Experiment : 2

02/03/23 Shell programming - command syntax 6.

Aim: To implement Shell programming - command syntax - write simple function with basic tests, loops, patterns.

Theory:

Shell -
is an environment in which we can run our commands, program & shell scripts
There are different flavours of shell. each flavor of shell has its own set of recognized commands & functions.

Shell prompt -
the prompt $, which is called the command prompt, issued by shell.
it reads your input after you hit enter.

Shell types -
there are two major types of shells - Bourne & C shell.
Bourne shell classifications :- Bourne shell (sh)
Korn Shell (ksh)
Bourne again shell (bash)
posix shell (sh)

Shell Scripts -

list of commands which are listed in the order of execution.

Shell Scripts & functions are both interpreted. means they are not compiled.

(ii) write a shell program to check wether a given number is odd or even.

algorithm:

Step 1:- Start
2:- display enter number
3:- read input
4:- input / 2 = 0
5:- then it is even
6:- else it is odd
7:- Stop.

program

```
#!/bin/bash
Echo " odd or even"
echo -n " enter no to check"
read n
echo -n "Result:"
if [ `expr $n %. 2` == 0 ]
then
    echo "$n is even"
else
    echo "$n is odd"
fi
```

Output

```
Enter the number to check
2
it is a even number
3
it is a odd number.
```

(ii) write a shell program to check whether a given year is leap year or not.

Algorithm :-

Step 1 :- Start
2 :- read year.
3 :- implement if else
4 :- year % 4
5 :- then it is a leap year
6 :- else it is Not.
7 :- Stop.

program

```
echo "Enter the year"
read a
if [ $((a%400)) ==0]
then
echo "Leap year"
elif [$((a%100)) ==0]
then
echo "Not leap"
elif [$((a%4))==0]
then
 echo "Leap"
else
echo "Not leap"
fi
```

output

Enter the year
2022
Not leap.

Enter the year
2020
Leap.

(iii) write a shell program to find the factorial of a number.

Algorithm

Step 1:- Start
2:- use loop
3:- i=1, i<=a; i++
4:- fact = fact * i
5:- print factorial (fact)
6:- Stop.

(iv) write a shell program to swap two integers

Algorithm.

Step 1:- Start
2:- get 2 numbers
3:- 1st No = $a
4:- 2nd No = $b
5:- Swap.
temp = $b
b = $a
a = $temp
6:- echo after swapping.
7:- echo $a & $b
8:- Stop.

program

```
echo " enter the number 1 "
read a.
echo " enter the number 2 "
read b.
temp = 0
echo " Number 1 = $a "
echo " Number 2 = $b "
echo -e
temp = $b
b = $a
a = $temp
echo " Number 1 = $a "
echo " Number 2 = $b "
```

output

```
Enter the number 1
2
Enter the number 2
6.
Number 1 = 2
Number 2 = 6
after Swapping
Number 1 = 6
Number 2 = 2
```

(v) write a shell program to implement a calculator

Algorithm

Step 1:- Start
2:- Read two numbers.
3:- input choice.
4:- triggers choice.
5:- (i) a+b
(ii) a-b
(iii) a*b
(iv) a/b.
6:- display result.
7:- Stop

program

```
echo "enter the number 1:"
read a.
echo " enter the number 2:"
 read b
echo "menu"
echo "1. add"
echo "2. sub"
echo "3. mul"
echo "4. div"
read n
 case $n 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));;
*) echo "invalid input"
   esac.
```

Result :- The programs have been executed successfully & the output is verified.

output:

```
enter the number 1:
5
enter the number 2:
3

MENU
1. add
2. sub
3. mul
4. Div

1.
   a+b = 8

2.
   a-b = 2

3.
   a*b = 15

4.
   a/b = 1
```