CSE 581

**Project 1**

**Your task:**

You are asked to create a database design that will store information for the business problem described below. The business problem describes the data that we need to store in a logical way. It is up to you to break it up into tables.

You are required to normalize the design to at least the 2nd normal form, possibly 3rd (I’ll leave the exact design up to you, but make sure that you can defend your choice of data organization based on what you learned in class).

For project 1 you will submit your design as a Visio drawing, which will display all tables, columns, keys (primary and foreign), null-ability and relationships between the tables. You also may submit a short description of your design, or to explain any non-obvious design choices (no more than a 1/3 of a page).

**Requirements:**

1. You **shall** normalize your design to 2nd or 3rd normal form.
2. Your deliverable **shall** contain the following information:
3. table names
4. column names
5. primary keys
6. foreign keys
7. relationships between tables
8. whether the column is required or not
9. You **shall** hand in a Visio diagram of your design.
10. Your deliverable **shall** contain all data points described in the business problem.
11. You **shall** follow naming standards covered in class for your tables and columns.

**Business Problem:**

You will create a database for a university. The following is a list of all data that we are interested in storing:

**Students**

* student ID #
* NTID
* password
* SSN
* first name
* middle name
* last name
* date of birth
* gender
* race/ethnicity (google for new standard if needed)
* email address
* mailing address
* cell phone
* status: active, suspended, in-active
* student type: new freshmen, continue, transfer, re-admitted, new graduate, continue graduate
* major/minor (belong to which college)
* student level: undergraduate, graduate

**Employees**

* employee ID #
* NTID
* password
* SSN
* first name
* middle name
* last name
* date of birth
* gender
* race/ethnicity (google for new standard if needed)
* email address
* mailing address
* cell phone
* annual salary
* benefits
  + insurance: health, vision, dental
  + cover type includes employee only, employee with children only, employee with spouse only, employee with family
  + employee premium amount
  + employer premium amount
* job information:
  + job code
  + job title
  + job description
  + job type:
    - faculty:
      * lecturer, assistant prof., associate prof., full prof.
    - staff
  + min pay
  + max pay

**Semesters**

* semester (Fall, Spring, Summer Session I, Summer Session II, Combined Summer Session)
* year
* begin date
* end date

**Courses**

* course information
  + course code (e.g. CSE)
  + course number (e.g. 581)
  + course title
  + course department
  + course description
  + course prerequisites (pointing to other course(s) – could be 0 – unlimited number of prerequisites)
* course schedule
  + course semester
  + CRN (course registration number): e.g. 19261, 19427
  + course section: e.g. M001, M002
  + credit hours
  + course level: undergraduate, graduate
  + instructor teaching the course
  + course time:
    - days of the week
    - start, end hours and minutes
  + classroom
    - building, level, room #
    - classroom type: lab, instruction
    - classroom capacity (seat #)
    - classroom equipment (projector? White board?)
  + actually enrollment #
  + list of enrolled students:
    - student ID
    - status: enrolled, dropped, audit
    - mid-term grade
    - final grade