CS F111 - Computer Programming - Lab 6

Date: May 26, 2021 - 5pm to 7pm.

- The lab is **EVALUATIVE**.
- Follow the instructions given below in the exact order.
- Any deviation from the instructions or incomplete steps will be dealt with according to the policy announced on quanta.
- Without the video recording link, the lab marks will be withheld.
- You may refer **ONLY** to the teaching materials shared by the course instructors.

LAB INSTRUCTIONS

(Please ensure that you follow the instructions in this order.)

1. Close all applications and browser-tabs except the ones needed during the lab, and join the Google meet assigned to your group..
2. Start recording your screen and webcam feed in the format mentioned in the "Software Prerequisites" document. Ensure that the date/time are visible.
3. Solve the questions given in the question paper.
4. When you are ready to submit your solution, upload your C program via the form given below:
   https://forms.gle/T4DfCdTPcjCvGQFx7
   Please ensure that you use BITS email ID while filling the form.
5. Stop screen and webcam recording.
   Please click the "Stop recording" button only once. If you click it multiple times, you may lose the entire recording.
6. Upload the recording on your BITS Google Drive.
7. Edit the options on the uploaded recording to allow the "All can view" option and copy the link to be shared. If you're unsure about this, use the following link : https://tinyurl.com/GDriveuploadhelp
8. Submit the link of the recording via the form below by 5pm, 27th May:
   https://forms.gle/9vVKvpk2NiJ96k7v7
   Please ensure that you use BITS email ID while filling the form.

Question 1 - (7 Marks):

Fill the functions in the file `calculator.c` so that

- `multiply(x,y)` returns the product of `x` and `y`. **(2 Marks)**
  - Example: `multiply(2,3)` should return `6`.

- `divide(x,y)` returns the quotient of dividing `x` by `y`. **(1 Mark)**
  - Example: `divide(7,2)` should return `3`.

- `squareroot(x)` returns the integer part of squareroot of `x`. **(2 Marks)**
  - Example: `squareroot(11)` should return `3`.
  - Example: `squareroot(8)` should return `2`.

- `exponentiate(x,y)` returns the exponentiation of `x` by `y`. **(2 Mark)**
  - Example: `exponentiate(2,3)` should return `8`.

Follow the below instructions exactly :

1. Only add your code in the parts marked "`/* Code goes here */`"
2. Do NOT modify any other parts of the program.
3. Do NOT use `math.h` or any other libraries.
4. Do NOT use in-built arithmetic operators (`+,-,*,/,%,++,--`) in your code.
5. You may use any other operators in your code.
6. You may use calls to the other functions defined in your code(`add` and `subtract`).

Question 2 - (3 Marks):

The program `prime_sieve.c` is a partial implementation of Sieve method discussed in class. Complete the program so that when given an integer `n` between `1` and `1000`, the program prints all primes between `1` and `n`.

Follow the below instructions exactly :

1. Only add your code in the parts marked "`/* Code goes here */`"
2. Do NOT modify any other parts of the program.
3. Do NOT modify the array A[] in your code.
    a. All updates/writes into the array A[] must be via function calls to the functions given in the program..
    b. You may read/access the values in the array A[] in your code.

Test Case : 1

```
Enter maximum value (>1 and <1000):
10

Primes uptil 10:
1 2 3 5 7
```

Test Case : 2

```
Enter maximum value (>1 and <1000):
17

Primes uptil 10:
1 2 3 5 7 11 13 17
```