Chapter 1 Review Questions
Due: Sunday September 13, 2020 @ 11.59pm

1. Define the following terms: DBMS, database system, meta-data, and transaction-processing application.
   DBMS: A database management system is a software system that helps users to create and maintains a database. This system contains the processes of defining, constructing, manipulating and sharing databases from various users and applications.
   Database System: Data base system is nothing but database and DBMS software together we call as data base system
   Meta-data: It is information about structure of each file, type and storage format of each data and various constraints on the data is called meta-data.
   Transaction-processing application: This application is designed to maintain database integrity in a known, consistent state.
2. What are the two different types of database end users? Discuss the main activities of each.
   Casual End Users –
   These are the users who occasionally access the database, but they require different information each time. They use a sophisticated database query language basically to specify their request and are typically middle or level managers or other occasional browsers. These users learn very few facilities that they may use repeatedly from the multiple facilities provided by DBMS to access it.
   Standalone users –
   These are those users whose job is basically to maintain personal databases by using a ready-made program package that provides easy to use menu-based or graphics-based interfaces. An example is the user of a tax package that basically stores a variety of personal financial data of tax purposes.
3. Consider the image below:
   a. If the name of the 'CS' (Computer Science) Department changes to 'CSSE' (Computer Science and Software Engineering) Department and the corresponding prefix for the course number also changes, identify the columns in the database that would need to be updated.
      These columns need to be updated: `Student.Major, Course.CourseNumber, Course.Department, Section.CourseNumber, Prerequisite.CourseNumber, and Prerequisite.PrerequisiteNumber.`
   b. CAN you restructure the columns in the COURSE, SECTION, and PREREQUISITE tables so that only one column will need to be updated?
      Every column that has a compound course number (a department abbreviation and the actual number part) should be split into two columns, one for the course department and one for the actual course number. So: in table SECTION, Course_number → Course_dept and Course_num; in table PREREQUISITE, Course_number → Course_dept and Course_num, etc.

STUDENT

Name	Student_number	Class	Major
Smith	17	1	CS
Brown	8	2	CS

COURSE

Course_name	Course_number	Credit_hours	Department
Intro to Computer Science	CS1310	4	CS
Data Structures	CS3320	4	CS
Discrete Mathematics	MATH2410	3	MATH
Database	CS3380	3	CS

SECTION

Section_identifier	Course_number	Semester	Year	Instructor
85	MATH2410	Fall	07	King
92	CS1310	Fall	07	Anderson
102	CS3320	Spring	08	Knuth
112	MATH2410	Fall	08	Chang
119	CS1310	Fall	08	Anderson
135	CS3380	Fall	08	Stone

GRADE_REPORT

Student_number	Section_identifier	Grade
17	112	B
17	119	C
8	85	A
8	92	A
8	102	B
8	135	A

PREREQUISITE

Course_number	Prerequisite_number
CS3380	CS3320
CS3380	MATH2410
CS3320	CS1310

Figure 1.2
A database that stores student and course information.