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OS Assignment 3

Ques1. Write a shell program to add two numbers.

```
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ cat add.sh
#!/bin/bash
echo "Enter a : "
read a
echo "Enter b : "
read b
sum=$(($a+$b))
echo "sum is $sum"
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ chmod +x add.sh
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ ./add.sh
Enter a :
25
Enter b :
17
sum is 42
ashmit@ashmit-ubuntu:~/Desktop/ashmit$
```

Ques2. Write a shell program to compare two strings using command prompt.

```
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ cat compare.sh
#!/bin/bash
echo 'Enter 1st string: '
read a
echo 'Enter 2nd string: '
read b
if [ $a -eq $b ]
then
        echo "Equal"
else
        echo "Not equal"
fi
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ chmod +x compare.sh
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ ./compare.sh
Enter 1st string:
ashmit
Enter 2nd string:
anchit
./compare.sh: line 6: [: ashmit: integer expression expected
Not equal
ashmit@ashmit-ubuntu:~/Desktop/ashmit$
```

Ques3. Write a shell program to generate Fibonacci series.

```
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ cat fibonacci.sh
#!/bin/bash
echo "Enter no. of elements: "
read n
a=0
b=1

for (( i=0; i<$n; i++ ))
        do
                echo $a
                c=$(($a+$b))
                a=$b
                b=$c
done
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ chmod +x fibonacci.sh
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ ./fibonacci.sh
Enter no. of elements:
8
0
1
1
2
3
5
8
13
ashmit@ashmit-ubuntu:~/Desktop/ashmit$
```

Ques4. Write a shell program to check whether a character is VOWEL or CONSONANT using switch.

```
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ cat switch.sh
#!/bin/bash
echo "Enter the char : "
read char
char=$(echo $char | tr '[:upper:]' '[:lower:]')

case $char in
        a | e | i | o | u)
                echo "Vowel"
                ;;
        *)
                echo "Consonant"
                ;;
esac
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ ./switch.sh
bash: ./switch.sh: Permission denied
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ chmod +x switch.sh
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ ./switch.sh
Enter the char :
a
Vowel
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ ./switch.sh
Enter the char :
t
Consonant
ashmit@ashmit-ubuntu:~/Desktop/ashmit$
```

Ques5. Write a shell program to display the total number of words and and total number of lines in a file.

```bash
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ touch word_count.sh
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ cat word_count.sh
#!/bin/bash
read -p "Enter the file name : " file1

if [ -f "$file1" ]
then
        lines=$(wc -l < "$file1")
        words=$(wc -w < "$file1")
        echo "Number of lines is $lines"
        echo "Number of words is $words"
else
        echo "File was not found."
fi
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ chmod +x word_count.sh
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ ./word_count.sh
Enter the file name : add.sh
Number of lines is 7
Number of words is 20
ashmit@ashmit-ubuntu:~/Desktop/ashmit$
```

Ques6. A script that takes a filename as input and displays information about the file, such as its size, permissions, owner, and modification time.

```bash
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ touch fileinfo.sh
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ cat fileinfo.sh
#!/bin/bash
read -p "Enter the file name : " file1
if [ -f "$file1" ]
then
        file_size=$( du -sh "$file1" | awk '{print $1}')
        file_permission=$(stat -c "%A" "$file1")
        file_owner=$(stat -c "%U" "$file1")
        file_modification=$(stat -c "%y" "$file1")

        echo "File name : $file1"
        echo "File size : $file_size"
        echo "File permission : $file_permission"
        echo "File owner : $file_owner"
        echo "File modification : $file_modification"
else
        echo "File was not found."
fi
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ chmod +x fileinfo.sh
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ ./fileinfo.sh
Enter the file name : add.sh
File name : add.sh
File size : 4.0K
File permission : -rwxrwxr-x
File owner : ashmit
File modification : 2023-08-25 22:18:23.159061096 +0530
ashmit@ashmit-ubuntu:~/Desktop/ashmit$
```

Ques7. Create a script that displays information about the system, such as the OS version, CPU, memory, disk usage, and network details.

```
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ touch os_info.sh
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ cat os_info.sh
#!/bin/bash

os_version=$(cat /etc/*-release | grep PRETTY_NAME | cut -d "=" -f 2)
echo "OS VERSION : $os_version"

mem_info=$(lscpu | grep "Model name" | awk -f ':' '{print $2}' | sed 's/^[ \t]*//')
echo "MEMORY INFO : $mem_info"

disk_usage=$( free -h | awk '/^Mem:/ {print $2}')
echo "DISK USAGE : $disk_usage"

network_detail=$( ip addr show | grep "inet" | awk '{print $2}')
echo "NETWORK DETAIL : $network_detail"

ashmit@ashmit-ubuntu:~/Desktop/ashmit$ chmod +x os_info.sh
ashmit@ashmit-ubuntu:~/Desktop/ashmit$ ./os_info.sh
OS VERSION : "Ubuntu 22.04.2 LTS"
awk: cannot open : (No such file or directory)
MEMORY INFO :
DISK USAGE : 3.8Gi
NETWORK DETAIL : 127.0.0.1/8
::1/128
192.168.230.129/24
fe80::ff7b:6336:7228:394b/64
ashmit@ashmit-ubuntu:~/Desktop/ashmit$
```