**CSC3320 System Level Programming**

**Program Challenge 6**

Due at 11:59 pm on Wednesday, Oct. 12, 2016

**Part 1:**

**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 **exp1.sh (vi exp1.sh or nano exp1.sh),** then include following lines in your **exp1.sh.**  #!/bin/bash  #  #exp1.sh in Part 1 of PC6  #  x=0 # initialize x = 0  i=1  while [ $i -le 5 ] # while i<=5  do  x=`expr $x + $i`  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.  **$chmod a+x exp1.sh**  **Step 4:** Execute this file by invoking its name.  **$./ exp1.sh** |

*Note: when type the shell script in your terminal, please be very careful about spaces.*

**Questions:**

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

2) Describe what does the shell script **exp1*.sh*** do?

**Part 2:**

|  |
| --- |
| **Step 1**: Edit your ***exp1.sh*** and change **“ -le 5** ” to “ **-le $1** ” .  **Step 2**: When finished, save the ***exp1.sh*** and exit editor. Then try executing it again by typing following command.  **$./ exp1.sh 10** |

**Question:**

Attach a screenshot of the output.

**Part 3:**

|  |
| --- |
| **Step 1**: Edit your ***exp1.sh*** in part2 by making following modifications:   * Add two new lines below between line “**i=1”** and line “**while [ $i -le $1 ]”**   echo please input the max number  read max   * Change **“ -le $1** ” to “ **-le $max** ” .   **Step 2**: When finished, save the ***exp1.sh*** and exit editor. Then try executing it again by typing following command and **type 10** as input of the max number.  **$./ exp1.sh** |

**Question:**

Attach a screenshot of the output.

**Part 4:**

Write a shell script to calculate factorial of a given integer number. Please name your shell script as **factorial.sh**. The integer number should be given on command line. The sample outputs are as below:

|  |
| --- |
| ***$ ./factorial.sh 2***  *the factorial of 2 is 2*  ***$ ./factorial.sh 4***  *the factorial of 4 is 24*  ***$ ./factorial.sh 5***  *the factorial of 4 is 120* |

**Question:**

Execute your factorial.sh and attach a screenshot of the output when the given number is 10. Then write the source code of ***factorial.sh*** in your answer sheet and also upload your file ***factorial.sh*** to iCollege.

Note: if you do not upload factorial.sh, you would get zero for this assignment.

***Submssion***:

* Upload an electronic copy (MS word or pdf) of your answer sheet to the folder named “**PC6**” of the dropbox in the iCollege system
* Upload file **factorial.sh** to the folder named “**PC6**” of the dropbox in the iCollege system. Note: if you do not upload factorial.sh, you would get zero for this assignment.
* Please add the program challenge number and your name at the top of your answer sheet.
* Name your file in the format of PC6\_FirstnameLastname (eg. PC6\_YuanLong.docx, PC6\_YuanLong.pdf)