

SYSTEM PROGRAMMING

ASSIGNMENT 1 - SHELL SCRIPTING

Instructions for Submission:

1. This is an individual assignment of 15 marks.
2. The submission should be a single zipped folder with the naming convention - *A1_Lastname_Firstname.zip*, e.g., *A1_Doe_Jane.zip*
3. The files need to be well commented and explanations of each command with the options used need to be written.
4. The deadline to submit this assignment is midnight, 23.59 PM on 21st August, 2022.

Question 1: [2 marks]

Write a script which displays "Good morning", "Good afternoon" or "Good evening", on the monitor, depending on the time of running the script.

Question 2: [3 marks]

Write a script to print a given number in the reverse order using a shell script. If the input is not given as a command line argument, it should throw an error and should suggest how to use the script.

Question 3: [4 marks]

Write a script calculate, which accepts 4 arguments a, b, c, d and prints the value of " $a \times 20 - b \times 2 + c \div d$ " to standard output. An example of executing the script:

\$ calculate 2 12 5 2

The value of " $2 \times 20 - 12 \times 2 + 5/2$ " is 18

Question 4: [6 marks]

Write a bash script named countfiles.sh which reports the number of regular files in a given directory, with a possible filter on the file extension:

- Command Structure: countfiles dirname [ext]
- dirname must name a readable directory
- ext, if present, is used as a file extension in matching

Output: Prints the number of regular files in the specified directory?

if the invocation includes an extension (e.g. txt), reports only how # many regular files match that extension.

Include these Exit codes:

- 1 wrong number of command line parameters
- 2 dirname does not name a directory
- 3 dirname names an unreadable directory
-

For example, the script might be invoked as:

```
> ls -l Downloads/
```

```
total 1964
```

```
rw-rw-r. 1 mockuser mockuser 4320000 May 30 09:18 LabSubmission.tar
```

```
rw-rw-r. 1 mockuser mockuser 6195520 May 30 09:19 Project3.tar
```

```
drwxrwxr-x. 4 mockuser mockuser 3046 Jun 3 22:40 Cproblems
```

rwrwr. 1 mockuser mockuser 92160 Jun 30 09:24 Cbackup.tar
rwrwr. 1 mockuser mockuser 4341760 Jun 30 09:26 mossbackup.tar
rwrwr. 1 mockuser mockuser 2284033 Jun 15 21:57 mock2.1.3.src.tgz

> countfiles.sh Downloads/

5

> countfiles.sh Downloads/ tar

4
