Database Assignment 1 Q2

## 1.0 Description of Database

The database that I have chosen is a representation of the university database. This database will provide the users with information about the students, departments, courses, and professors in that university. Users would be able to query the database and receive information about when a course is available, the different sections available if more than one, and the professor giving the lectures for each section. Users can also query information about the prerequisites for the course, the student’s GPA, the different departments at the university, and information about the professors.

## 2.0 Description of Data

The proposed database will have two types of tables, independent and dependent. The independent tables will be students, departments, courses, semester, and professors. The dependent tables will be the GPA calculations for students, the different programs offered by each department, the section for courses, and the research that each professor is doing.

### 2.1 View of Tables

**Table:** Students

**Type:** Independent

**Primary Key:** Student ID (text) [Not Null]

**Foreign Key:** Programs.Primary Key

**Other Fields:** Name (text) [Not Null], Email (text) [Not Null], Address (text) [Not Null]

**Table:** GPA

**Type:** Dependent on Students

**Foreign Key:** Students.Student ID, Course.Course ID, Semester.Semester ID

**Primary Key:** Foreign Key

**Other Fields:** Grade (real) [Null, 0 or higher], Status (text) [Passed, Failed, Dropped, In Process]

**Table:** Departments

**Type:** Independent

**Primary Key:** Department ID (text) [Not Null]

**Other Fields:** Department Name (text) [Not Null], Minimum GPA required (real) [0 or higher]

**Table:** Programs Available

**Type:** Dependent on Department

**Foreign Key:** Departments.Department ID

**Primary Key:** Foreign Key + Program ID (text) [Not Null]

**Other Fields:** Program Name (text) [Not Null], Length of program (integer) [1 or higher]

**Table:** Courses

**Type:** Independent

**Primary Key:** Course ID (text) [Not Null], Prerequisites ID (text) [Null, Course ID]

**Foreign Key:** Programs Available.Primary Key

**Other Fields**: Name (text) [Not Null], Description (text) [Not Null]

**Table:** Section

**Type:** Dependent on Courses

**Foreign Key:** Courses.Course ID, Professors.Emplyee ID, Semester.Semester ID

**Primary Key:** Courses.Course ID, Section ID (text) [Not Null]

**Table:** Semester

**Type:** Independent

**Primary Key:** Semester ID (text) [Not Null]

**Other Key:** Name (text) [Not Null]

**Table:** Professors

**Type:** Independent

**Primary Key:** Employee ID (text) [Not Null]

**Foreign Key:** Departments.Department ID

**Other Fields:** Name (text) [Not Null], Title (text) [Prof, Associate Prof, Doctor, Sir, Ma’am], Office Phone Number (text) [Null is accepted]

**Table:** Research

**Type:** Dependent on Professors

**Foreign Key:** Professors.Employee ID

**Primary Key:** Foreign Key + Research ID (text) [Not Null]

**Other Fields:** Name (text) [Not Null], Summary (text) [Null is accepted], Start Date (Date-Time Function) [Null, integer: 0 or higher], End Date (Date-Time Function) [Null, integer: 0 or higher]

## 3.0 Domain of Data

The domains for the different tables are given in the table view (2.1) in square brackets.