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Lab6 out of Lab
CSC3320 System Level Programming

Lab Assignment 6 - Part 2 - Post Lab

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

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:

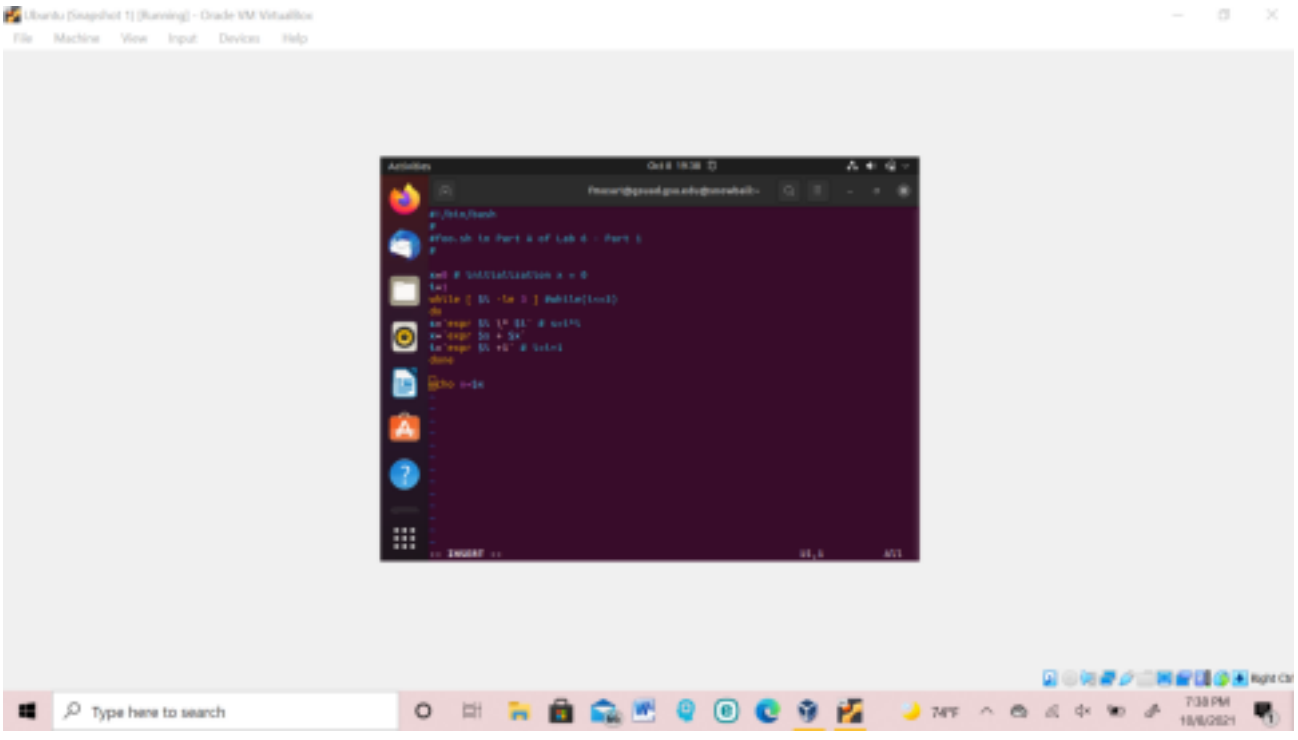
Please complete the tasks in following table step by step and finish the questions below the table.

Step 1: Go to your home directory (cd ~) and create a new file named as **foo.sh**

vi foo.sh

When in the file

```
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
```



Step 2: Save your file and exit editor.

'esc'
:wq to save & quit

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

$chmod a+x foo.sh

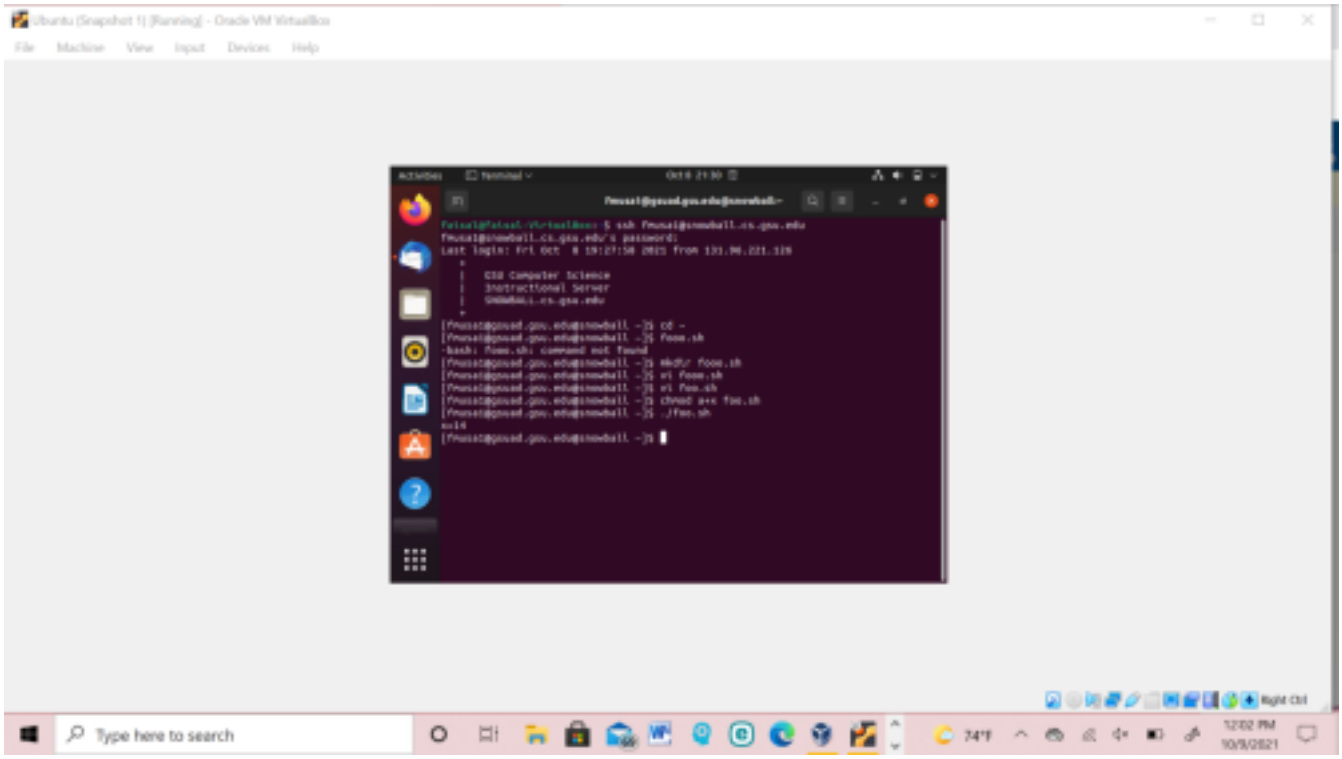
Step 4: Execute this file by invoking its name.

$./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?

x=0 initializes the variable, x

i=1 initializes the variable,

i while [$i -le 3] starts while loop. Equivalent to 'while (i<=3)

do
s= `expr $i \* $i` initializes that s = i*i

x= `expr $s + $x` x would now be s+x

i= `expr $i+1` i would now be i+1

done ends loop

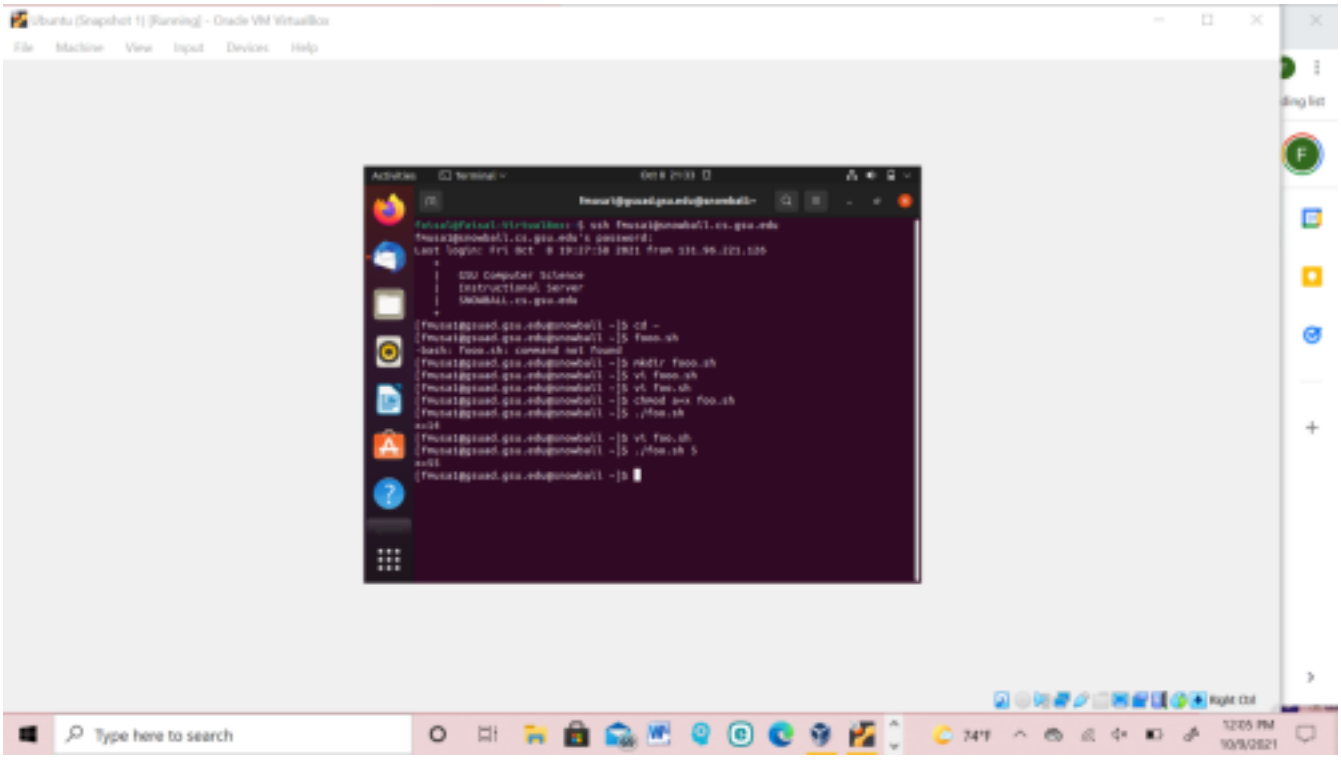
echo x=$x Prints

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

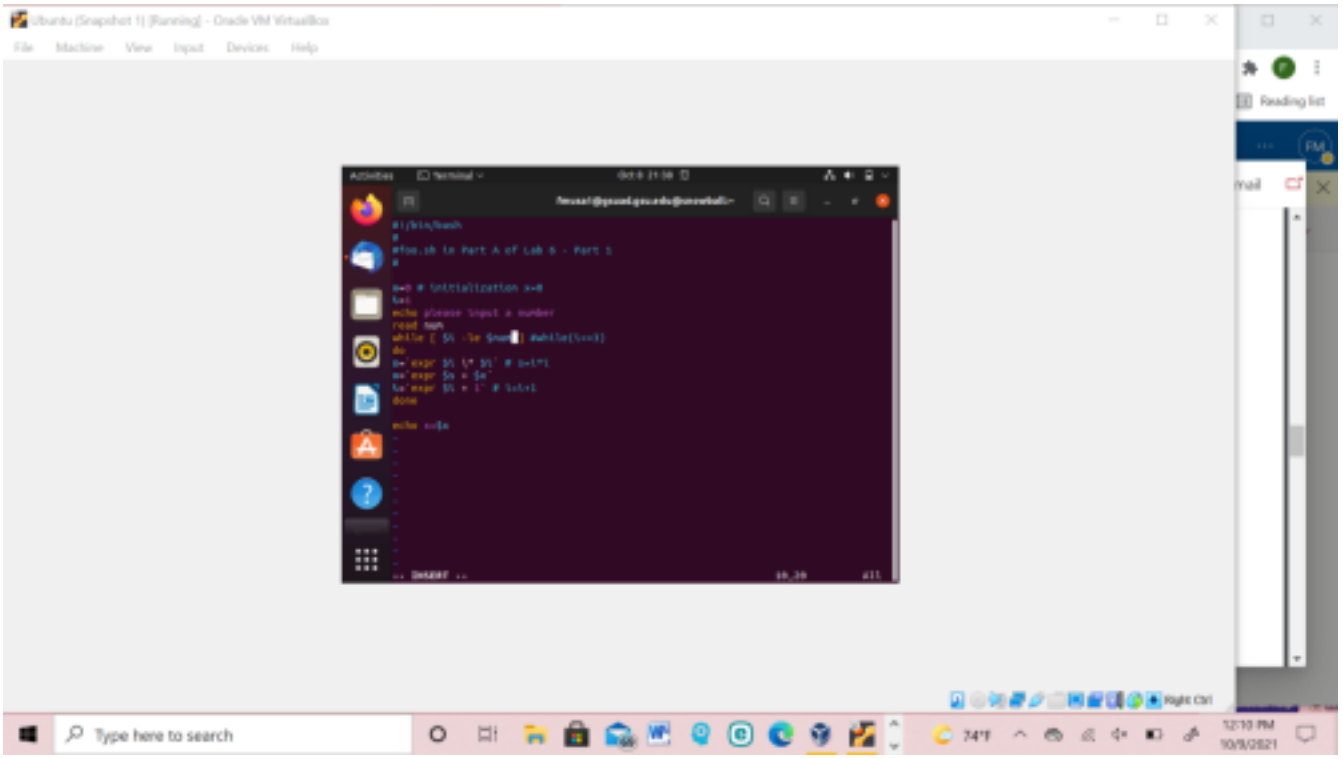
Question:
Attach a screenshot of the output.



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** " .

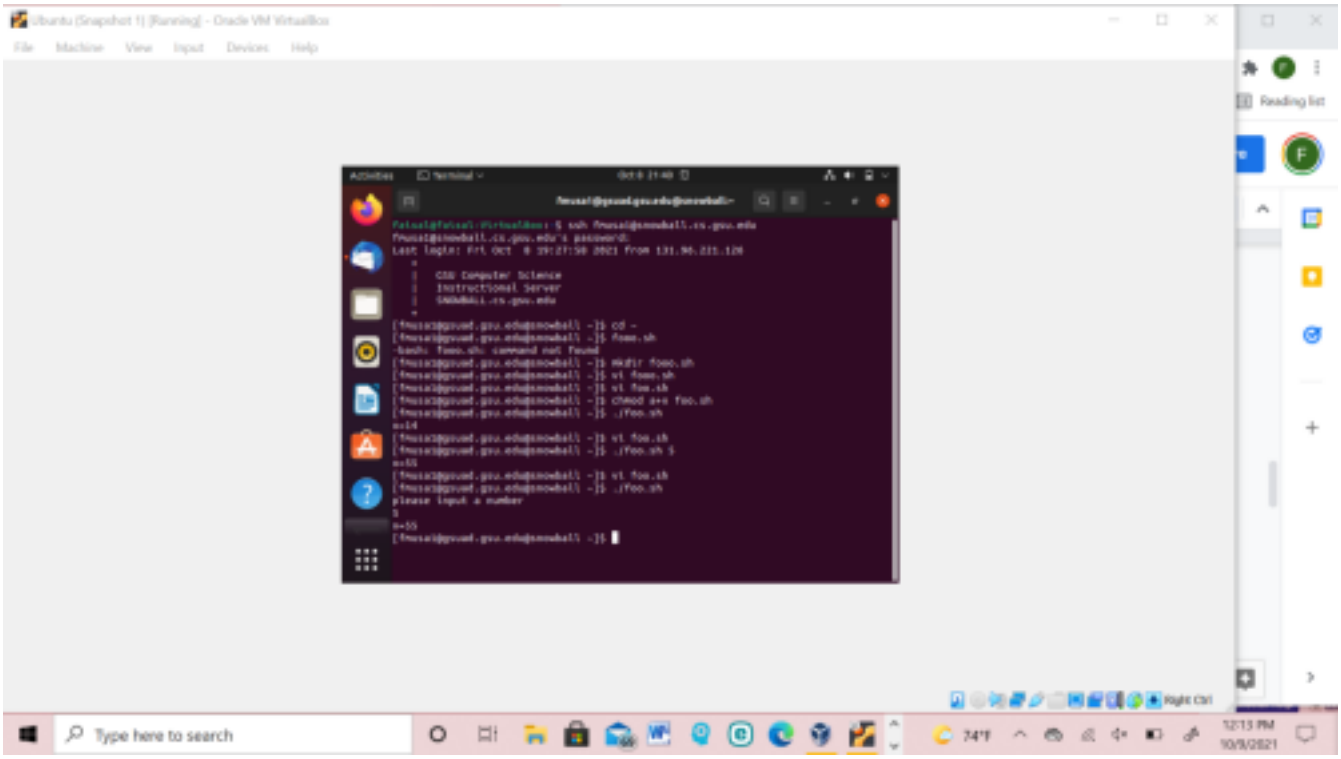


Step 2: When finished, save the ***foo.sh*** and exit editor. Then try executing it again by typing following command and **type 5** as the input of the number.

$./foo.sh

Question:

Attach a screenshot of the output



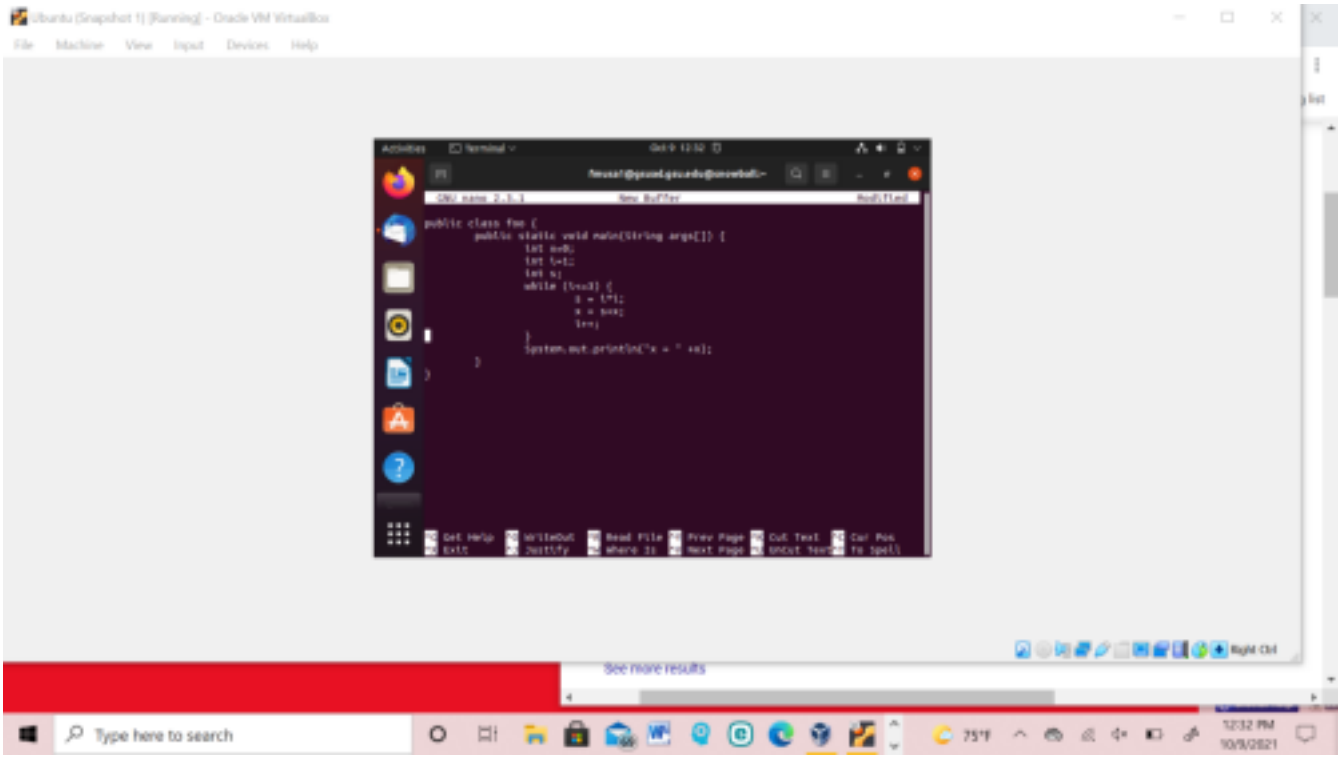
Part D:

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
  $java foo

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



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;
}
```

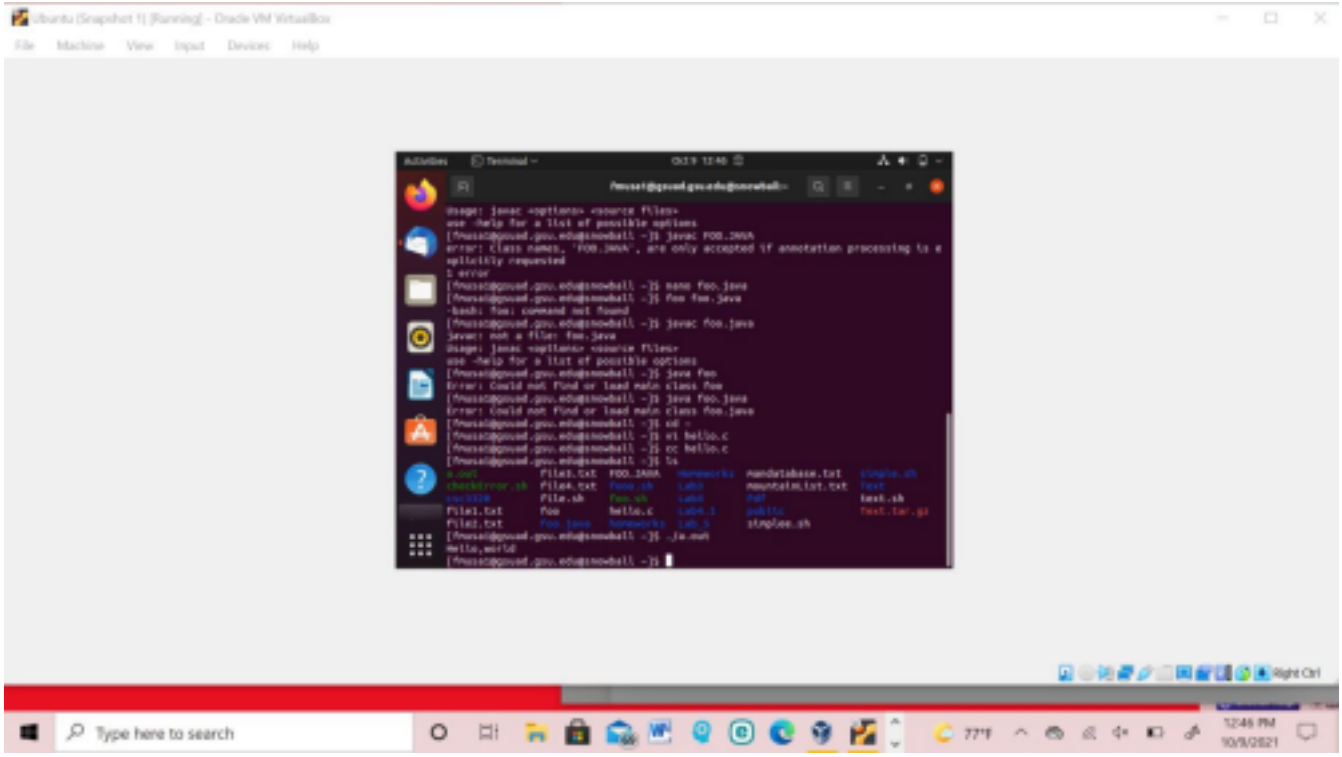
Step 2: Save your file and exit editor.

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:

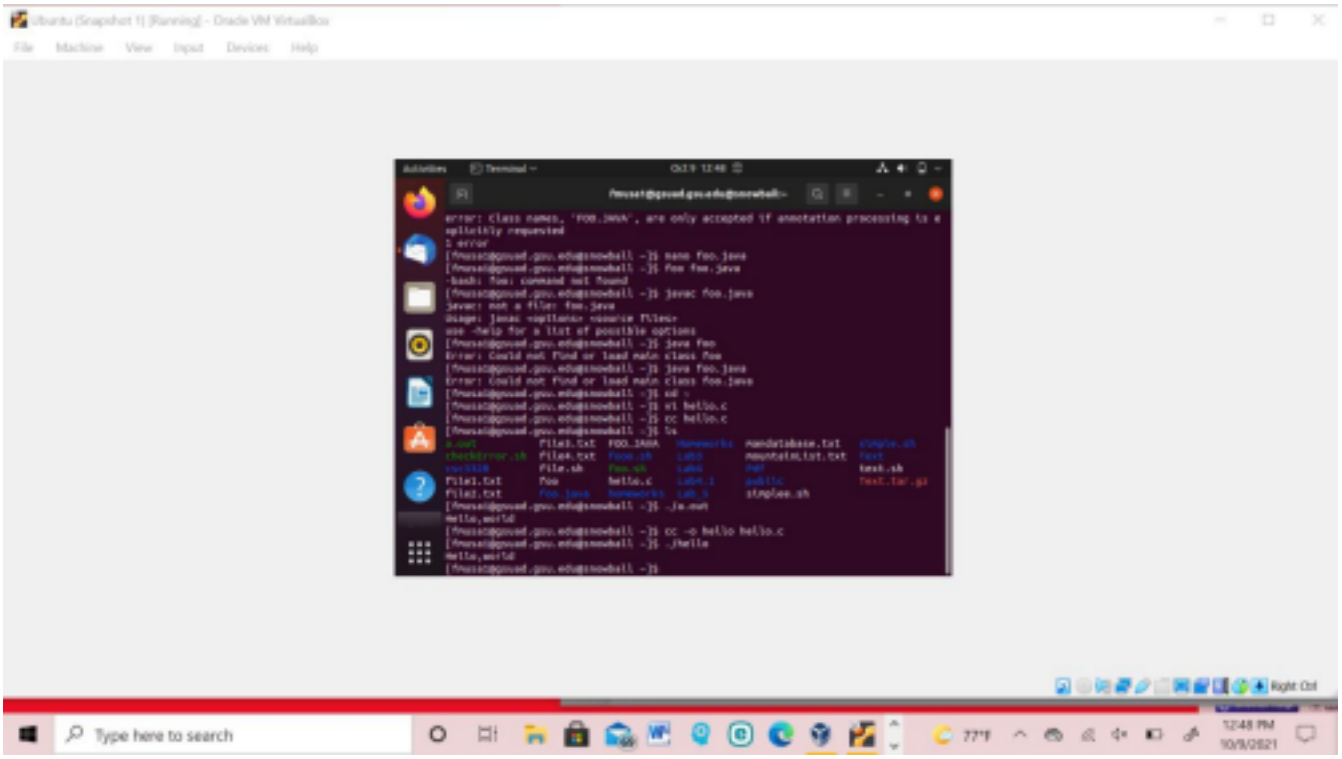
1) Attach a screenshot of the output in step 4.



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

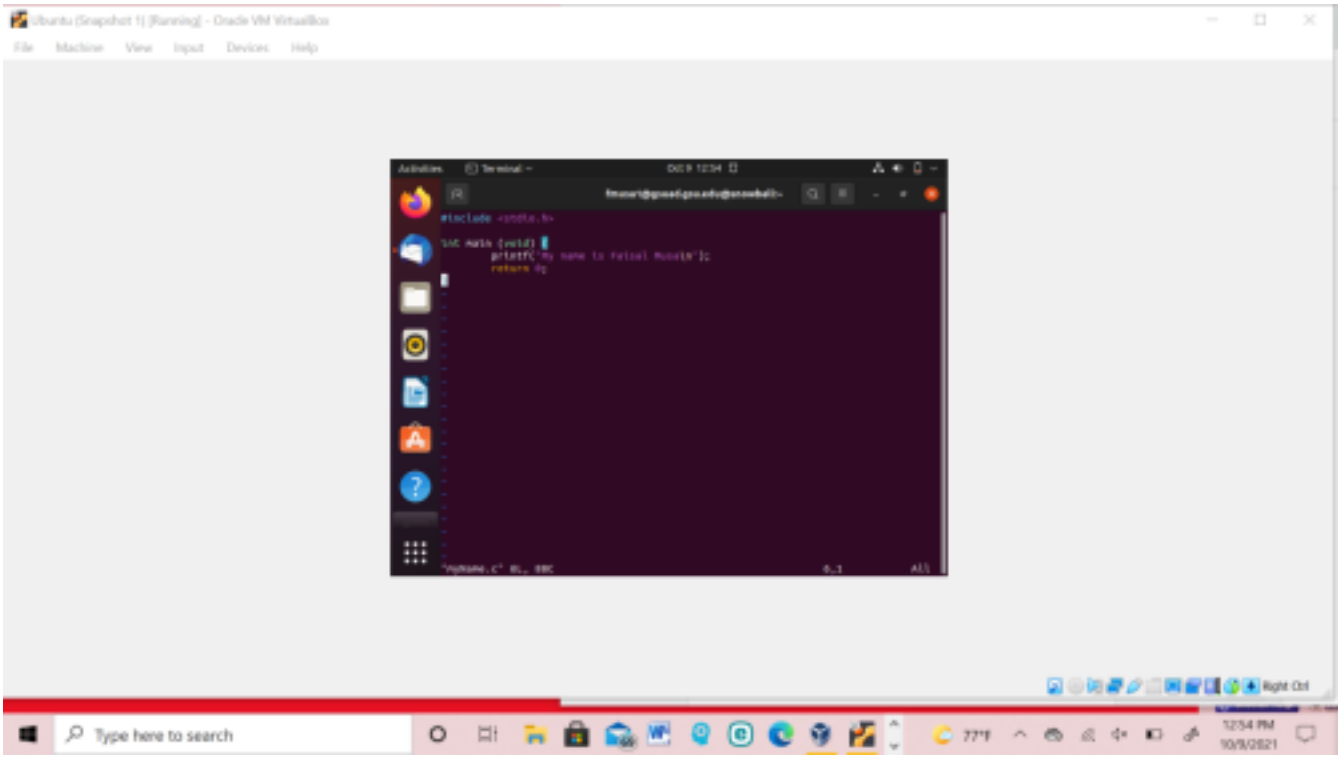
3) Try command below and attach a screenshot of the output.

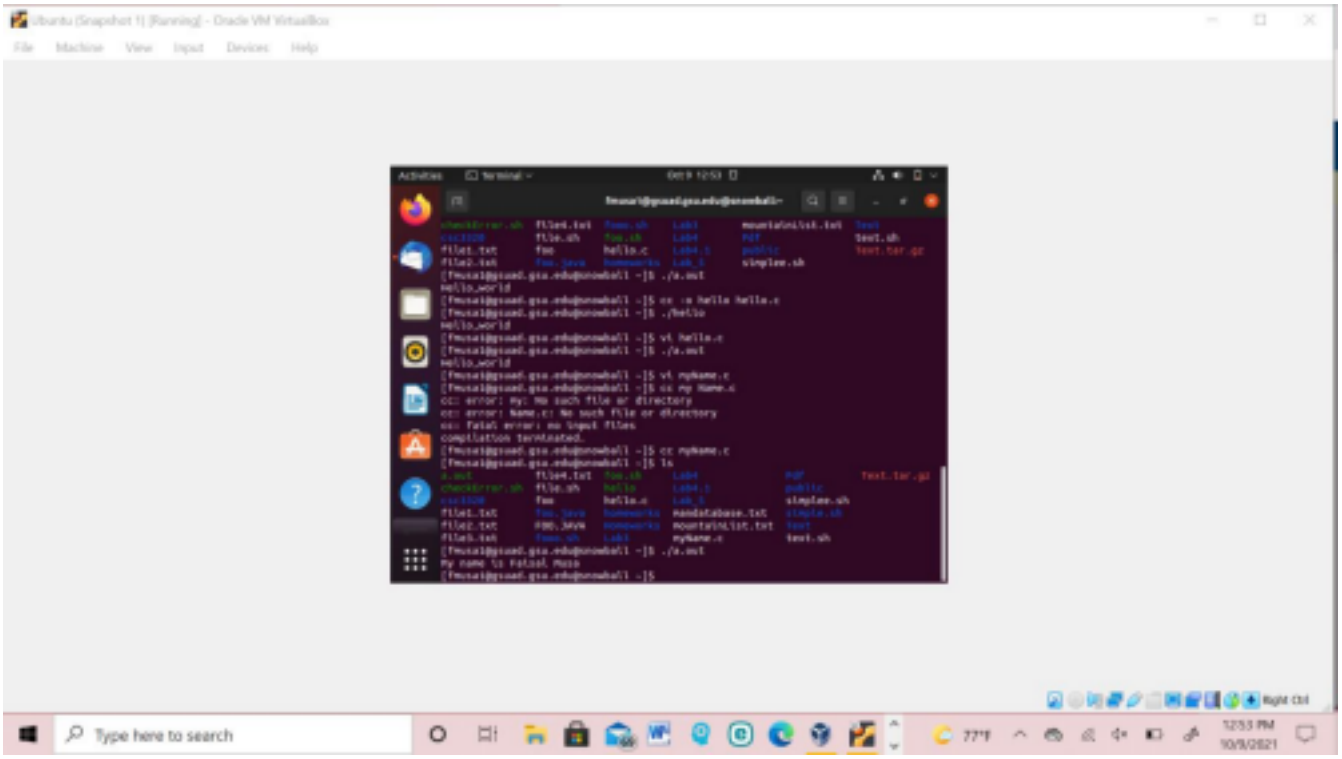


$./hello

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".

Execute your **myName.c** and attach a screenshot of the output. Then write the source code of **myName.*c*** in your answer sheet and upload your file **myName.*c*** to classroom.





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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.

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