SOFTENG 351 Lab Exercise 1

Aiden Burgess – abur970 - 600280511

1. GET STUDENT whose Student_number is 17
   Update grade report for section_identifier 112 and Student_number 17 to be A

2. A course may have a pre-requisite course
   A grade report is generated for a student
   A grade report is got a specific section
   A section is for a specific course

3. Lecturers would like to generate a distribution of marks for a given course
   Student's would like to view all their marks in a Web page

4. Student_number must be unique
   A course must have a department
   Section_identifier must be unique
   Course_number and Prerequisite_number must not be equal

5. a. STUDENT -> Major, COURSE -> Department, COURSE -> Course_number,
   SECTION -> Course_number, PREREQUISITE -> Course_number,
   PREREQUISITE -> Prerequisite_number
   b. ADD Prerequisite_number column to COURSE
      REMOVE Department column from COURSE
      SECTION -> Course_number, COURSE -> Course_number, and
      COURSE -> Prerequisite_course will now be a multi-value of a
      department and a number e.g. (CS,1310)
      CREATE new table DEPARTMENT which has column Name, containing
      the names of each department.
      STUDENT -> Major now points to a DEPARTMENT

      Now only the DEPARTMENT -> Name column needs to be updated. So the
      answer is yes.

6. Lecturers would need a web application to view/change/add/delete grades for a
   course, form based
   Students would need to view their grades for a course on a web app
   Database administrators would need an command line interface to check validity
   of data

7. Three-tier client/server architecture. This system allows concurrent users to
   perform operations on the database. It also allows multiple views of the data, so
   customers could access the data through a website, while consultants/help desk
   employees could use a more advanced custom client.

   Centralized DBMS has low redundancy, so a loss of data may be permanent. It
   also has little security, so customer's data could be at risk.

Client/Server architecture may not have enough security, as the client can directly access the database. Servers may be too specialized.

8. STUDENT -> Student_number, COURSE -> Course_number, SECTION -> Section_identifier, PREREQUISITE -> Course_number + Prerequisite_number, GRADE_REPORT -> Student_number + Section_identifier