COSC 350 System Software: Mini Test #1

09/18/20

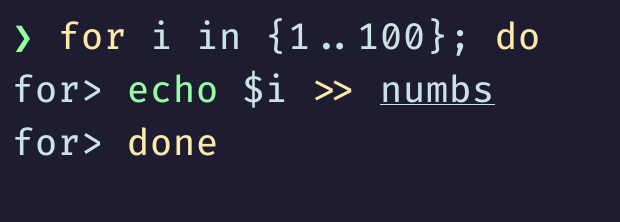
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1. (1 pt.) Create a file named **numbs** that contains the integers 1 through 100, one integer per line with shell commends with output redirection. The file will have 100 lines. You need use for loop.

For I in {1..100}; do

Echo $I >> numbs

Done



1. (1 pt.) There are two types of libraries: static library and shared library. Briefly explain differences between static and shared library.
   * **Static library: (.s) Also called archives are a collection of object files in a ready to use form. To use these libraries, you must include a header file in your program.**
   * **Shared library: (.ao) The libraries that can be linked to any program at run-time. Once they are loaded once, they can be used on any program because there is always a single copy of a shared library in memory. These types of libraries save space.**
2. (1 pt.) When we pass arguments to a script, system save each arguments in positional parameters $0, $1, $2, … What information will save on each of following positional parameters

* **$@ : List all the parameters in a single variable**
* **$\*: List all the parameters in a single variable**
* **$0: First parameter passed (usually the name of the executable)**
* **$#: Number of parameters passed**

1. (1 pt.) What are two conditions to make a shell script file executable
   1. **Provide where the bash shell program is located (!# /bin/bash)**
   2. **Change the script mode to executable (chmod +x ./file\_name.sh)**
2. (2 pt.) Since a directory itself is a file in Linux system, each directory has name. Write bash script which test each file names in current directory and display subdirectory names.

**#!/bin/bash**

**For file in \*; do**

**If [ -d “$file” ]; then**

**Echo “$file”**

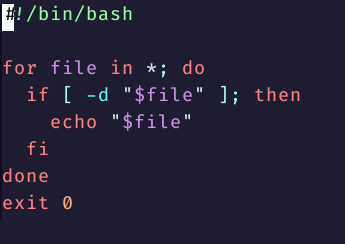
**Fi**

**Done**

**Exit 0**

I coded it in my terminal and took a picture and attached it because the capitalization is

strange in Microsoft Word.



1. (2 pt.) Write a script to calculating factorial of given number by using while loop. The script asks an integer value with read command and calculates factorial and display the result.

**Prompt=”Enter a number to calculate the factorial of (must be positive): “**

**Echo –n “$prompt”**

**Read input**

**Factorial = 1**

**While [ “$input” -lt 0 ]; do**

**Echo “invalid entry, you must enter a positive number”**

**Echo –n “$prompt”**

**Read input**

**Done**

**Temp=$input**

**While [ $input –gt 0 ]; do**

**Factorial = $(($factorial \* $input))**

**Input=$(($input –1))**

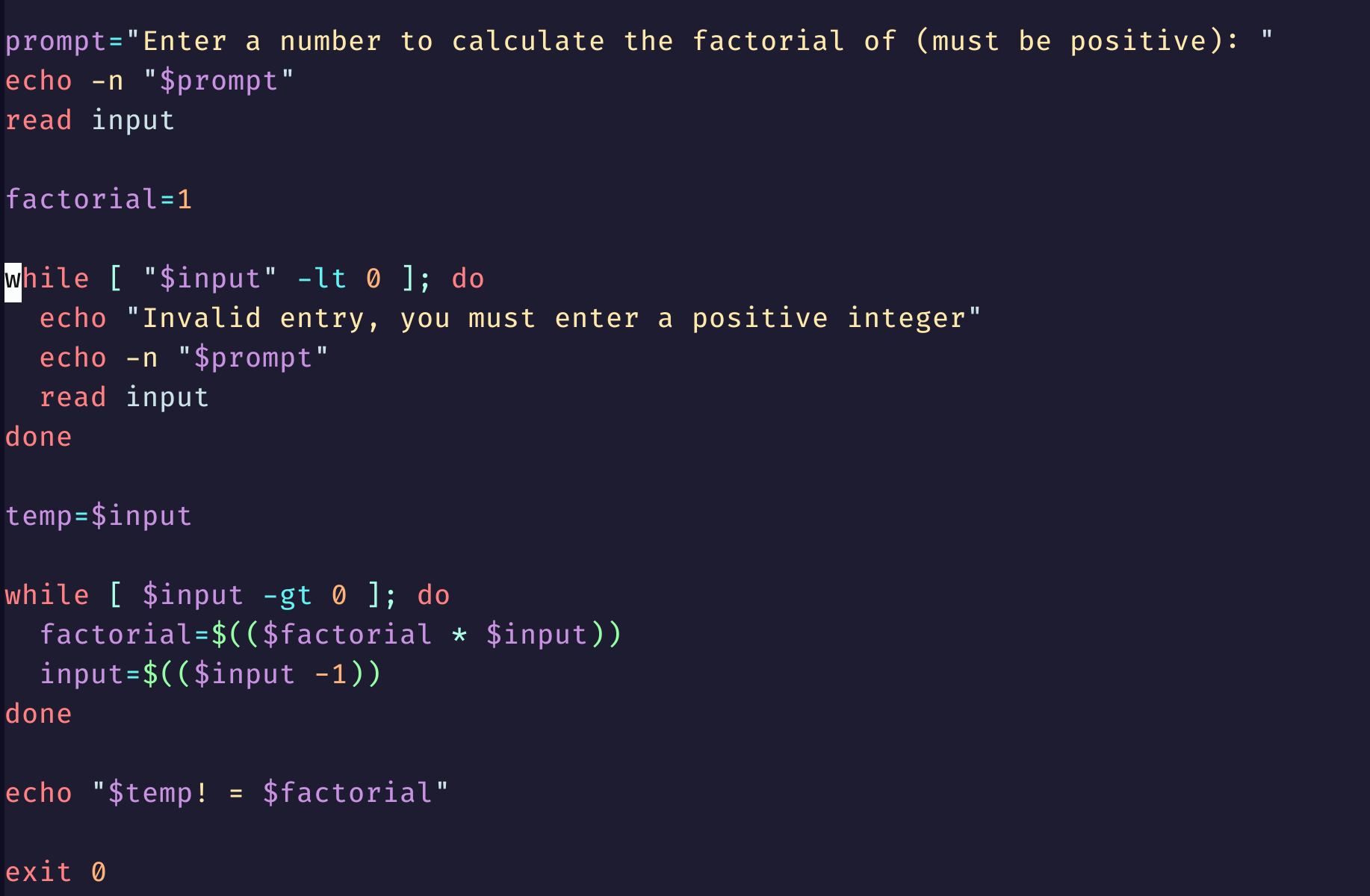
**Done**

**Echo “The factorial of $temp is $factorial”**

**Exit 0**

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1. (1 pt.) Write shell script by using nested for loop to print the following patterns on screen based on an integer input n (between 1 and 9) from the keyboard. (Do not use (()) in for loop). Your program display following shape with input 6.

1

22

333

4444

55555

666666

**Echo –n “Input number between 1 and 9: “**

**Read num**

**While [ $num –lt 1 –o $num –gt 9 ]; do**

**Echo –n “Error, enter a number between 1 and 9: “**

**Read num**

**Done**

**For I in $(seq 1 $num); do**

**For j in $(seq 1 $I); do**

**Echo –n “$I"**

**Done**

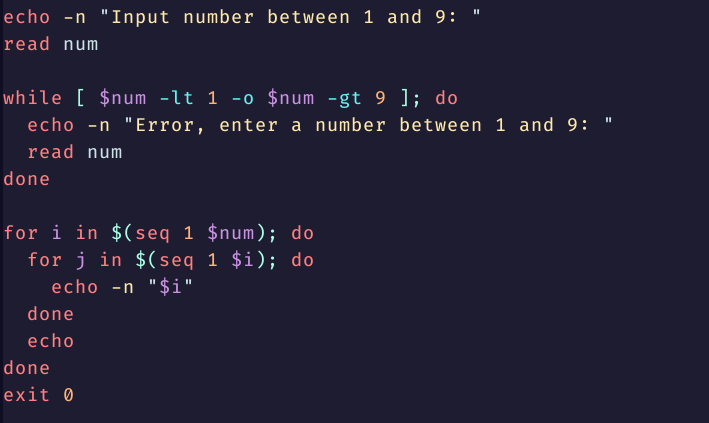
**Echo**

**Done**

**Exit 0**

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1. (1 pt.) Briefly explain the difference between the following two bash commands:

ls -l | less : **This command will execute the ls –l command and display it in page format where we can view the files and directories page by page.**

ls -l > less : **This command will execute the ls –l command and redirect the output to a file named less.**