Indian Institute of Information Technology Allahabad

Assignment - PP (Sept 2021)

M.Tech

Course Name	Course Code	Deadline
Programming Practices	—-	Nov. 28, 2021, 11:59 P.M. IST

Important Instructions*: Please prepare and submit a report on the assignment as a single pdf file. Your reports will be first analysed using a plagiarism tool and if found positive, strict action will be taken. This is an individual assignment i.e., not to be done in a team/group. Information regarding submission process will be communicated separately through email. Late submissions will not be entertained.*

We looked at bash script during last weeks discussion. There are multiple tutorials on bash script you can follow such as on Linux Config and on Tutorials Point. Answer the following by writing bash scripts and submit the same.

1. Write a bash script to print the directory tree (iterate over sub-directories as well) from a directory given as a parameter to the script. While printing the name of the files, remove the extension of the file. Also, count the number of files and directories.

2. Write a bash script to implement bubble sort.

3. Write a bash script that should compile a `.c` program, run the program and then save the output of the program in an output file.

4. Write a program to flip a coin, it should show some animation of ASCII characters before printing the result of the coin flip and also give a beep while showing the result. To give a beep, you need to first install beep package in your system. Use the sample output as shown below.

```
The coin says...

   _____
  /HEADS\
  \_____/
  \||||||/
```

5. Explain the usage of the following bash script.

```bash
#!/bin/bash

limit=5 # seconds to wait for timeout
file=$1

timeout=$(awk "BEGIN{srand(); print srand() + $limit}")
echo $timeout
until [ -s "$file" ] || [ $(awk 'BEGIN{srand();print srand()}') -gt $timeout ]
do
    sleep 1
done

if ! [ -s "$file" ]
then
    # timed-out
    exit 1
else
    cat $file
fi
```