Experiment – 3

NAME : Madhuram Brijeshkumar Modi

ROLL NO. : 21BCP102

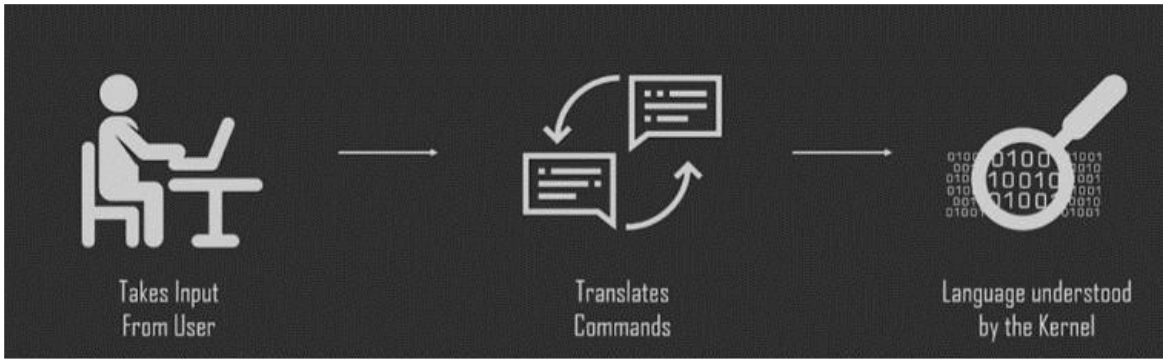
DIV, GROUP : 2,G3

Shell Scripting

Introduction:

The shell is a command line interpreter. It translates the commands entered by the user and converts them into a language understood by the kernel. Kernel manages resource of Linux O/S. Kernel decides who will use this resource, for how long and when. It runs your programs (or set up to execute binary files).

Computer understand the language of 0's and 1's called binary language, In early days of computing, instruction are provided using binary language, which is difficult for all of us, to read and write. So in O/s there is special program called Shell. Shell accepts your instruction or commands in English and translate it into computers native binary language.



A shell script is a computer program designed to be run by the Unix/Linux shell which could be one of the following:

- The Bourne Shell
- The C Shell
- The Korn Shell

1. **Write a shell script to print your name.**

```
echo "What is your name?"
read name
echo "Hello $name"
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./1.sh
What is your name?
Madhuram
Hello Madhuram
```

2. **Write a shell script to find whether a number is even or odd.**

```
echo "-----Even or Odd shell Script-----"
echo "Enter a number: "
read n
echo "Result: "
if [ `expr $n % 2 ` == 0 ]
then
        echo "$n is even"
else
        echo "$n is odd"
fi
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./2.sh
-----Even or Odd shell Script-----
Enter a number:
4
Result:
4 is even
```

3. **Write a script to print a table of a given number.**

```
echo "Enter a number"
read n
i=1
while [ $i -le 10 ]
do
        echo " $n * $i = $(( n * i )) "
        i=$(( i+1 ))
done
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./3.sh
Enter a number
5
 5 * 1 = 5
 5 * 2 = 10
 5 * 3 = 15
 5 * 4 = 20
 5 * 5 = 25
 5 * 6 = 30
 5 * 7 = 35
 5 * 8 = 40
 5 * 9 = 45
 5 * 10 = 50
```

4. **Write a shell script to check whether a given no. is prime or not.**

```
echo "Enter a number"
read num
for(( i=2; i<=num/2 ; i++ ))
do
        if [ $((num % i)) -eq 0 ]
        then
                echo " $num is not a prime number"
                exit
        fi
done
echo " $num is prime number"
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./4.sh
Enter a number
7
 7 is prime number
```

5. **Write a shell script to find the simple interest.**

```
echo "Enter P:"
read p
echo "Enter R:"
read r
echo "Enter T:"
read t
echo -n "Simple interest: "
si=$(( p * r* t/100))
echo "$si"
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./5.sh
Enter P:
400
Enter R:
6
Enter T:
5
Simple interest: 120
```

6. Write a shell script to find sum of n numbers.

```
echo "Enter size: "
read size
sum=0
echo "enter numbers: "
for(( i=1; i<=size ; i++ ))
do
        read num
        sum=$(( sum+num ))
done
echo $sum
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./6.sh
Enter size:
7
enter numbers:
5
6
3
6
1
6
4
31
```

7. **Write a shell script to find the largest number of three numbers.**

```
echo "Enter first number: "
read num1
echo "Enter second number: "
read num2
echo "Enter third number: "
read num3
if [ $num1 -gt $num2 ] && [ $num1 -gt $num3 ]
then
        echo "$num1 is greatest"
elif [ $num2 -gt $num1 ] && [ $num2 -gt $num3 ]
then
        echo "$num2 is greatest"
else
        echo "$num3 is greatest"
fi
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./7.sh
Enter first number:
5
Enter second number:
9
Enter third number:
12
12 is greatest
```

8. **Write a menu driven shell script will point thefollowing menu and execute the give task.**
   a. Display calender of current month
   b. Display today's date and time

   c. Display username those are currently logged in thesystem
   d. Display your name at given x,y position.
   e. Display your terminal number.

```
echo "MENU"
echo "1.DISPLAY CALENDAR OF CURRENT MONTH"
echo "2.DISPLAY TODAY'S DATE AND TIME"
echo "3.DISPLAY USERNAMES THOSE ARE CURRENTLY LOGGED IN THE SYSTEM"
echo "4.DISPLAY YOUR NAME AT GIVEN X,Y POSITION"
echo "5.DISPLAY YOUR TERMINAL NUMBER"
echo "6.EXIT"
echo "ENTER YOUR CHOICE"
read c
case $c in
        1) cal;;
        2) date;;
        3) who;;
        4) clear
        echo "ENTER X,Y POSITION"
        read x
        read y
        tput cup $x $y
        whoami;;
        5) tty;;
        6) exit;;
        esac
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./8.sh
MENU
1.DISPLAY CALENDAR OF CURRENT MONTH
2.DISPLAY TODAY'S DATE AND TIME
3.DISPLAY USERNAMES THOSE ARE CURRENTLY LOGGED IN THE SYSTEM
4.DISPLAY YOUR NAME AT GIVEN X,Y POSITION
5.DISPLAY YOUR TERMINAL NUMBER
6.EXIT
ENTER YOUR CHOICE
2
Thu, Feb  9, 2023  7:37:40 PM
```

```
ENTER X,Y POSITION
5
7


       Madhuram
```

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./8.sh
MENU
1.DISPLAY CALENDAR OF CURRENT MONTH
2.DISPLAY TODAY'S DATE AND TIME
3.DISPLAY USERNAMES THOSE ARE CURRENTLY LOGGED IN THE SYSTEM
4.DISPLAY YOUR NAME AT GIVEN X,Y POSITION
5.DISPLAY YOUR TERMINAL NUMBER
6.EXIT
ENTER YOUR CHOICE
5
/dev/cons0
```

9. Write a shell script which will generate first n Fibonacci numbers like :1,1,2,3,5,13,….

```
echo "enter term"
read n
echo "fibonacci series"
a=0
b=1
echo -n $a
echo -n " "
echo -n $b
for (( i=3; i<=$n; i++ ))
do
        c=`expr $a + $b`
        a=$b
        b=$c
        echo -n " "
        echo -n $c
done
echo " "
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./9.sh
enter term
20
fibonacci series
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181
```

10. Write a shell script to find whether a given year is leap year or not.

```
echo "enter year"
read leap
if [ `expr $leap % 400` -eq 0 ]
then
        echo "leap year"

elif [ `expr $leap % 100` -eq 0 ]
then
        echo "not a leap year"
elif [ `expr $leap % 4` -eq 0 ]
then
        echo "leap year"
else
        echo "not a leap year "

fi
```

Output:

```
Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./10.sh
enter year
2000
leap year

Madhuram@LAPTOP-FIJA1JIK MINGW64 /d/SEM 4/OS LAB/exp3
$ ./10.sh
enter year
2021
not a leap year
```