

Shell scripting

Why? You can save a lot of time writing one-off programs if you are comfortable with basic shell scripting.

For this assignment, it's ideal to work in a Linux environment with bash. If you do not have a Linux machine, you can also work on [MacOS Terminal](#) or [WSL for Windows](#).

Common commands to self-learn: ls, cd, rm, mv, cp, touch, top, pwd, mkdir, ln, cat, echo, grep, awk, sed, parallel, cut, sort, uniq, wc, head, less, xargs, ping, nmap, ssh, find, tree

You can run ``man <command>`` to learn about a command.

Some resources:

1. <https://abhilash-jindal.com/teaching/2020-2-col-100/01/linux>
2. http://linuxcommand.org/lc3_learning_the_shell.php
3. <https://ryanstutorials.net/bash-scripting-tutorial/>
4. <https://www.geeksforgeeks.org/bash-script-arithmetic-operators/>

Question: Count Files

Count the number of text files starting with a given prefix within a given directory.

Write a script **count_files.sh** that takes three arguments

1. Path of the directory: This is where you will search for the files
2. Prefix: Only files whose names begin with the specified prefix shall be counted
3. Recursive (true or false): This parameter will only take values "true" or "false". If recursive is set to true then you also need to search for the subdirectories in the path mentioned. Otherwise you will only report the files present in the root of the directory mentioned

Note: Script has to give the output to stdout. If the path is invalid (not a directory) or passed parameters are not valid then your script should output relevant error messages and exit with error code -1.

Examples:

Directory structure of /Users/jindal

```
.
├── 1.txt
├── 2.txt
├── abc1.txt
├── abc2.txt
├── subdir
│   ├── 4.txt
│   └── abc3.txt
```

```
bash ./count_files.sh . abc true
3
```

Recursive search is enabled thus sub directory is included. For the directory path I have passed "." which means current directory. Files counted are abc1.txt, abc2.txt and subdir/abc3.txt.

```
bash ./count_files.sh /Users/jindal abc true
3
```

Recursive search is enabled thus sub directory is included. Files counted are abc1.txt, abc2.txt and subdir/abc3.txt

```
bash ./count_files.sh /Users/jindal abc false
2
```

Recursive search is disabled thus sub directory is excluded. Files counted are abc1.txt and abc2.txt

```
bash ./count_files.sh /Users/jindal "" false
6
```

Prefix passed is empty thus the script will count all the txt files.

```
bash ./count_files.sh /Users/jindal/fake "" false
/Users/jindal/fake is not a directory
```

and exit with error code -1

```
bash ./count_files.sh . "" true2
recursive should take only true or false values
```

and exit with error code -1