



Dev Club Winter Assignments

Assignment 4: Bash

12th December 2019

Next Assignment Release : – **14 December 2019**

P.S If stuck, join this Slack channel and ask us questions directly
[here](#)

1 Introduction

This assignment is aimed at making you familiar with the linux bash and basic shell scripting. You are expected to write bash scripts. Please strictly follow to the input and output instructions, as your scripts will be evaluated automatically by a shell script.

2 Resources

- [LinuxCommands](#)
- [Ryans Tutorials](#)
- [Shell Scripting Tutorial](#)
- [Unix stackexchange](#)
- [Google](#)
- [Devclub peeps](#)

3 Scripts

3.1 Countfiles

Write a script named *countFiles.sh* that takes two parameters as described:

1. PATH Of Directory — This argument tells the script to search for files in the given directory PATH. This is a compulsory argument.
2. File Extension[*optional argument*] — This argument tells the script to search only for files ending with the given extension.

The aim of this script is to output the number of files in the directory that have the given extension to stdout. Your script should exit with error code -1, if the directory is not readable or if it encounters any error.

NOTE: The script should only report the number of files that are present only in the root of the directory path given, and not any subdirectories of it.

EXAMPLE

```
dhull@Compiler:/tmp/dir$ tree
```

```
- 0aw.pdf
- 1geez.txt
- 2rick.pdf
- 3looks.pdf
- 4like.txt
- 5we.pdf
- 6are.txt
- 7in.txt
- 8a.pdf
- 9computer.pdf
-- subdir
  - 1shut.pdf
  - 2up.txt
  - 3morty.pdf
```

```
dhull@Compiler:/tmp/dir$ ./countFiles.sh /tmp/dir
```

```
10
```

```
dhull@Compiler:/tmp/dir$ ./countFiles.sh /tmp/dir .pdf
```

```
6
```

```
dhull@Compiler:/tmp/dir$ ./countFiles.sh /tmp/dir .txt
```

```
4
```

3.2 Username

The file `/etc/passwd` contains all the login information (not passwords) for users on a linux system. The description of each line is explained below. Write a script

username	groupid	home dir
v	v	v
aman	x:1000:1000:Aman	Agrawal,,,:/home/aman:/bin/bash
	^	^
uid	name	default shell

Figure 1: Explanation of each line in the inout file

`uname.sh` that takes two parameters, the username of the user and a txt file with the contents as present in the `/etc/passwd` file and returns the full name of the user.

NOTE: The script should exit with error code -1 if both the parameters are not given or if the input file is not in the prescribed format.

EXAMPLE

```
dhull@Compiler:~$ cat input.txt
root:x:0:0:root:/root:/bin/bash
dhull:x:1000:1000:Saksham Dhull,,,:/home/dhull:/bin/bash
sshd:x:121:65534:./var/run/sshd:/usr/sbin/nologin
libvirt-qemu:x:64055:129:Libvirt Qemu,,,:/var/lib/libvirt:/bin/false
```

```
dhull@Compiler:~$ ./uname.sh input.txt dhull
Saksham Dhull,,,
```

```
dhull@Compiler:~$ ./uname.sh input.txt libvirt-qemu
Libvirt Qemu,,,
```

3.3 Calculator

The aim of this script is to make you familiar with arithmetic operators and expressions in bash.

Write a script *eval.sh*, that takes an input file as an argument and returns the value after arithmetic operations.

EXAMPLE

```
dhull@Compiler:~$ cat input.txt
```

```
100 +
```

```
20 +
```

```
40 -
```

```
10 /
```

```
60 *
```

```
dhull@Compiler:~$ ./eval.sh input.txt
```

```
480
```

Explanation:

The scripts starts with 0 and then performs the operations as follows

0 + 100 = 100

100 + 20 = 120

120 - 40 = 80

80 / 10 = 8

8 * 60 = 480

Thus the answer is 480

3.4 Backup

Write a script *backup.sh* that takes two directory paths as input and syncs the files present in them recursively taking care of the sub-directories. Your script should output informational messages as shown below.

EXAMPLE

```
dhull@Compiler:/dir1$ tree
```

```
- 1.txt
- 2.txt
- 3.pdf
- 3.txt
- 4.txt
- 5.txt
-- subdir
  - 2.txt
  - 3.txt
```

```
dhull@Compiler:/dir2$ tree
```

```
- 1.pdf
- 2.pdf
- 2.txt
- 3.txt
- 5.txt
-- subdir
  - 1.txt
  - 3.txt
```

```
dhull@Compiler:~$ ./backup.sh /dir1 /dir2
```

```
Files copied from /dir1 to /dir2 are:
```

```
1.txt
4.txt
subdir/2.txt
```

```
Files copied from /dir2 to /dir1 are:
```

```
1.pdf
2.pdf
subdir/1.txt
```

3.5 CopyPasta

Write a script named *copypasta.sh* which takes two parameters, the filename and the name of the Person to be entered and edits the given file at all points that contain the name field to edit the value to the one given. The input file is of a fixed format and contains some writeup along with the name of a person in the field <name> in the document. The location of the name field can vary inside the document but will always begin from a newline.

EXAMPLE

```
dhull@Compiler:~$ cat input.txt
<title val="my assignment"/>
<body style="goodstyle">
<section>
This is my submission for COL100 assignment. No one should copy it.
</section>
<name val="Saksham Dhull">
</body>
```

```
dhull@Compiler:~$ ./copypasta.sh input.txt Ananye
```

```
dhull@Compiler:~$ cat input.txt
<title val="my assignment"/>
<body style="goodstyle">
<section>
This is my submission for COL100 assignment. No one should copy it.
</section>
<name val="Ananye">
</body>
```

4 Submission Instructions

- Create a public git repository with the name `DevClubBashAssignment`
- Write your scripts to respective problems with the respective names of the scripts as mentioned earlier.
- Keep committing on every major milestone into the assignment. We will look at the stage wise commits also (not only the final result).
- Submit your github repo link [here](#).