**CGS 4307**

**Angry Nerds**

**Project Design**

**Entities**

The main entities that the group felt were important to track students were the University, student, professor, course, and grade.

**Attributes**

* Student (Strong Entity)
  + Student ID (Sid)
  + Student First Name (Sfirstname)
  + Student Lastname (Slastname)
  + Student Address
    - Student Street Number(Streetnumber)
    - Student Street Name (Streetname)
    - Student City (City)
    - Student State (State)
    - Student Zipcode (Zipcode)
  + Student Phone (Sphone)
  + Student Email (Semail)
  + Student Major (Smajor)
  + Student Status (Sstatus)
* Professor (Strong Entity)
  + Professor ID (Pid)
  + Professor First Name (Pfirstname)
  + Professor Last Name (Plastname)
  + Professor Address
    - Professor Street Number(Streetnumber)
    - Professor Street Name (Streetname)
    - Professor City (City)
    - Professor State (State)
    - Professor Zipcode (Zipcode)
  + Professor Phone (Pphone)
  + Professor Email (Pemail)
  + Professor Status(Pstatus)
* Course (ID Dependent on University)
  + Course ID (Cid)
  + Course Name (Cname)
* Grade (ID Dependent on Student ID)
  + Grade Name (Gname)
  + Student GPA (Studentgpa)
  + Grade Description (Gdescription) (Will be copied for classes that have the same description.)
* University (Strong Entity)
  + University Name (Uname)
  + University Address
    - University Street Number (Streetnumber)
    - University Street Name (Streetname)
    - University City (City)
    - University State (State)
    - University Zipcode (Zipcode)

**Functional Dependencies**

* Student
  + Sid ---> (Sname, Slastname, Sstatus, Smajor, Streetnumber, Phone, State, City, Streetname, Zipcode, Semail, Studentgpa)
* Professor
  + Pid ---> (Pfirstname, Plastname, Pphone, Pemail, Streetname, Zipcode, Streetnumber, Pstatus, City, State)
* Course
  + Cid ---> (Cname, Pid)
* Grade
  + Gname ---> (Studentgpa, Gdescription)
* University
  + Uname ---> ( State, Zipcode, Streetnumber, City)

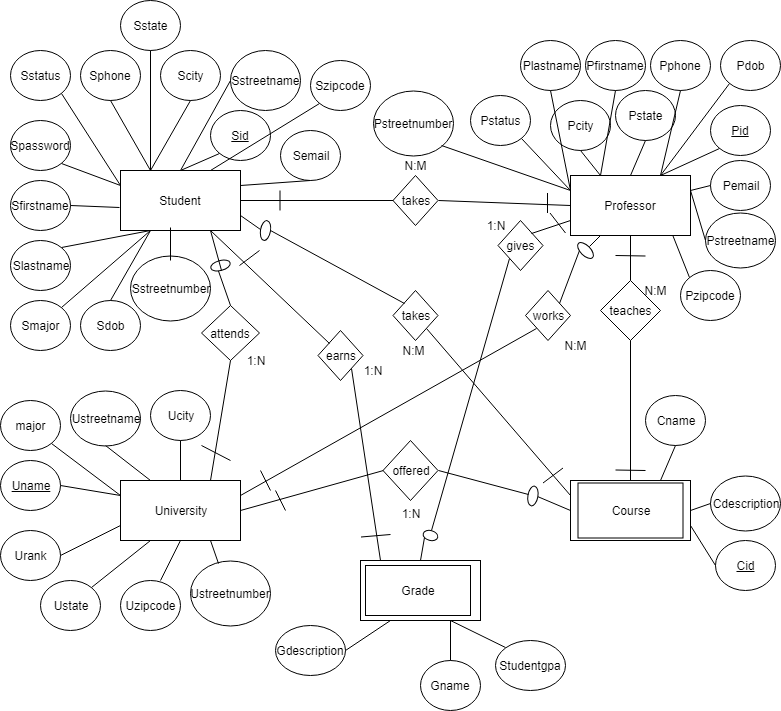
Kindly do the addresses in one table instead of writing address of student, professor in separate tables

\*\*\* marked yellow ones, Pid will not be dependent on Cid but Pid can be foreign key in that table

Second marked yellow one will lead to Transitive dependency, make sure you do that

Student ID determines all the attributes for the student. Each student is assigned a unique key, so the student ID is used as the primary key. The same can be said for the professor; a unique ID is assigned to each professor. Because professor ID is act as the primary key in this case, all of the professor’s attributes are functionally dependent on the professor ID. Each course will be assigned a unique course ID that will determine the name and the description of the course. The course ID also will show which professor is teaching the course. So the professor ID is dependent on the Course ID. It is not necessary to assign an ID to each grade. The database will keep track of student grades, so the grade name (A,B,C,D,F) will be determine the student’s GPA and that grade’s description. Each University has a unique name so it was selected as a candidate key. However the university name was not selected as a primary key. The University’s attributes such as majors offered and location data are dependent on the University name.

**ER-Model**

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