# 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 or nano foo.sh),** then include following lines in your **foo.sh.**

```
#!/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
```

**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 the 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.