

U18CO018

Shubham Shekhaliya

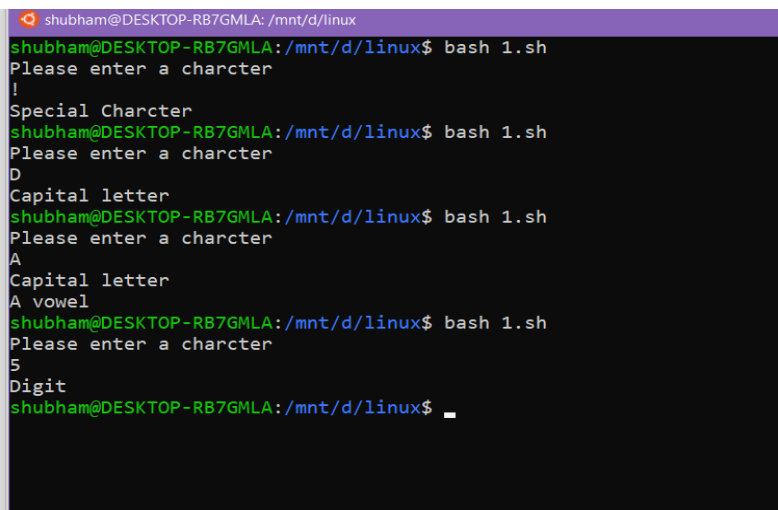
OS - Assignment-2

1-> Shell script Program to accept a character and check whether it is an Lower case alphabet, Upper case alphabet, A digit, Special symbol, Vowel Using case control structure

Code:-

```
echo "Please enter a charcter"
read c
case $c in
    [0-9])
        echo "Digit"
        ;;
    [a-z])
        echo "Small letter"
        ;;
    [A-Z])
        echo "Capital letter"
        ;;
    *)
        echo "Special Charcter"
        ;;
esac

case $c in
    [aeiouAEIOU]) echo "A vowel";;
esac
```



```
shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 1.sh
Please enter a charcter
!
Special Charcter
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 1.sh
Please enter a charcter
D
Capital letter
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 1.sh
Please enter a charcter
A
Capital letter
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 1.sh
Please enter a charcter
A
A vowel
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 1.sh
Please enter a charcter
5
Digit
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ _
```

2-> Using case .. esac structure

Find the number of users logged into the system, Print the calendar for current year, Print the date

Code:-

```
ch=1
while [ $ch -gt 0 ]
do
    echo "Select Any one option"
    echo "1-> Number of Users Logged Into System"
    echo "2-> Print Calendar for current year"
    echo "3->print thr date"
    read d
    case $d in
        1) who | wc -l
           ;;
        2) cal 2021
           ;;
        3) date
           ;;
        *)break
    esac
    echo "Do u wish to Continue(1/0)"
    read ch
done
```

```
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 2.sh
Select Any one option
1-> Number of Users Logged Into System
2-> Print Calendar for current year
3->print the date
1
0
Do u wish to Continue(1/0)
1
Select Any one option
1-> Number of Users Logged Into System
2-> Print Calendar for current year
3->print the date
2
      2021
  January  February  March
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
1 2      1 2 3 4 5 6  1 2 3 4 5 6
3 4 5 6 7 8 9  7 8 9 10 11 12 13  7 8 9 10 11 12 13
10 11 12 13 14 15 16 14 15 16 17 18 19 20 14 15 16 17 18 19 20
17 18 19 20 21 22 23 21 22 23 24 25 26 27 21 22 23 24 25 26 27
24 25 26 27 28 29 30 28      28 29 30 31
31

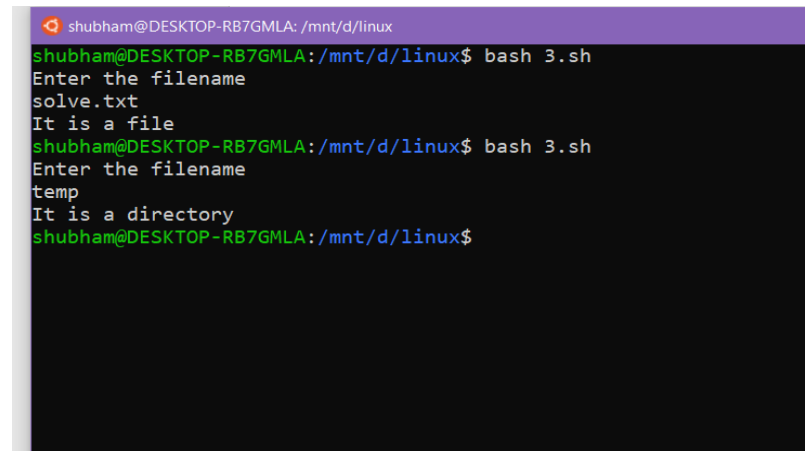
  April      May      June
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
1 2 3      1 2 3 4 5 6  1 2 3 4 5
4 5 6 7 8 9 10 2 3 4 5 6 7 8  6 7 8 9 10 11 12
11 12 13 14 15 16 17  9 10 11 12 13 14 15 13 14 15 16 17 18 19
18 19 20 21 22 23 24 16 17 18 19 20 21 22 20 21 22 23 24 25 26
25 26 27 28 29 30 30 31      27 28 29 30
31

  July      August      September
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
1 2 3      1 2 3 4 5 6 7  1 2 3 4
4 5 6 7 8 9 10 8 9 10 11 12 13 14  5 6 7 8 9 10 11
11 12 13 14 15 16 17 15 16 17 18 19 20 21 12 13 14 15 16 17 18
18 19 20 21 22 23 24 22 23 24 25 26 27 20 21 22 23 24 25
25 26 27 28 29 30 31 29 30 31      26 27 28 29 30

  October      November      December
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
1 2      1 2 3 4 5 6 7  1 2 3 4
3 4 5 6 7 8 9  7 8 9 10 11 12 13  5 6 7 8 9 10 11
10 11 12 13 14 15 16 14 15 16 17 18 19 20 12 13 14 15 16 17 18
17 18 19 20 21 22 23 21 22 23 24 25 26 27 19 20 21 22 23 24 25
24 25 26 27 28 29 30 28 29 30      26 27 28 29 30 31
31
Do u wish to Continue(1/0)
1
Select Any one option
1-> Number of Users Logged Into System
2-> Print Calendar for current year
3->print the date
3
Mon Jan 18 16:48:20 IST 2021
Do u wish to Continue(1/0)
0
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```

3-> Shell Script Program to check whether given file is a directory or not.
Code:-

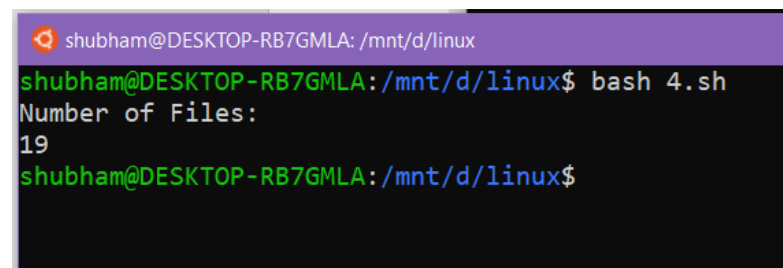
```
echo "Enter the filename"
read fn
if [ -f $fn ]
then
    echo "It is a file"
else
    echo "It is a directory"
fi
```



```
shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 3.sh
Enter the filename
solve.txt
It is a file
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 3.sh
Enter the filename
temp
It is a directory
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```

4-> Shell Script Program to Count number of files in a Directory.
Code:-

```
echo "Number of Files: "
k=0
for fi in *
do
    if [ -f $fi ]
    then
        k=`expr $k + 1`
    fi
done
echo $k
```



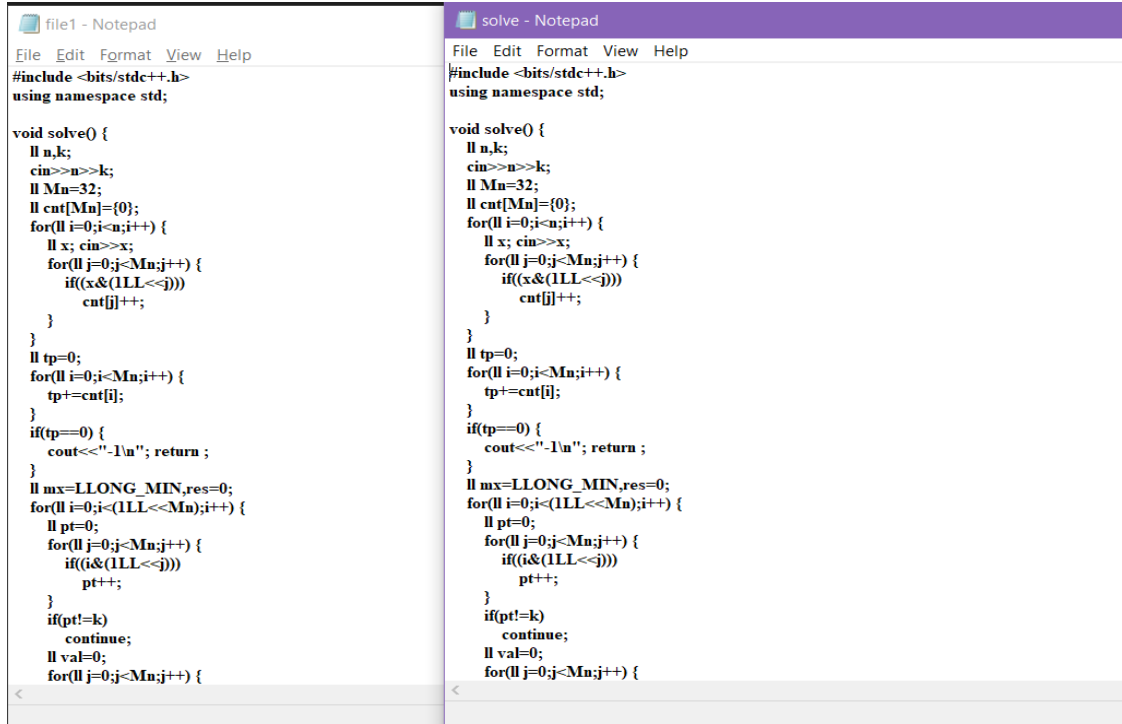
```
shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 4.sh
Number of Files:
19
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```

5-> Shell Script Program to copy contents of one file to another.

Code:-

```
echo "Enter the source file"
read a
echo "Enter the destination file"
read b
cp $a $b
```

After Code Execution Both Files



The image shows two Notepad windows side-by-side. The left window is titled 'file1 - Notepad' and the right window is titled 'solve - Notepad'. Both windows contain the same C++ code, which is a function named 'solve()' that takes two integers 'n' and 'k' as input. The code uses a nested loop to calculate the sum of all numbers from 1 to 'n' that are divisible by 'k'. The code is as follows:

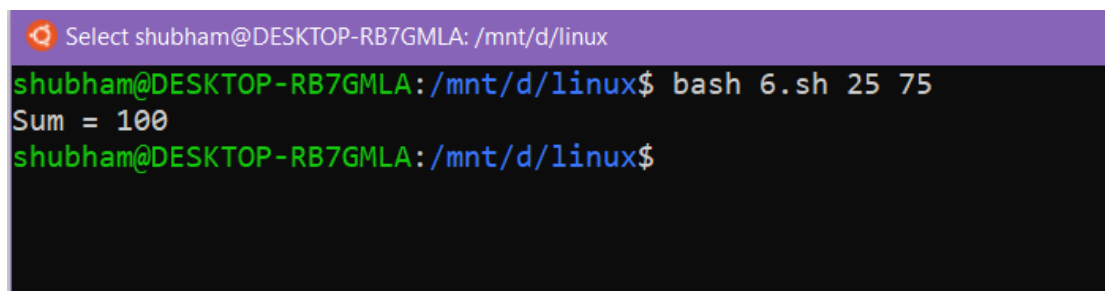
```
#include <bits/stdc++.h>
using namespace std;

void solve() {
    ll n,k;
    cin>>n>>k;
    ll Mn=32;
    ll cnt[Mn]={0};
    for(ll i=0;i<n;i++) {
        ll x; cin>>x;
        for(ll j=0;j<Mn;j++) {
            if((x&(1LL<<j)))
                cnt[j]++;
        }
    }
    ll tp=0;
    for(ll i=0;i<Mn;i++) {
        tp+=cnt[i];
    }
    if(tp==0) {
        cout<<"-1\n"; return ;
    }
    ll mx=LLONG_MIN,res=0;
    for(ll i=0;i<(1LL<<Mn);i++) {
        ll pt=0;
        for(ll j=0;j<Mn;j++) {
            if((i&(1LL<<j)))
                pt++;
        }
        if(pt!=k)
            continue;
        ll val=0;
        for(ll j=0;j<Mn;j++) {
```

6-> Write a shell script to add two numbers supplied by user and supplied as command line argument.

Code:-

```
sum=$((($1+$2))
echo "Sum = $sum"
```



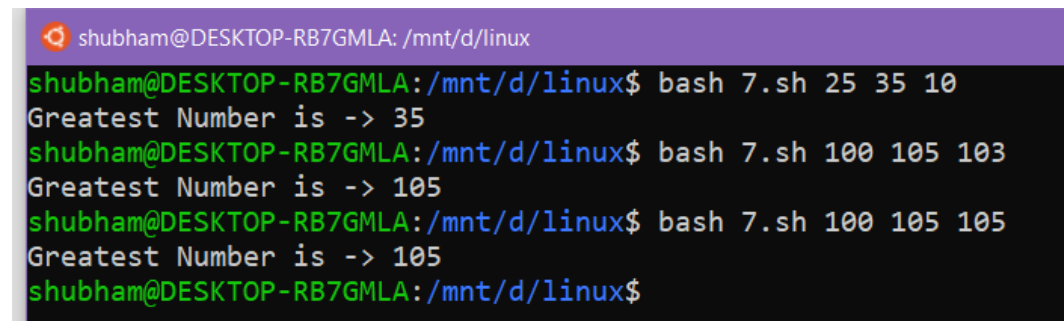
The image shows a terminal window with the following output:

```
Select shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 6.sh 25 75
Sum = 100
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```

7-> Write a shell script to find out biggest number form given three numbers. Numbers are supplied by command line argument.

Code:-

```
if [ $1 -gt $2 ] && [ $1 -gt $3 ]
then
    echo "Greatest Number is -> $1"
elif [ $2 -gt $1 ] && [ $2 -gt $3 ]
then
    echo "Greatest Number is -> $2"
else
    echo "Greatest Number is -> $3"
fi
```



A terminal window screenshot showing the execution of a shell script named 7.sh. The prompt is shubham@DESKTOP-RB7GMLA: /mnt/d/linux. The script is run three times with different arguments: 25 35 10, 100 105 103, and 100 105 105. Each time, it outputs the greatest number. The terminal text is as follows:

```
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 7.sh 25 35 10
Greatest Number is -> 35
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 7.sh 100 105 103
Greatest Number is -> 105
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 7.sh 100 105 105
Greatest Number is -> 105
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```

8-> Implement simple calculator. Numbers are supplied by command line argument.

Code:-

```
echo "Enter Choice :"
echo "1. Addition"
echo "2. Subtraction"
echo "3. Multiplication"
echo "4. Division"
read ch
res=""
case $ch in
    1) echo "$1 + $2 = $((($1+$2))"
        ;;
    2) echo "$1 - $2 = $((($1-$2))"
        ;;
    3) echo "$1 * $2 = $((($1*$2))";
        ;;
    4) echo "$1 / $2 = $((($1/$2))"
        ;;
esac
```

```

shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 8.sh 40 16
Enter Choice :
1. Addition
2. Subtraction
3. Multiplication
4. Division
3
40 * 16 = 640
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$

```

9-> Write a shell script to print numbers in descending order using while loop.

Code:-

```

numbers=(10 -29 33 67 -6 7 -10)

for (( i=0 ; i < ${#numbers[@]}; i++ ))
do
    for (( j=0 ; j < ${#numbers[@]}; j++ ))
    do
        if [[ ${numbers[$j]} -gt ${numbers[$i]} ]]
        then
            tmp=${numbers[$i]}
            numbers[$i]=${numbers[$j]}
            numbers[$j]=$tmp
        fi
    done
done

n=${#numbers[@]}
n=$((n-1))
while [ $n -gt -1 ]
do
    echo ${numbers[$n]}
    n=$((n-1))
done

```

```

shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 9.sh
67
33
10
7
-6
-10
-29
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$

```

10-> Write a shell script to create a simple calculator using switch-case statement.

Code:-

```
echo "Enter First Number"
read a;
echo "Enter Second Number"
read b;

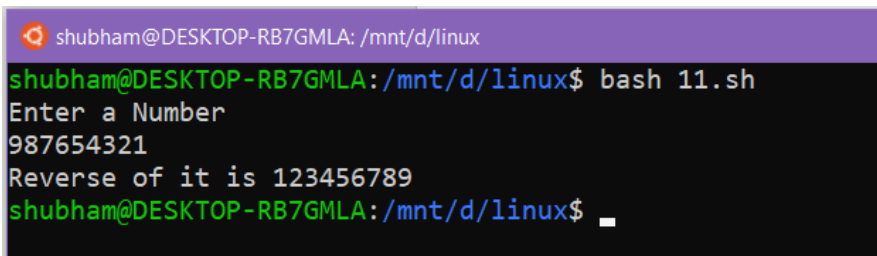
echo "Enter Choice : "
echo "1. Addition"
echo "2. Subtraction"
echo "3. Multiplication"
echo "4. Division"
read ch
res=""
case $ch in
    1) echo "$a + $b = $((a+b))"
        ;;
    2) echo "$a - $b = $((a-b))"
        ;;
    3) echo "$a * $b = $((a*b))";
        ;;
    4) echo "$a / $b = $((a/b))"
        ;;
    *)
esac
```

```
shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 10.sh
Enter First Number
14
Enter Second Number
28
Enter Choice :
1. Addition
2. Subtraction
3. Multiplication
4. Division
2
14 - 28 = -14
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```

11-> Write a shell script to print given number in reverse order.

Code:-

```
echo "Enter a Number"
read n
s=0
while [ $n -gt 0 ]
do
r=$(( $n % 10 ))
s=$(( $s * 10 + $r ))
n=$(( $n / 10 ))
done
echo "Reverse of it is" $s
```

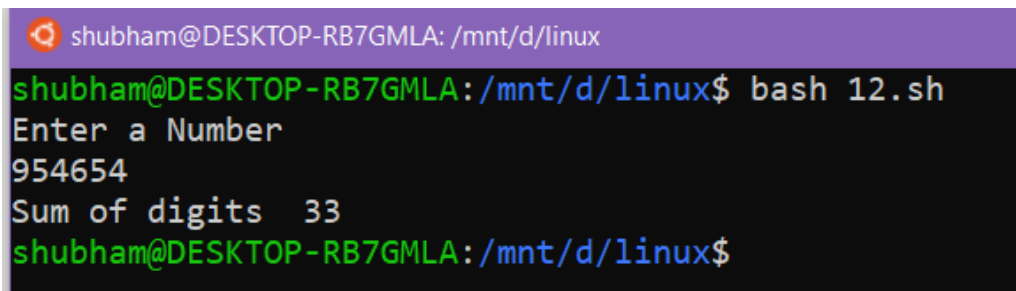
A terminal window with a purple title bar showing the user 'shubham' at 'DESKTOP-RB7GMLA' in the directory '/mnt/d/linux'. The user runs 'bash 11.sh'. The script prompts 'Enter a Number', the user enters '987654321', and the script outputs 'Reverse of it is 123456789'.

```
shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 11.sh
Enter a Number
987654321
Reverse of it is 123456789
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```

12-> Write a shell script to print sum of all digits of a given number.

Code:-

```
echo "Enter a Number"
read n
s=0
while [ $n -gt 0 ]
do
s=$(( $s + $n % 10 ))
n=$(( $n / 10 ))
done
echo "Sum of digits " $s
```

A terminal window with a purple title bar showing the user 'shubham' at 'DESKTOP-RB7GMLA' in the directory '/mnt/d/linux'. The user runs 'bash 12.sh'. The script prompts 'Enter a Number', the user enters '954654', and the script outputs 'Sum of digits 33'.

```
shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 12.sh
Enter a Number
954654
Sum of digits 33
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```


13-> Find the factorial value of given input number.

Code:-

```
echo "Enter a Number"
read n
p=n
s=1
while [ $n -gt 0 ]
do
s=$((s*$n))
n=$((n-1))
done
echo "Factorial of $p is " $s
```

```
shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 13.sh
Enter a Number
6
Factorial of n is 720
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```

14-> Generate and display Fibonacci series.

Code:-

```
echo "Enter Maximum limit : "
read n
f1=0
f2=1
echo "Fibonacci sequence : "
for((i=0;i<n;i++))
do
    echo $f1
    temp=$f2
    f2=$((f1+f2))
    f1=$temp
done
```

```
shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 14.sh
Enter Maximum limit :
7
Fibonacci sequence :
0
1
1
2
3
5
8
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```

15-> Display all even numbers within given range.

Code:-

```
echo "Enter Starting Number: "
read l
echo "Enter Ending Number: "
read r

for((i=l;i<=r;i++))
do
    tp=$((i%2))
    if [ $tp -ne 1 ]
    then
        echo $i
    fi
done
```

```
shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 15.sh
Enter Starting Number:
10
Enter Ending Number:
22
10
12
14
16
18
20
22
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```

16-> Find out number of characters, words and lines from a given file.

Code:-

```
echo "Enter the filename"
read file
w=`cat $file | wc -w`
c=`cat $file | wc -c`
l=`grep -c "." $file`
echo "Number of characters in $file is $c"
echo "Number of words in $file is $w"
echo "Number of lines in $file is $l"
```

```
shubham@DESKTOP-RB7GMLA: /mnt/d/linux
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$ bash 16.sh
Enter the filename
solve.txt
Number of characters in solve.txt is 1241
Number of words in solve.txt is 117
Number of lines in solve.txt is 57
shubham@DESKTOP-RB7GMLA:/mnt/d/linux$
```