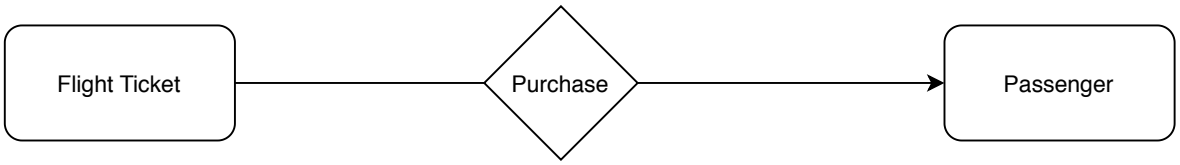
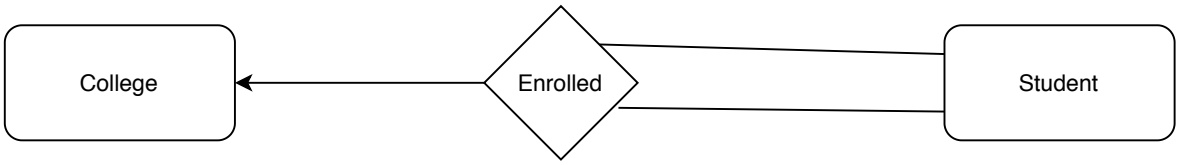
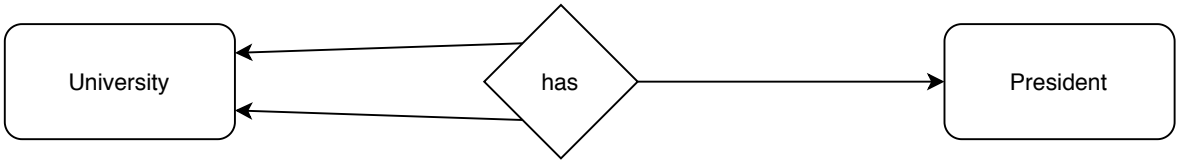
Problem 1.1



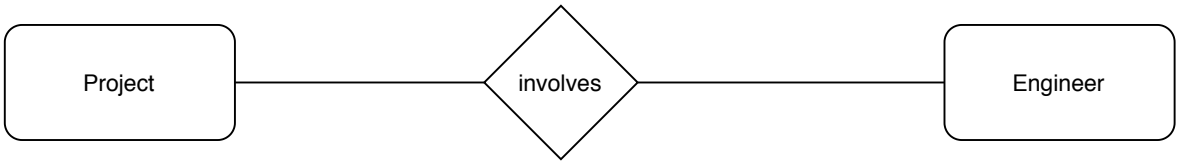
Problem 1.2



Problem 1.3



Problem 1.4



2.1

Assumptions:

Each mother must birth at least one baby, each baby must have at most one mother

You can't have a baby without a mother.

Each mother can be treated by at most one doctor, each doctor can treat multiple mothers

Each baby can be treated by at most one doctor, each doctor can treat multiple babies

Each doctor can be assisted by at most one nurse, each nurse can assist at most one doctor

Suggested Modifications

When I first look at this diagram, it is clear that the relationships between the entities is not properly presented. In order to rectify this, I would remove the "Births" relationships that connects the Mother, Babies, Nurses, and Doctors entities so that only the entities themselves remain. I would then create new relationships for the entities so that their connection can be better presented.

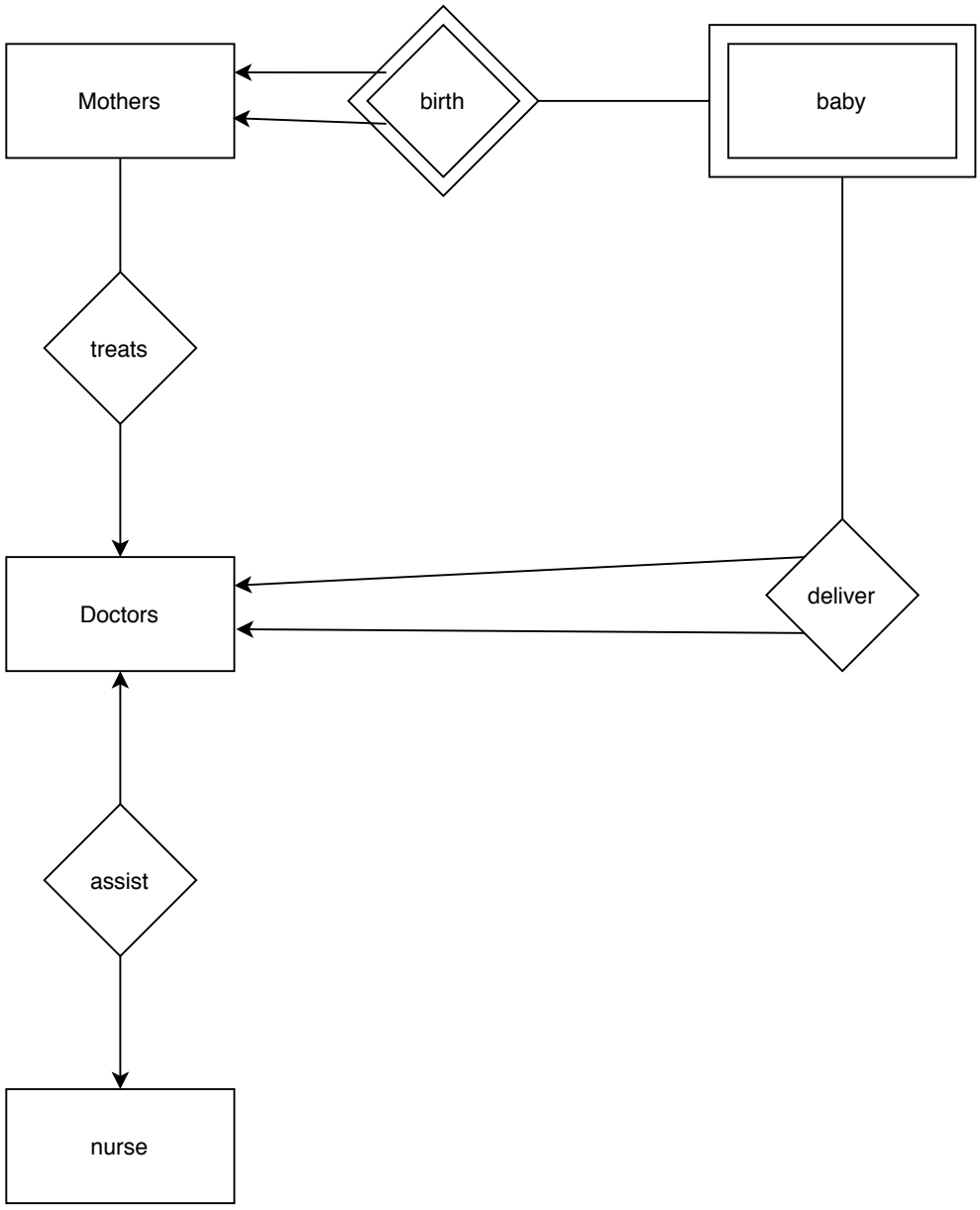
As the mothers give birth to children, the first relationship would be "birth" between the "mother" and "baby" entities. As each mother must produce at least one baby, a "one to many" relationship will be established with total participation on the mother's side. A baby can't exist without the mother, so the "baby" entity would be designated as the weak entity and the "mother" entity would be designated as the strong entity.

It is a Doctor's job to treat their patient, so the second relationship will be "treat" between the "mother" and "doctor" entities. It is assumed that a Doctor can treat multiple mothers, so a "one-to-many" relationships will be established.

In order for a mother to produce a baby, it must be delivered. Since it is assumed that the Doctor will take on that role, the third relationships would be "deliver" between the doctor and the baby. It is assumed that a Doctor can deliver many babies, so a "one-to-many" relationship will be established.

A Doctor usually is helped by a nurse, so the third relationship will be "assist" between the "Doctor" and "Nurse" entities. As it assumed that each Doctor is helped by a single nurse, their relationship will be "one-to-one".

Problem 2.2



3.1 – 3.2

Assumptions:

Each advisor can advise many students, each student can be advised by many advisors

Each advisor must specialize in at least one advisor career, each advisor career can be specialized in by many advisors

Each Student can be interested in at most one career, each career can have many students interested in it

Advisor careers cannot exist without careers

Each advisor career consists of at most one career

Each advising appointment can be attended by at most one student, each student can attend many advising appointments

Each advising appointment can be hosted by at most one advisor, each advisor can host many advising appointments

Each advising appointment has an ID called “sessionID” associated with it

Schema Statements

Advisors(facultyID, pairdID, firstName, lastName, officeLocat, phone, email)

Advise(facultyID, studentID)

Students(studentID, firstName, lastName, phone, email, careerID)

Attend(studentID, sessionID)

Host(facultyID, sessionID)

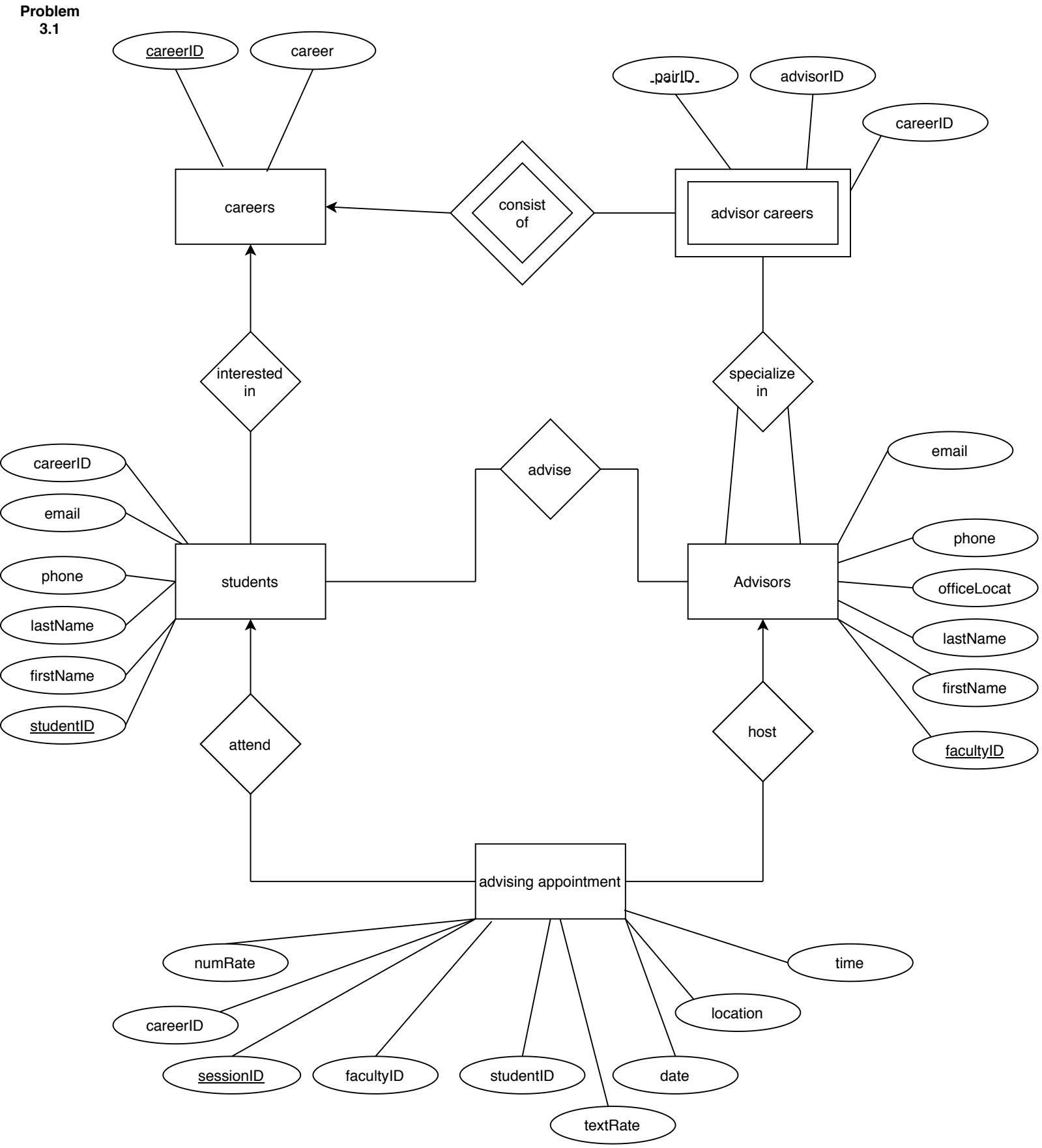
Advising_appointment(sessionID, careerID, numerate, facultyID, studentID, date, location, time)

Interested_in(careerID, studentID)

Advisor_Careers(pairID, careerID, advisorID)

Careers(careerID, career)

Problem 3.1


careerID
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location
time