

CS 213: System Software Lab
Autumn 2023, IIT Dharwad
Assignment-1
Linux and Bash

1. Write a shell script to display the most recently modified or the latest file within a directory.

```
sysad@sysad-OptiPlex-7080:~/bash$ bash 1.sh /home/sysad/bash/  
The newest file in /home/sysad/bash/ is: animal.txt
```

2. Write a shell script to display the present date, time, username, and the current working directory.

```
sysad@sysad-OptiPlex-7080:~/bash$ bash 2.sh  
Hello, sysad  
Monday 21 August 2023 10:59:20 AM IST  
sysad  
/home/sysad/bash
```

3. For the input file addr.txt implement the following:

```
$ cat addr.txt  
Hello World  
How are you  
This game is good  
Today is sunny  
12345  
You are funny
```

- a. Write a shell script that presents all lines containing the word "is".

```
sysad@sysad-OptiPlex-7080:~/bash$ bash 3a.sh  
This game is good  
Today is sunny
```

- b. Write a script to display the initial field of lines that don't include the letter "y".
[Note: Use " " (i.e., space) as the field separator]

```
sysad@sysad-OptiPlex-7080:~/bash$ bash 3b.sh
Hello
This
12345
```

- c. Write a script to exhibit lines with a maximum of two fields.

```
sysad@sysad-OptiPlex-7080:~/bash$ bash 3c.sh
Hello World
12345
```

- d. Write a script to replace the first occurrence of "o" with 0 (zero).

```
sysad@sysad-OptiPlex-7080:~/bash$ bash 3d.sh
Hell0 World
H0w are you
This game is g0od
T0day is sunny
12345
Y0u are funny
```

4. Write a shell script that appends the extension ".new" to every text file within a specified directory.

```
sysad@sysad-OptiPlex-7080:~/bash/dir$ ls
1.txt 2.txt 3.txt 4.txt
sysad@sysad-OptiPlex-7080:~/bash/dir$ cd .
sysad@sysad-OptiPlex-7080:~/bash/dir$ cd ..
sysad@sysad-OptiPlex-7080:~/bash$ bash 4.sh dir
sysad@sysad-OptiPlex-7080:~/bash$ cd dir/
sysad@sysad-OptiPlex-7080:~/bash/dir$ ls
1.txt.new 2.txt.new 3.txt.new 4.txt.new
```

5. Write a shell script to print the count of files and subdirectories in the specified directory [which is passed as command line argument].

```
sysad@sysad-OptiPlex-7080:~/bash$ bash 5.sh /home/sysad/Documents/
Files found: 2215
Folders found: 216
```

6. Write a shell script that identifies distinct words within the provided input file (i.e., animal.txt) and records the frequency of occurrence for each of these words.

```
sysad@sysad-OptiPlex-7080:~/bash$ bash 6.sh
elephant 1
bear 3
tiger 2
sysad@sysad-OptiPlex-7080:~/bash$
```

7. Write a shell script to validate password strength.

Here are a few assumptions for the password string.

- Length – minimum of 8 characters.
- Contain both the alphabet and number.
- Include both the small and capital case letters.

If the password doesn't comply with any of the above conditions, then the script should report it as a <Weak Password>.

```
sysad@sysad-OptiPlex-7080:~/bash$ bash 7.sh
Enter your password
password12
Weak Password -> Should include a capital case letter.
sysad@sysad-OptiPlex-7080:~/bash$ bash 7.sh
Enter your password
Password
Weak Password -> Should use numbers in your password.
sysad@sysad-OptiPlex-7080:~/bash$ bash 7.sh
Enter your password
Password1
Strong Password
sysad@sysad-OptiPlex-7080:~/bash$ bash 7.sh
Enter your password
pass
Weak Password -> Password length should have at least 8 characters.
```

Instructions:

- Posted on: 21 August 2023
- Due date: 27th August 2023 (11:59PM)
- Suggested Input files (.txt) are available in the drive folder
- Mode of submission is moodle. Any other kind of submissions are not accepted.
- Save all the scripts as:
 - script1.sh,
 - script2.sh
 - Script3_a.sh, script3_b.sh, script3_a.sh

- Script4.sh
 - script5.sh
 - script6.sh
 - script7.sh
- Please zip all your script files, and submit a single file named "<roll-no>.zip", where <roll-no> should be replaced with your IIT Dharwad roll number.
- To be considered for the evaluation without penalty, you have to submit your program by the due date. No single minute relaxation on late submission.
- **Copying others' programs and allowing others to copy your program are serious offenses and a deserving penalty(100%) will be imposed if found.**