4.5:

The constraints that should hold are:

Section\_Identifier.Course\_number ——> Course.course\_number

Prereq.Course\_Number ——> Course.course\_number

Grade.Student\_Number ——-> Student.Student\_Number

Grade.Section\_Ident ——-> Section.section\_identifier

CREATE TABLE Student (

Name VARCHAR(30) CONSTRAINT Student\_name\_nn NOT NULL,

Student\_number INTEGER CONSTRAINT Student\_Student\_number\_PK PRIMARY KEY,

Class CHAR CONSTRAINT Student\_Class\_nn NOT NULL,

Major CHAR(2)

)

CREATE TABLE Course(

Course\_name VARCHAR(30) CONSTRAINT Course\_Course\_name\_NN NOT NULL,

Course\_number VARCHAR(10) CONSTRAINT Course\_Course\_number\_PK PRIMARY KEY,

Credit\_hours CHAR CONSTRAINT Course\_Credit\_hours\_NN NOT NULL,

Department VARCHAR(10) CONSTRAINT Course\_Department\_NN NOT NULL

)

CREATE TABLE PREREQUISITE (

Prerequisite\_number VARCHAR(10) CONSTRAINT Prerequiste\_Prerequiste\_number\_PK PRIMARY KEY CONSTRAINT Prerequiste\_Prerequiste\_number\_FK REFERENCES Course(Course\_number),

Course\_number VARCHAR(10) CONSTRAINT Prerequiste\_Course\_number\_FK REFERENCES Course(Course\_number),

)

CREATE TABLE Section (

Section\_identifier CHAR(3) CONSTRAINT Section\_Section\_identifier\_PK PRIMARY KEY,

Course\_number VARCHAR(10) CONSTRAINT Section\_Course\_number\_FK REFERENCES Course(Course\_number),

Semester VARCHAR(10) CONSTRAINT Course\_Semester\_NN NOT NULL,

Year VARCHAR(2) CONSTRAINT Course\_Year\_NN NOT NULL,

Instructor VARCHAR(10) CONSTRAINT Course\_Instructor\_NN NOT NULL

)

CREATE TABLE Grade\_Report (

Student\_number INTEGER CONSTRAINT Grade\_Report\_Student\_number\_FK REFERENCES Student(Student\_number)

Section\_identifier CHAR(3) CONSTRAINT Grade\_Report\_Section\_identifier\_FK REFERENCES Section(Section\_identifier)

Grade CHAR CONSTRAINT Grade\_Report\_Grade\_NN NOT NULL

)

4.9:

4.10:

a:

select fname,lname

from jmendoza.employee,jmendoza.project,jmendoza.works\_on

where dno = 5 and pnumber = 1 and pnumber = pno and essn = ssn and hours > 10;

b.

c.

4.15:

a. When you delete the employee with last name “borg”, a cascade will occur because that is what the constraint says will happen on a delete. When you delete Borg, you realize that he is the manager of two employees, “Wong” and “Wallace”, so they both will be deleted. Now “Wong” is the manager of three employees that will get deleted, along with “Wallace” who is the manager of two employees who will also get deleted. The result is that all tuples in the Employee table will be deleted.

b. In this case, it’s better to set null because you probably accidentally deleted all employees out of the database when all you wanted to do was delete the one. By setting to null, the rest of the employees stay.