

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**

```
#!/bin/bash
or nano foo.sh), then include following lines in your foo.sh.
#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
```

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**.*

Questions:

- 1) Attach a screenshot of the output in step 4.
- 2) Describe what does the shell script **foo.sh** do?

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.

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.