CSC3320 System Level Programming
Lab Assignment 6 - Part 2 - Post Lab

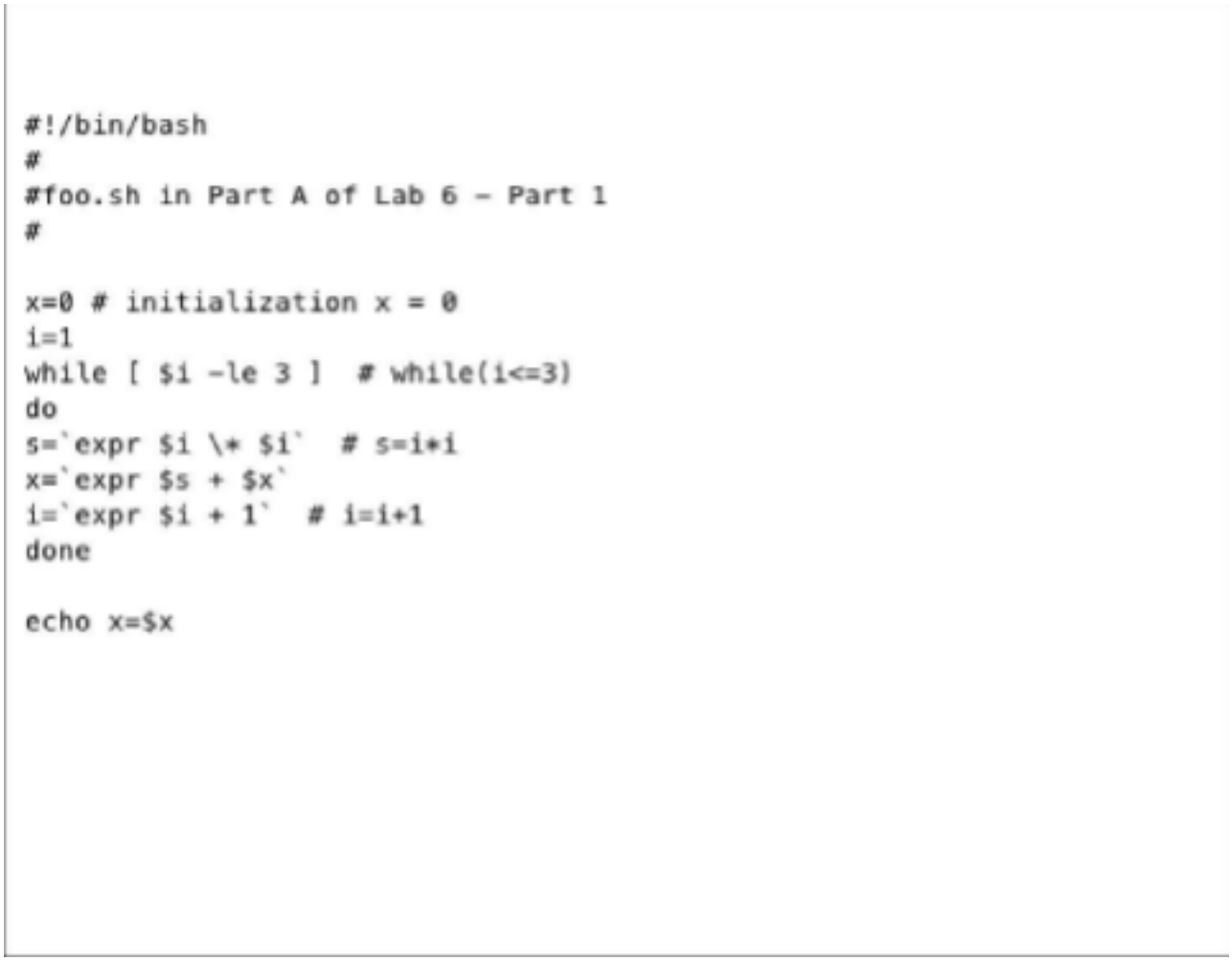
Due at 11:59 pm on Friday, Feb 26, 2021

Lab 6 Ramey Serdah

Purpose: Learn the differences between writing a Bourne shell script and Java program. Learn how to use command argument in a Bourne Shell script. Learn how to compile and run Java and C programs in Unix terminal.

Part A:

Please complete the tasks in following table step by step and finish the questions below the table.

Step	
1:	

```
#!/bin/bash
#
#foo.sh in Part A of Lab 6 - Part 1
#

x=0 # initialization x = 0
i=1
while [ $i -le 3 ]  # while(i<=3)
do
s=`expr $i \* $i`  # s=i*i
x=`expr $s + $x`
i=`expr $i + 1`  # i=i+1
done

echo x=$x
```

Go

to

your

home directory (cd ~) and create a new file named as **foo.sh (vi foo.sh or nano foo.sh),** then include following lines in your **foo.sh.**

Step 2: Save your file and exit editor.

Step 3: Try following command to make simple.sh executable.

$chmod a+x foo.sh

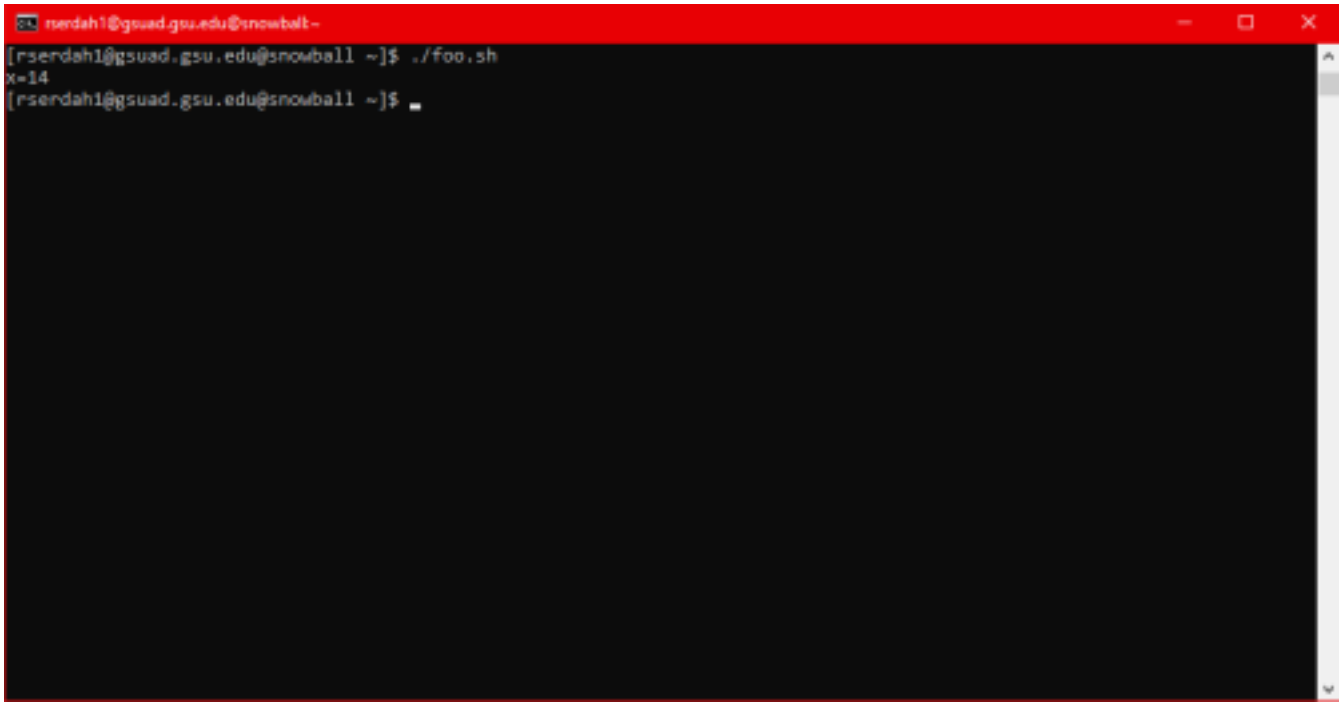
Step 4: Execute this file by invoking its name.

$./foo.sh

Note: when typing the shell script in your terminal, please be very careful of the ***spaces****.* 1

Questions:

1) Attach a screenshot of the output in step 4.



2) Describe what does the shell script **foo*.sh*** do?

The script foo.sh uses a while loop to add i*i to variable x three times. This makes x = 1 + 4 + 9 = x = 14. It also increments i so the loop can stop on the third loop.

Part B:

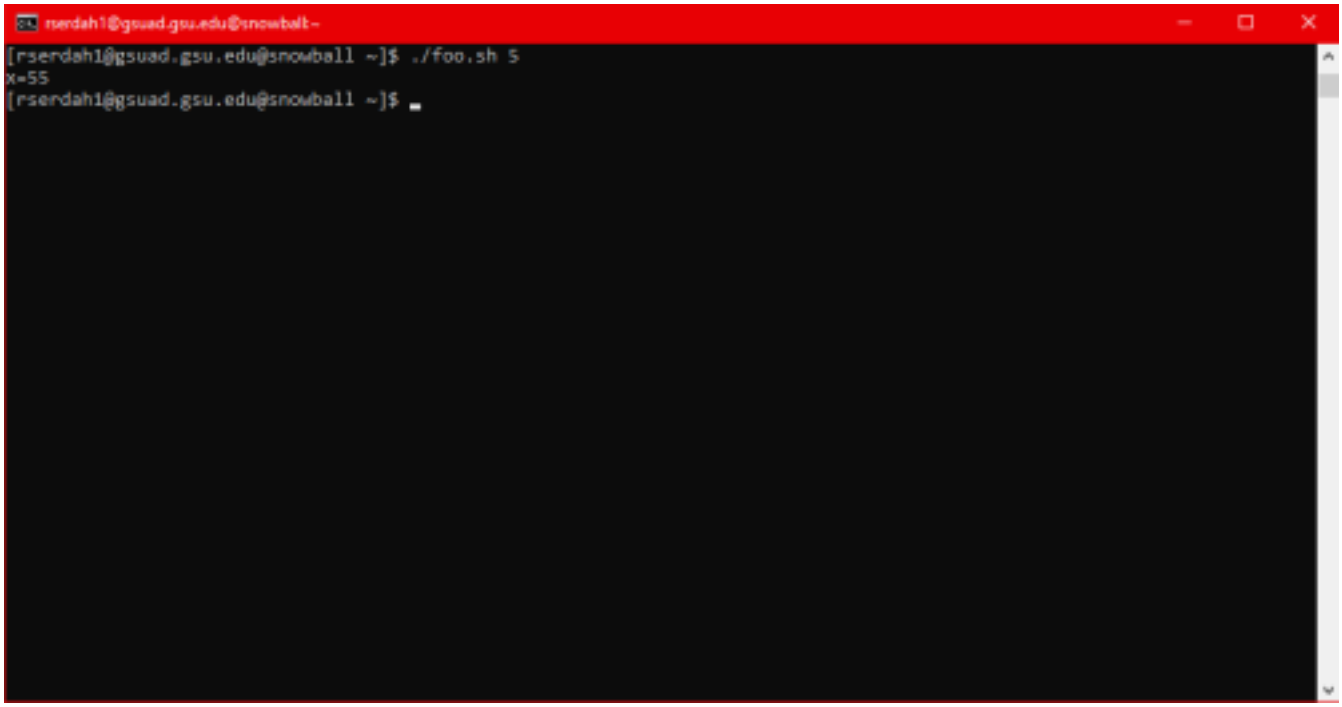
Step 1: Edit your ***foo.sh*** and change **" -le 3 "** to " **-le $1** " .

Step 2: When finished, save the ***foo.sh*** and exit editor. Then try executing it again by typing following command.

$./foo.sh 5

Question:

Attach a screenshot of the output.



Part C:

Step 1: Edit your ***foo.sh*** in part B by making following modifications: • Add two new lines below between line "**i=1"** and line "**while [$i -le $1]"** `echo please input a number read num`

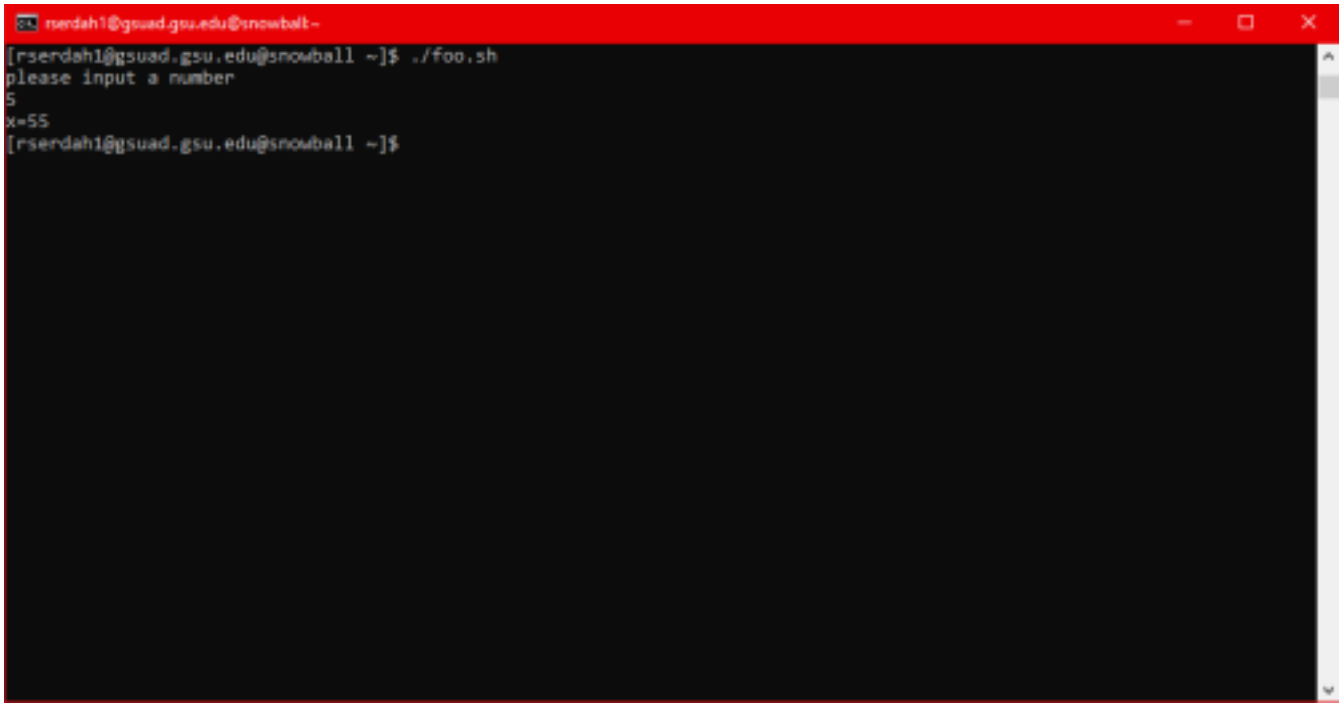
• Change **" -le $1** " to " **-le $num** " .

Step 2: When finished, save the ***foo.sh*** and exit editor. Then try executing it again by typing following command and **type 5** as the input of the number.

$./foo.sh

Question:

Attach a screenshot of the output.

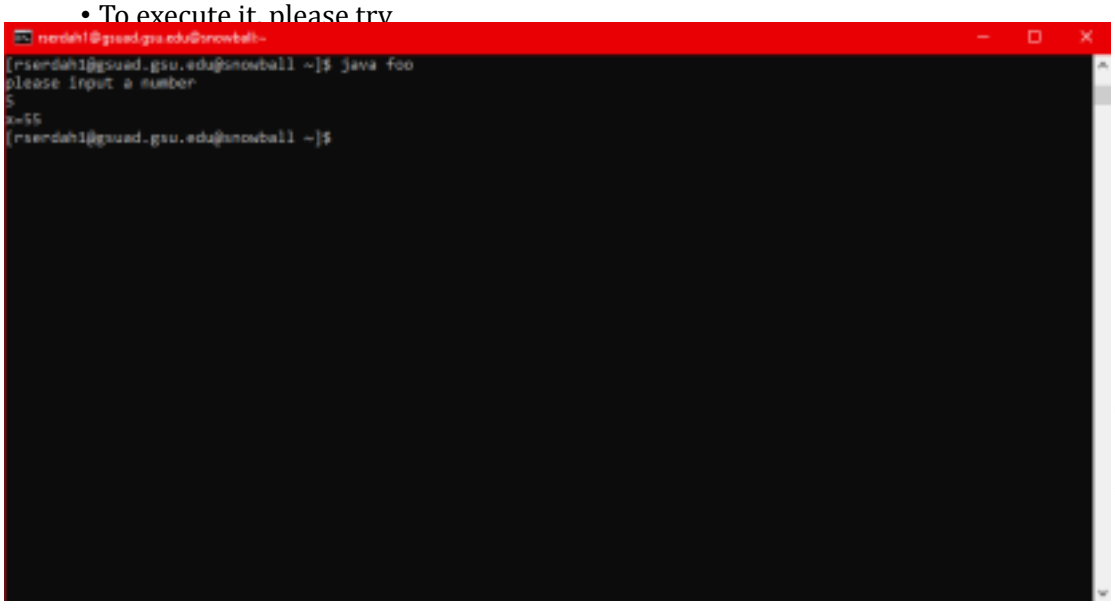


Part D:

Write a Java program named **foo.java** to accomplish the same task as that in foo.sh of Part A.

Note: If you want to run your Java program in terminal,

- to compile foo.java, please try
  $javac foo.java
- To execute it, please try



Then put the source code of **foo.java** in your answer sheet.

```
import java.util.Scanner;

class foo
{
        public static void main(String[] args)
         {
```

```
                Scanner sc = new Scanner(System.in);
                int i = 1, num, s, x = 0;
                System.out.println("please input a number");
                num = sc.nextInt();

                while(i <= num)
                {
                        s = i * i;
                        x += s;
                        i++;
                }

                System.out.println("x=" + x);
        }
}
```

Part E:

Create and run Kernighan and Ritchie's famous "hello,world" program. Step 1: Go to your home directory (cd ~) and create a new file named as **hello.c (vi hello.c**

or nano hello.c), then include following lines in your **hello.c .**

```
#include <stdio.h>

int main(void)
{
  printf("Hello,world\n");
   return 0;
}
```

Step 2: Save your file and exit editor.

Step 3: Compile and link the hello.c program by following command.
$cc hello.c

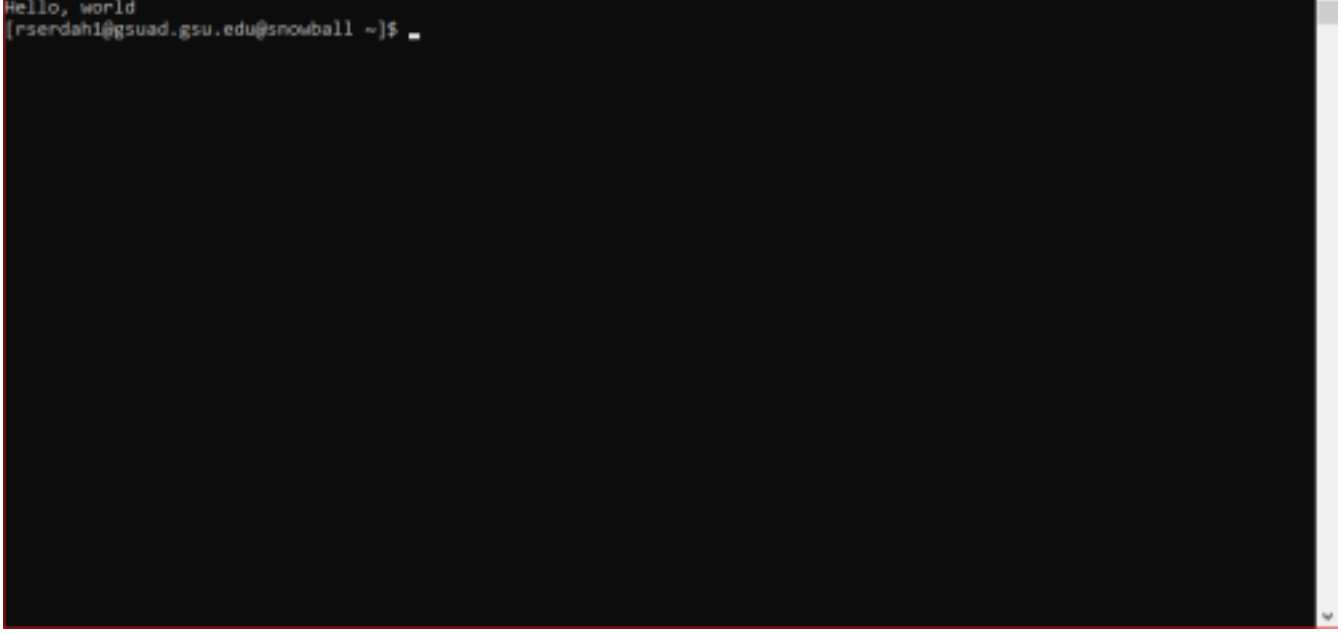
Note*: after this command, a default executable program named as "**a.out**" will be generated in current directory if there are no errors with your C program. You can use **ls** to check the existence of a.out .*

Step 4: Run the executable program ***a.out***

$./a.out

Questions:

1) Attach a screenshot of the output in step 4.



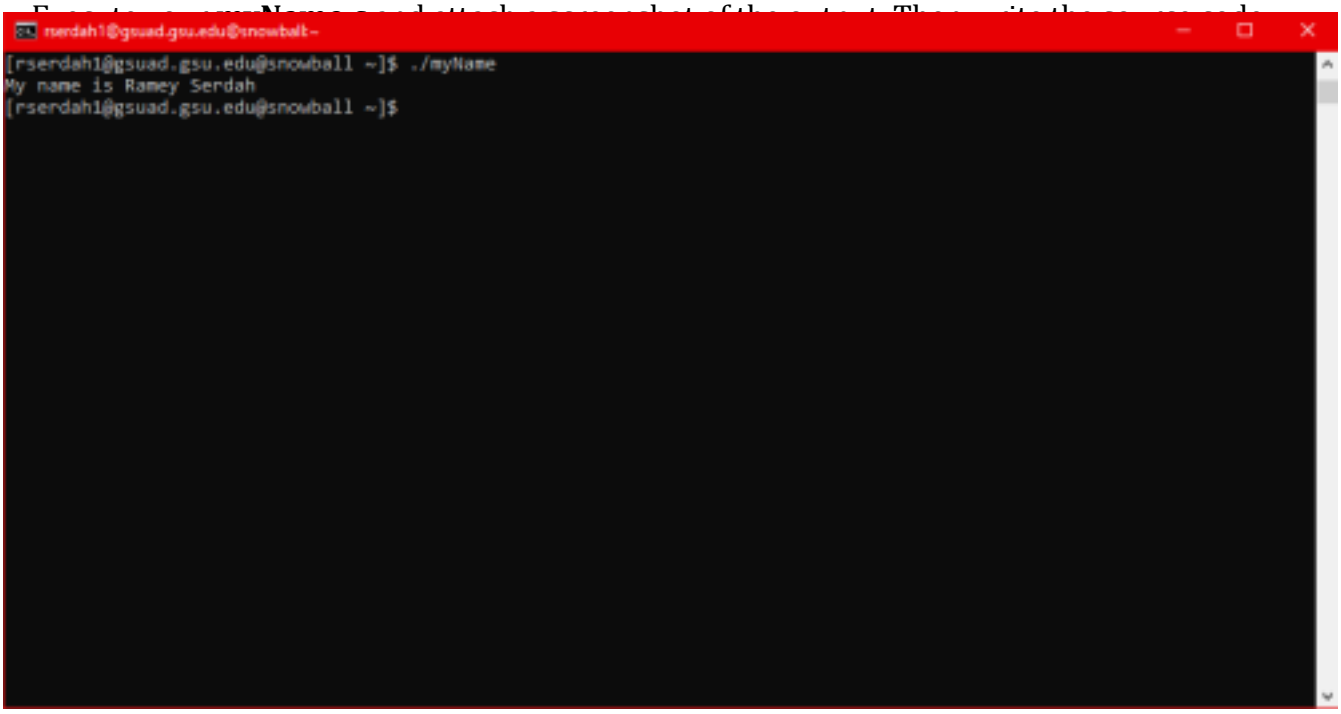
2) Try following command to compile and link **hello.c** again. And tell what new file is generated after this command?

$cc -o hello hello.c

3) Try command below and attach a screenshot of the output.

$./hello

4) Now write a new C program named as **myName.c** based on **hello.c**. In this program, print out your first name and last name instead of "Hello,world". For example, the output could be "My name is Yuan Long".




```
#include <stdio.h>

int main(void)
{
     printf("My name is Ramey Serdah\n");
     return 0;
```

}

Submssion:

Note: Please follow the instructions below step by step, and then write a report by answering the questions and upload the report (named as Lab6_FirstNameLastName.pdf or Lab6_FirstNameLastName.doc) to Google Classroom, under the rubric Lab 6 Out-of-lab Assignment.

Please add the lab assignment NUMBER and your NAME at the top of your file sheet.