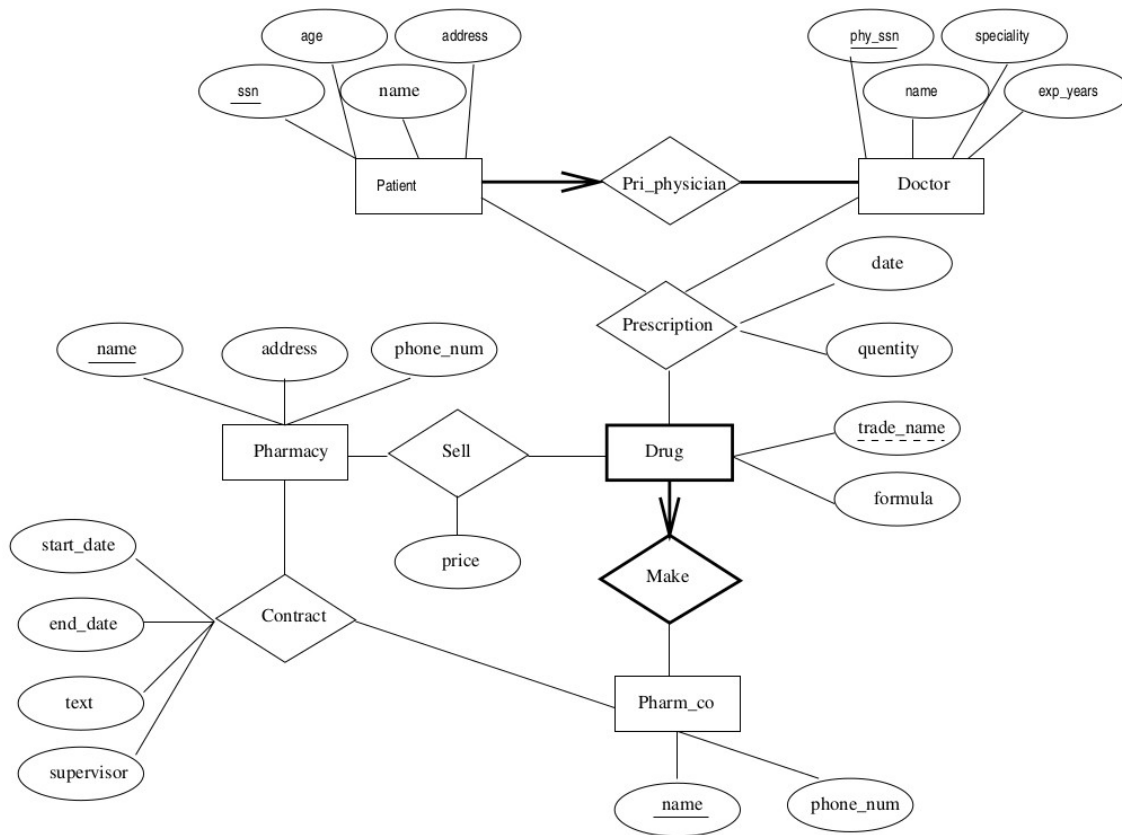Meets_In(*cid:* string, rno: integer, *time:* string)

a) List all the foreign key constraints among these relations.

b) Give an example of a (plausible) constraint involving one or more of these relations that is not a primary key or foreign key constraint.

Exercise 3. Given the following ER diagram (see exercise 1 of homework 1)
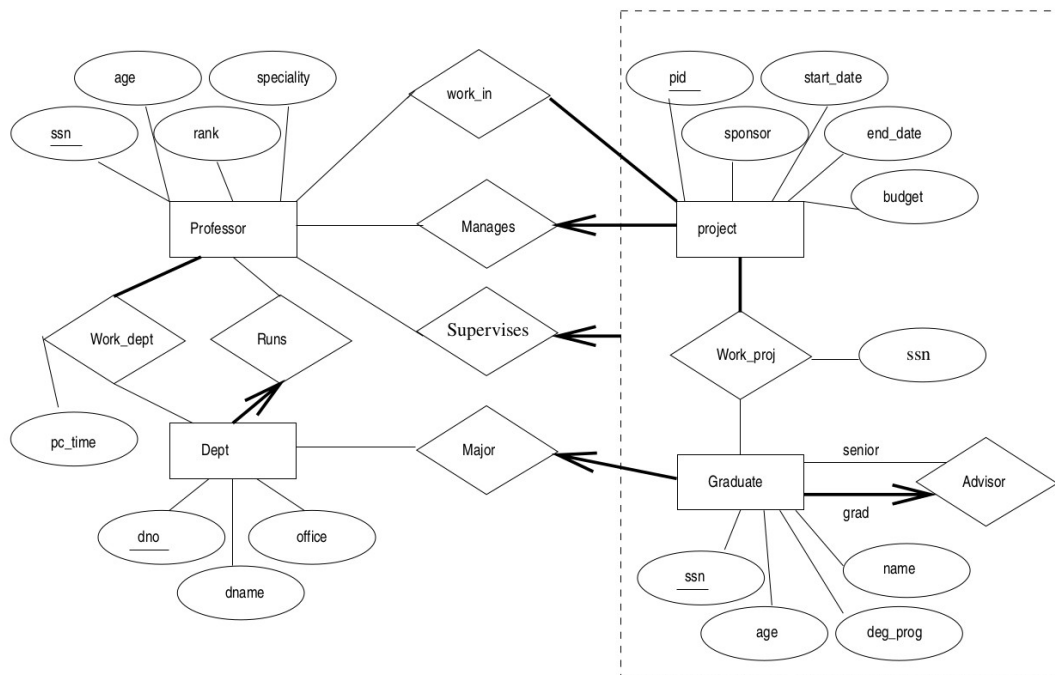
Translate it into a relational schema. If there are constraints that cannot be captured by your translation, explain why.

Exercise 4. Given the following ER diagram (see exercise 2 of homework 1)

age   address

ssn   name

Patient → Pri_physician — Doctor

phy_ssn   speciality

name   exp_years

date

Prescription

quentity

name   address   phone_num

trade_name

Pharmacy   Sell   Drug

formula

price

start_date

Make

end_date   Contract

text   Pharm_co

supervisor

name   phone_num

Translate it into a relational schema. If there are constraints that cannot be captured by your translation, explain why.