Schema

Students (
        email VARCHAR (255) [primary key],
        First Name VARCHAR (255),
        Last Name VARCHAR (255),
        Department VARCHAR (255),
        Year INT,
        Courses Taken VARCHAR(255) [FK to Course.Courses Name]
        Skills VARCHAR (255),
        RSOs VARCHAR (255),
        Interests VARCHAR (255),
)

Courses (
        CRN VARCHAR (255) [primary key]
        Course Name VARCHAR (255)
        department VARCHAR (255)
        Instructor Email VARCHAR (255) [FK to Professors.emal]
        Course Area VARCHAR (255)
)

Skills (
        email VARCHAR (255) [primary key]
        Programming Lang VARCHAR (255)
        tools VARCHAR (255)
        libraries VARCHAR (255)
)

RSOs (
      RSO Name VARCHAR (255) [primary key]
      RSO Area VARCHAR (255) [FK to Research Group.Research Area]
)

Research Group (
            Research Group Website VARCHAR (255) [primary key]
            Professor Name VARCHAR (255)
            Department VARCHAR (255) [FK to Course.department]
            Research Area VARCHAR (255)
            Research Topic VARCHAR (255)
)

```
Professors (
        email VARCHAR (255) [primary key],
        FirstName VARCHAR (255),
        Lastname VARCHAR (255),
        Research Group Website VARCHAR (255) [FK to Research Group.Research Group
Website],
        Department VARCHAR(255),
        RecentCourseTaught VARCHAR(255),
        Research Area VARCHAR (255),
        Research Topic VARCHAR (255),
)
```

Assumptions

Professors
- Each professor should have 1 to many courses.
- Each professor should have 0 to many Research Groups.

Students
- We think that each student will have at most ONE primary department (this is the department of the major they were admitted to at UIUC. If they transferred to a different major then it will be the department of the major they are currently in is their primary major). Any other departments the student is enrolled in will be their secondary department(s).
- Each student should have joined 0 RSOs to many RSOs at the minimum
- It is assumed that each student has 0 to many skills.
- It is assumed that a student has at least 1 course to at most many courses.

Courses
- Each course should have 1 to many professors.
- Each course should have 1 to many students.
- Each course should have 1 to many skills.

RSO
- Each RSO should have 0 to many skills. Each skill should have 0 to many RSOs.
- Each RSO should have 1 to many students. However as mentioned in the students section, each student can have 0 to many RSOs.

Skills
- Each Skill should have 0 to many RSOs.
- Each Skill should have 0 to many Research Groups.

Research Group

- Each Research group should have 1 to many skills.
- Each Research group should have 1 to many Professors. Each Professor should have 0 to many Research Group

Normalization

We are going to be using the 3rd Normalization Form (**3NF**). This is as it is less strict than the Boyce-Codd Normal Form (**BCNF**). 3NF's results will also be lossless and dependency-preserving.

All attributes in Skills can be taken from the primary key Student's email. There do not appear to be any other functional dependencies. All attributes in Students can be taken from the primary key Student's email. There do not appear to be any other functional dependencies. All attributes in RSO can be taken from the primary key RSO Name. There do not appear to be any other functional dependencies. All attributes in Research Groups can be taken from the primary key Research Group Website. There do not appear to be any other functional dependencies. All attributes in Professors can be taken from the primary key email. There are no other functional dependencies in this relationship. All attributes in Courses can be taken from the primary key CRN. There are no other functional dependencies in this relation.

Research Group

Research Group Website
Professor Name
Department
Research Area
Research Topic

Professors

email
Research Group Website
First Name
Last Name
Department
Recent Courses Taught
Research Area
Research Topic

Courses

CRN
Course Name
department
Instructor Email
Course Area

Skills

email
Programming Languages
Tools
Libraries

Students

email
First Name
Last Name
Department
Year
Courses Taken Skills
RSO's
Interests

RSOs

RSO_Name
RSO Area

Lead — 0..* / 1..*

Teaches — 1..* / 1..*

Require — 0..* / 1..*

Augment — 1..* / 0..*

Has — 0..* / 0..*

Takes — 1..* / 1..*

Build — 0..*

Joined — 0..* / 1..*

miro