CSE 305 Homework 1

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Question 3.7

Lets say we have a table PERSON with attributes FirstName and LastName. Now lets say we have two tupples for Person {Adi,null} and {null,Balwani}. Now Lets say the null in the first tupple becomes Balwani and the null in the second tupple becomes Adi. So now both the tupples are identical and they will be come one

This is not possible when one of the attributes is defined as non-null because in that case no two tupples will have have an identical attribute. For example, in the earlier example lets say FirstName is non-null. So in that case, the second tupple cannot have first name Aditya, and it wont become identical.

Question 3.8

Students Table

```
CREATE TABLE STUDENT (
    Id  INTEGER
    Name CHAR(50) NOT NULL
    Address CHAR(100)
    Status CHAR(10) default 'freshman'
    PRIMARY KEY (Id)
)
```

Professors Table

```
CREATE TABLE PROFESSOR (
    Id INTEGER,
    Name CHAR (50)
    DeptId Departments
    PRIMARY KEY (Id)
)
```

Courses

```
CREATE TABLE COURSE (
    CrsCode CHAR(9)
    DeptId Departments
    CrsName CHAR(30)
    Descr CHAR(200)
    PRIMARY KEY (CrsCode)
    UNIQUE (DeptId,CrsName)
)

CREATE DOMAIN Departments CHAR(3)
    CHECK ( VALUE IN ('CSE','MAT','EGL','MUS','PHY','CHE'))
```

Transcript

```
CREATE TABLE TRANSCRIPT (
    StudId INTEGER
    CrsCode CHAR(9)
    Semester Semesters
    Grade Grades
    PRIMARY KEY (StudId, CrsCode, Semester)
    FOREIGN KEY (StudId) REFERENCES STUDENT(Id)
        ON DELETE NO ACTION,
        ON UPDATE CASCADE
    FOREIGN KEY (CrsCode) REFERENCES COURSE(CrsCode)
        ON DELETE NO ACTION
        ON UPDATE CASCADE
    FOREIGN KEY (CrsCode, Semester) REFERENCES TEACHING (CrsCode,Semester)
        ON DELETE NO ACTION
        ON UPDATE CASCADE
)

CREATE DOMAIN Semesters CHAR(6)
    CHECK ( VALUE IN ('fall','spring','winter','summer'))

CREATE DOMAIN Grades CHAR(6)
    CHECK ( VALUE IN ('A','B','C','D','E'))
```

Teaching

```
CREATE TABLE Teaching (
    ProfId INTEGER
    CrsCode CHAR(9)
    Semester Semesters
    PRIMARY KEY (CrsCode,Semester)
    FOREIGN KEY (ProfId) REFERENCES PROFESSOR(Id)
        ON DELETE NO ACTION
        ON UPDATE CASCADE
    FOREIGN KEY (CrsCode) REFERENCES COURSE(CrsCode)
        ON DELETE SET NULL
        ON UPDATE CASCADE
)
```