OS LAB ASSIGNMENT 3

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1) Write a shell script, which finds the prime factors of a given number.

Code:

```
echo -e "Enter number to find prime factors: \c"
read n

if [ $n -le 0 ]
then
        echo "Entered num is non-positive"
        exit 1
fi

for (( i=2; i<n; i++ ))
do
        primechk=0
        if [ $((n%i)) -eq 0 ]
        then
                for (( j=2; j<=((i/2)) ;j++ ))
                do
                        if [ $((i%j)) -eq 0 ]
                        then
                                primechk=1
                                break
                        fi
                done
                if [ $primechk -eq 0 ]
                then
                        echo -e "$i \c"
                fi
        fi
done

echo ""
```

Output:

```
rohit@rohit-VirtualBox:~/OS/lab3$ ./1.sh
Enter number to find prime factors: 120
2 3 5
```

2) Write a shell script that accepts a positive integer value from the user, say 34, and prints out all the divisors of 34 as a list:

Enter a positive integer: 34

The divisors of 34 are: 1, 2, 17, and 34

Code:

```
echo -e "Enter number to list divisors: \c"
read n

for (( i=1; i<=n; i++ ))
do
        if [ $((n%i)) -eq 0 ]
        then
                echo -e "$i \c"
        fi
done

echo ""
```

Output:

```
rohit@rohit-VirtualBox:~/OS/lab3$ ./2.sh
Enter number to list divisors: 24
1 2 3 4 6 8 12 24
```

3) Write a shell script, which prints good morning or good evening depending on the login time of the user.

Code:

```
hr=$(date +"%H")
if [ $hr -lt  6 ]
then
        echo "Good night"
elif [ $hr -lt 12 ]
then
        echo "Good morning"
elif [ $hr -lt 18 ]
then
        echo "Good afternoon"
else
        echo "Good evening"
fi
```

Output:

```
rohit@rohit-VirtualBox:~/OS/lab3$ date
Tue Aug 10 14:22:02 IST 2021
rohit@rohit-VirtualBox:~/OS/lab3$ ./3.sh
Good afternoon
```

4) A shell script, which takes as command line input a number n, and a word. It then prints the word n times, once on each line.

Code:

```
if [ $# -ne 2 ]
then
        echo "Incorrect number of arguments"
else
        for (( i=0; i<$1; i++))
        do
                echo "$2"
        done
fi
```

Output:

```
rohit@rohit-VirtualBox:~/OS/lab3$ ./4.sh 7 rohit
rohit
rohit
rohit
rohit
rohit
rohit
rohit
```

5) Write a shell script, which finds the total number of blank lines in the given file.

Code:

```
echo -e "Enter file name: \c"
read filename
if [ -e $filename ]
then
        echo -e "Total number of blank lines: \c"
        grep -cvP '\S' $filename
else
        echo "File doesn't exist"
fi
```

Output:

```
rohit@rohit-VirtualBox:~/OS/lab3$ cat tmp.txt
not blank

not blank

not blank
rohit@rohit-VirtualBox:~/OS/lab3$ ./5.sh
Enter file name: tmp.txt
Total number of blank lines: 2
```

6) A shell script, which reports the names and sizes of all the files in a directory whose size exceeds 1000 bytes, in descending order of their sizes and the total number of such files.

Code:

```
echo -e "Enter directory: \c"
read dirname
if [ -d $dirname ]
then
        find $dirname -type f -size +1000c -exec du -h {} \; | sort -rh
        echo -e "Number of such files: \c"
        find $dirname -type f -size +1000c | wc -l
fi
```

Output: