# COSC 3318: Database Management Systems

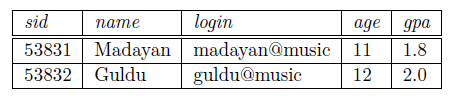
# (Assignment 3)

**Assigned on October 19, 2018. Typed Printed Hardcopy due at the start of class on October 26, 2018.**

1. (4 points) For the following representation:

**Students(sid: string, name: string, login: string, age: integer, gpa: real)**

Consider the SQL query whose answer is shown in the following Table:



a). Modify this query so that only the sid column is included in the answer.

b). If the clause WHERE S.gpa >= 2 is added to the original query, what is the set of

tuples in the answer?

2. (10 points) Download and install a DBMS system (e.g., Microsoft SQL server express, SQLite studio, Postgresql, Mysql) (Provide a screen shot for each part of this question).

a) Add a new database and create the following relations called “cities” (Attach the screenshot):

|  |  |
| --- | --- |
| Column | **Data Type** |
| **Name** | String |
| **Population** | Integer |
| **Country** | String |
| **Elevation** | Integer |

b) Add some sample data into the table so each of the following query returns some results (Attach the screenshot).

c) Construct the SQL query for the following questions and **attach the screenshots** of the running result of your query:

* What is the average elevation of cities in “Canada” with names starting with “V”?
* Find the city with the highest population for each country that has at most 2 cities.

3. (6 points) Write the following queries based on the given database schema. You should use at least one **subquery** in each of your answers. (Although it is not required, fell free to set up a database with the following relations to test/verify your constructed queries)

Product (make, model, type)

PC (model, speed, ram, hd, price)

Laptop (model, speed, ram, hd, screen, price)

Printer (model, color, type, price)

a) Find the laptops whose speed is faster than that of any PC.

b) Find the model number of the item (PC, laptop, or printer) with the highest price.

Hint: you can use aggregate operators to express the highest or lowest values of certain column.