# Lab 4: Linux Basic Scripting - 2

1. **Write a menu driven shell script, which will print the following menu and execute the given task.**
   - **Display a calendar of current month**
   - **Display today's date and time**
   - **Display username those are currently logged in the system**
   - **Display your name at the given x,y position.**
   - **Display your terminal number.**

```
echo "";
i=0
while [ $i != 6 ]
do
    echo "1. Display calender of current Month"
    echo "2. Display current date and time"
    echo "3. Display usernames of those who are currently logged in the system"
    echo "4. Display your name at given x, y position"
    echo "5. Display Terminal Number"
    echo "6. Exit"
    read -p "Choose your option & enter corresponding value: " ch
    echo "";

    case "$ch" in
        1) cal;;
        2) date;;
        3) whoami;;
        4) row=$(tput lines)
           col=$(tput cols)
           echo "Terminal Window has Rows: $row Cols: $col"

           read -p "X position: " x
           read -p "Y position: " y
           read -p "Enter name: " name
           tput cup $x $y
           echo "$name";;
        5) tty;;
        6) exit;;
        *) echo "Enter valid choice";;
    esac
    echo "";
done  SS
```

**Output**

```
1. Display calender of current Month
2. Display current date and time
3. Display usernames of those who are currently logged in the system
4. Display your name at given x, y position
5. Display Terminal Number
6. Exit
Choose your option & enter corresponding value: 1

   February 2023
Su Mo Tu We Th Fr Sa
          1  2  3  4
 5  6  7  8  9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28
```

```
1. Display calender of current Month
2. Display current date and time
3. Display usernames of those who are currently logged in the system
4. Display your name at given x, y position
5. Display Terminal Number
6. Exit
Choose your option & enter corresponding value: 2

Friday 03 February 2023 06:11:08 PM IST

1. Display calender of current Month
2. Display current date and time
3. Display usernames of those who are currently logged in the system
4. Display your name at given x, y position
5. Display Terminal Number
6. Exit
Choose your option & enter corresponding value: 3

harsh
```

```
1. Display calender of current Month
2. Display current date and time
3. Display usernames of those who are currently logged in the system
4. Display your name at given x, y position
5. Display Terminal Number
6. Exit
Choose your option & enter corresponding value: 4

Terminal Window has Rows: 37 Cols: 166
X position: 35
Y position: 100
Enter name: Ubuntu                                                    Ubuntu
```

```
1. Display calender of current Month
2. Display current date and time
3. Display usernames of those who are currently logged in the system
4. Display your name at given x, y position
5. Display Terminal Number
6. Exit
Choose your option & enter corresponding value: 5

/dev/pts/0
```

**2. Write a shell script which will generate first n Fibonacci numbers.**

```
echo "";
echo "Program to print Fibonacci Sequence of n numbers"
fib1=1
fib2=1
fib3=1

read -p "Enter the number of terms : " n
echo -n "Fibonacci Sequence : 1 1 "

for ((i=2 ; i<n ; i++))
do
    fib1=`expr $fib2`
    fib2=`expr $fib3`
    fib3=`expr $fib1 + $fib2`
    echo -n "$fib3 "
done
echo "";
echo "";
```

**Output:**

```
harsh@Ubuntu:~/Desktop/OS Lab Course/lab4$ bash fibonacci.sh

Program to print Fibonacci Sequence of n numbers
Enter the number of terms : 8
Fibonacci Sequence : 1 1 2 3 5 8 13 21
```

3. **Shell Script to print half pyramids using numbers.**

```
#!/bin/bash

read -p "Enter height of pyramid: " rows
number=1

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

**Output:**

```
harsh@Ubuntu:~/Desktop/OS Lab Course/lab4$ bash halfPyramid.sh
Enter height of pyramid: 6
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6
```

4. **Write a shell script to find the reverse of a given number.**

```
#!/bin/bash

read -p "Enter the number: " n
c=0
while [ $n -gt 0 ]
do
a=`expr $n % 10 `
n=`expr $n / 10 `
c=`expr $c \* 10 + $a`
done
echo "Reversed number: $c"
```

**Output:**

```
harsh@Ubuntu:~/Desktop/OS Lab Course/lab4$ bash reverse.sh
Enter the number: 12345
Reversed number: 54321
```

5. **Write a shell script to find the sum of two floating point numbers.**

```
echo "";
echo "Program to add 2 Float nos"

read -p "Enter number 1: " a
read -p "Enter number 2: " b

echo -n "Sum : $a + $b = "
echo "$a + $b" | bc
```

**Output:**

```
harsh@Ubuntu:~/Desktop/OS Lab Course/lab4$ bash floatAdd.sh

Program to add 2 Float nos
Enter number 1: 2.5
Enter number 2: 6.4
Sum : 2.5 + 6.4 = 8.9
```

6. **Write a shell script to make the following operations menu based:**
   - **Addition**
   - **Subtraction**
   - **Multiplication**
   - **Division**

```
echo ""
i=0
ch=0

read -p "Enter number 1: " a
read -p "Enter number 2: " b

while [ $ch != 5 ]
do
    echo "1. Addition"
    echo "2. Subtraction"
    echo "3. Multiplication"
    echo "4. Division"
    echo "5. Exit"
    read -p "Choose your option & enter corresponding value: " ch
    echo "";

    case "$ch" in
        1) echo "Addition: `expr $a + $b`";;
        2) echo "Subtraction: `expr $a - $b`";;
        3) echo "Multiplication: `expr $a \* $b`";;
        4) echo "Division: `expr $a / $b`";;
        5) exit;;
        *) echo "PLEASE Enter valid choice";;
    esac
    echo "";

done
```

**Output:**

```
harsh@Ubuntu:~/Desktop/OS Lab Course/lab4$ bash menuOperations.sh

Enter number 1: 65
Enter number 2: 13
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Exit
Choose your option & enter corresponding value: 1

Addition: 78

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Exit
Choose your option & enter corresponding value: 2

Subtraction: 52
```

```
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Exit
Choose your option & enter corresponding value: 3

Multiplication: 845

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Exit
Choose your option & enter corresponding value: 4

Division: 5

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Exit
Choose your option & enter corresponding value: 5
```

7. **Write a shell script to find the sum of all digits for a given number.**

```
echo -n "Enter a number: "
read num

temp=$num
sum=0
while ((num > 0))
do
    sum=$((num%10+sum))
    num=$((num/10))
done
echo "Sum of digits of $temp is $sum"
```

**Output:**

```
harsh@Ubuntu:~/Desktop/OS Lab Course/lab4$ bash sumOfDigit.sh
Enter a number: 12345
Sum of digits of 12345 is 15
```

8. **Write a shell script to find the factorial of a given number.**

```
echo -n "Enter a number: "
read num

fact=1
for ((i = num; i > 0; i --))
do
    fact=$((fact*i))
done
echo "Factorial of $num: $fact"
```

**Output:**

```
harsh@Ubuntu:~/Desktop/OS Lab Course/lab4$ bash factorial.sh
Enter a number: 6
Factorial of 6: 720
```

9. **Write a shell script which prints "invalid no. of arguments" if more than 5 command line arguments otherwise print "valid no. of arguments".**

```
#!/bin/bash

if [ $# -gt 5 ]; then
  echo "Invalid no. of arguments"
else
  echo "Valid no. of arguments"
fi
```

**Output:**

```
harsh@Ubuntu:~/Desktop/OS Lab Course/lab4$ bash arguement.sh arg1 arg2 arg3 arg4 arg5
Valid no. of arguments
harsh@Ubuntu:~/Desktop/OS Lab Course/lab4$ bash arguement.sh arg1 arg2 arg3 arg4 arg5 arg6
Invalid no. of arguments
```

10. **Write a shell script that changes text to uppercase.**

```
echo ""

echo -n "Enter some text: "
read text

echo "$text" | tr '[:lower:]' '[:upper:]'
```

**Output:**

```
harsh@Ubuntu:~/Desktop/OS Lab Course/lab4$ bash uppercase.sh

Enter some text: hello this is ubuntu.
HELLO THIS IS UBUNTU.
```