CSCI 327
Homework 1
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Question 1:
   a. Three advantages of using a database over traditional file storage:
       1. Database supports the multiple views of the data which means that different users may
           see the view of the database differently and it will display only the relevant data for them.
           Also, the access to data could be restricted to unauthorized users.
       2. Multiuser DBMS allows many people to access the database at the same time and make
           updates to the data.
       3. You can change a database structure without changing the DBMS access programs.
   b. Three situations where using database would be disadvantageous:
       1. If the complexity of data is too high and the database system can't handle it due to the
           modeling limitations, then it's disadvantageous.
       2. If you want a database then most likely you'll need a high investment and possibly
           additional hardware. So the cost might be high.
       3. If you want to use a database for simple stuff, then you won't need the generality,
           security, recovery, integrity and concurrency control that the database provides.
           Therefore, the overhead can be unnecessary if you don't need to use these features.

Question 2:
   a. Data abstraction is a process of creating a data type that hides the details of the data to make it
       simple to work and interact with it.
   b. The difference between database schema and database instance is that database schema is the
       design of the database(structure, relationships, etc.), while the database instance is the actual data
       stored in a database at a specific moment in time.

Question 3:
   a. When starting up your servers you should start first with MariaDB database server and then with
       Apache web server because Apache will try to go to a database server and if it's not started then it
       won't work. MariaDB is like a kitchen, while Apache is like a door. You want to make a kitchen
       available before you open the door. So you start MariaDB first.
   b. A_I in the context of a table column is usually used for primary key columns and A_I creates a
       unique number for a column when a new row is created.

Question 4:
```
CREATE TABLE `student` (
 `ID` int(11) NOT NULL AUTO_INCREMENT,
 `firstname` varchar(30) NOT NULL,
 `lastname` varchar(30) NOT NULL,
 `GPA` decimal(10,0) NOT NULL,
 `email` varchar(30) NOT NULL,
 `phone` int(11) DEFAULT NULL,
 PRIMARY KEY (`ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci
```