Experiment – 3

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11. Shell Script to print half pyramid using numbers.

```
echo "Enter rows:"
read rows
number=1
for (( i=0; i<=rows; i++ ))
do
        for (( j=1; j<=i; j++ ))
        do
                echo -n "$number "
                number=$(( number + 1 ))
        done
        number=1
        echo
done
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp4
$ ./11.sh
Enter rows:
5

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

12. Write a shell script that changes text to upper case

```
#! /bin/bash
echo "Enter word: "
read ch
echo $ch |tr 'a-z' 'A-Z'
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp4
$ ./12.sh
Enter word:
madhuram
MADHURAM
```

13. Write a shell script to find reverse of given number.

```
#! /bin/bash
echo "Enter number: "
read n
echo "Enetred number is $n"
reverse=0
while [ $n -gt 0 ]
do
        r=$(( n%10 ))
        reverse=$(( reverse*10 + $r ))
        n=$(( n/10 ))
done
echo "Reverse number is $reverse"
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp4
$ ./13.sh
Enter number:
12345
Enetred number is 12345
Reverse number is 54321
```

14. Write a shell script to find sum of floating point numbers.

```
#! /bin/bash
echo "Enetr two numbers: "
read num1
read num2
echo "The sum of two numbers is: "
echo $num1 + $num2 | bc
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp4
$ ./14.sh
Enter two numbers:
13
34
The sum of two numbers is:
```

15. Write a shell script to make the following operations menu based:

a) Addition

b) Subtraction

c) Multiplication

d) Division

```
#! /bin/bash
echo "Enter two numbers: "
read num1
read num2
echo "Menu"
echo "1. Addition"
echo "2. Subtraction"
echo "3. Multiplication"
echo "4. Division"
read ch
case $ch in
        1) res=`echo $num1 + $num2 | bc`;;
        2) res=`echo $num1 - $num2 | bc`;;
        3) res=`echo $num1 \* $num2 | bc`;;
        4) res=`echo "scale=3; $num1 / $num2" | bc`;;
esac
echo "Result is $res"
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp4
$ ./15.sh
Enter two numbers:
23
56
Menu
1. Addition
2. Subtraction
3. Multiplication
4. Division
3
```

16. Write a shell script to find sum of all digit for given number.

```
#! /bin/bash
echo "Enter a number: "
read n
echo "Entered number is $n"
while [ $n -gt 0 ]
do
        x=$(( n%10 ))
        sumn=$(( sumn+$x ))
        n=$(( n/10 ))
done
echo "Sum of digits of the number is $sumn"
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp4
$ ./16.sh
Enter a number:
1245
Entered number is 1245
Sum of digits of the number is 12
```

17. Write a shell script to find the factorial of a given no.

```
#! /bin/bash
echo "Enter a number: "
read n
i=1
fact=1
while [ $i -le $n ]
do
        fact=$(( fact*i ))
        i=$(( i+1 ))
done
echo "Factorial: $fact"
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp4
$ ./17.sh
Enter a number:
6
Factorial: 720
```

18. Write a shell script to find the largest of three numbers and also find the total average.

```
#! /bin/bash
echo "Enter three numbers: "
read n1 n2 n3
largest=$n1
if [ $n2 -gt $n1 ]
then
        largest=$n2
if [ $n3 -gt $n2 ]
then
        largest=$n3
fi
fi
total=$(( n1+n2+n3 ))
echo "Largest of three is: $largest"
echo "Total of three is: $total"
echo -n "Average of three is: "
echo "scale = 2; $total/3" | bc
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp4
$ ./18.sh
Enter three numbers:
14 54 34
Largest of three is: 54
Total of three is: 102
```

19. Write a shell script which print “invalid no. of arguments” if more than 5 command line arguments otherwise print “valid no. of arguments”.

```
#! /bin/bash
echo $1 $2 $3 $4 $5
if [ $# -eq 5 ]
then
        echo "Valid Arguments"
else
        echo "Invalid Argements"
fi
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp4
$ ./19.sh

Invalid Argements
```

20. Write a shell script to find the max. and min. number from the given data set passed by command line argument.

```
#! /bin/bash
echo "Arguments: $*"
max=$1
args=("$@")
for(( i=0; i < $#; i++))
do
        if [ ${args[i]} -gt $max ]
        then
                max=${args[i]}
        fi
done
echo "Maximum value: $max"

min=$1
for(( i=0; i < $#; i++))
do
        if [ ${args[i]} -lt $min ]
        then
                min=${args[i]}
        fi
done
echo "Minimum Value: $min"
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp4
$ ./20.sh 23 45 63 12 1 50 3
Arguments: 23 45 63 12 1 50 3
Maximum value: 63
Minimum Value: 1
```