COP 3515 – Fall 2020

Homework #1

Title: Helping The Governor Out

Florida's governor, Ron DeSantis, has gotten himself into a tough spot. He's been pushing to reopen the state in order to get the economy moving once again; however, it's starting to look like the Covid-19 virus may not let him do this.

Governor DeSantis believes that the infection rate in Florida can't be as bad as it is be portrayed on national news shows. Currently Florida ranks third in terms of states with the greatest number of new Covid-19 infected residents. Governor DeSantis believes that more testing is not required, but rather faster processing of the collected Covid-19 test data. He's looking for help in doing this.

The Governor has contacted USF for assistance; however, all of the medical school people who would normally lend a helping hand are currently involved in conducting vaccine field trials. What this means is that USF has come to their last line of defense: you.

The Governor is going to provide you with a data file that contains test data that has been collected from local sites in Clearwater, St. Petersburg, Tampa, and Brandon. He's asking that you write a Python program that will take in the data that he is providing you with and will process it in order to answer some key questions that he is currently being asked by the media.

Sample Data Sets:

The data file that you will be provided with will contain data in the following format:
sex, age, height, weight, positive / negative, zip code

Questions To Be Answered

1. How many males have been tested and how many of them tested positive?
2. How many females have been tested and how many of them tested positive?

3. What is the average age of the males who tested positive?
4. What is the average age of the females who tested positive?
5. What is the oldest age of a person who tested positive?
6. What is the youngest age of a person who tested positive?
7. Compare the average age of the males who tested positive to the average age of the males who did not test positive.
8. Compare the average age of the females who tested positive to the average age of the females who did not test positive.
9. What's the average weight of the males who tested positive?
10. What's the average weight of the females who tested positive?
11. The formula for BMI is weight in kilograms divided by height in meters squared. When using English measurements, pounds should be divided by inches squared. This should then be multiplied by 703 to convert from $lbs/inches^2$ to kg/m^2. Determine the average BMI for the males who tested positive.
12. Determine the average BMI for the females who tested positive.
13. A BMI of 30 or higher means that the person is obese. There is a possibility that this is a greater chance that Covid-19 can be fatal if you are obese. Determine how many of the males who tested positive are obese.
14. Determine how many of the females who tested positive are obese.
15. Determine how many people who are 80 or older who tested positive are obese.
16. Determine what the average BMI is for males who tested positive in the following three groups: under 30, between 30-60, and over 60.
17. Determine what the average BMI is for females who tested positive in the following three groups: under 30, between 30-60, and over 60.
18. What is the average rate of infection for all of the people who were tested?

Assignment Requirements:

1. This homework is due at the start of class on Thursday, 09/28/2020.

2. You are required to electronically submit a working copy of your program via Canvas.

3. Your code must contain the following comment header:

```
/*
* COP 3515 – Fall Semester 2020
*
* Homework #1: Helping The Governor Out
*
* (Your Name)
*/
```

4. **Note:** You are only permitted to use the C commands that we have covered in class so far. Yes, there are many more, but no, you can't use them in solving this homework!