Experiment No: 2

Name of the problem: Introduction to Shell coding.

Command:

- **First Shell Code:**

```
  GNU nano 4.8                                                    hello.sh
#! /bin/bash
echo "Hello World"

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./hello.sh
Hello World
```

- **Variables:**

```
  GNU nano 4.8                                                Into_variable.sh
#! /bin/bash
a=10
b=20
echo a = $a and b = $b

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./Into_variable.sh
a = 10 and b = 20
```

- **Arithmetic Operations:**

```
  GNU nano 4.8                                          arithmatic_operation.sh
#! /bin/bash
a=10
b=20
echo $((a+b))

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano arithmatic_operation.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./arithmatic_operation.sh
30
```

```
  GNU nano 4.8                                          arithmatic_operation.sh
#! /bin/bash
a=10
b=20
c=$((a+b))
echo $c

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano arithmatic_operation.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./arithmatic_operation.sh
30
```

```
  GNU nano 4.8                                    arithmatic_operation.sh
#! /bin/bash
a=10.11
b=10.11
c=$a+$b
echo $c|bc

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano arithmatic_operation.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./arithmatic_operation.sh
20.22
```

```
  GNU nano 4.8                                    arithmatic_operation.sh
#! /bin/bash
a=10.11
b=10.11
c=$a+$b
echo "($c)^2"|bc

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano arithmatic_operation.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./arithmatic_operation.sh
408.84
```

```
  GNU nano 4.8                                    arithmatic_operation.sh
#! /bin/bash
echo "scale=5;11.211/3" | bc

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano arithmatic_operation.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./arithmatic_operation.sh
3.73700
```

```
  GNU nano 4.8                                    arithmatic_operation.sh
#! /bin/bash
echo "2^8" | bc -l

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano arithmatic_operation.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./arithmatic_operation.sh
256
```

```
  GNU nano 4.8                                    arithmatic_operation.sh
#! /bin/bash
echo "scale=4;sqrt(13)" | bc -l

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano arithmatic_operation.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./arithmatic_operation.sh
3.6055
```

- **Input From User:**

```
  GNU nano 4.8                                                  input.sh
#! /bin/bash
echo "Enter a:"
read a
echo "Enter b:"
read b
echo a = $a and b= $b
```

```
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano input.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./input.sh
Enter a:
12
Enter b:
13
a = 12 and b= 13
```

```
  GNU nano 4.8                                                  input.sh
#! /bin/bash
echo "Enter a & b:"
read a b
echo a = $a and b= $b
```

```
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano input.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./input.sh
Enter a & b:
5 6
a = 5 and b= 6
```

```
  GNU nano 4.8                                                  input.sh
#! /bin/bash
read -p "Enter a:" a
read -p "Enter b:" b
echo a = $a and b= $b
```

```
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano input.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./input.sh
Enter a:6
Enter b:9
a = 6 and b= 9
```

```
  GNU nano 4.8                                                  input.sh
#! /bin/bash
read -p "Enter id:" id
read -sp "Enter password:" pass
echo id = $id and pass= $pass

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano input.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./input.sh
Enter id:id
Enter password:pass
id = id and pass= pass
```

- **Pass Argument During Execution:**

```
  GNU nano 4.8                                                    arg.sh
#! /bin/bash
echo $0
echo $1
args=("$@")
echo $@
echo $#
echo $args
echo ${args[0]} ${args[1]} ${args[2]}
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano arg.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./arg.sh
./arg.sh


0


amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$
```

- **Command Statement(if):**

```
  GNU nano 4.8                                              condition.sh
#! /bin/bash
a=10
if [ $a -eq 10 ]
    then
    echo $a is equal to 10
    else
    echo $a is not equal to 10
fi

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano condition.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./condition.sh
10 is equal to 10
```

```
  GNU nano 4.8                                                condition.sh
#! /bin/bash
a=13
if [ $a -ge 10 ]
    then
    echo $a is greater than or equal to 10
fi
```

```
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano condition.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./condition.sh
13 is greater than or equal to 10
```

```
  GNU nano 4.8                                                condition.sh
#! /bin/bash
pass=abc123
read -sp "Enter your password:" inp
echo
    if [  $pass == $inp ]
        then
                echo welcome
        else
                echo incorrect password
    fi
```

```
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano condition.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./condition.sh
Enter your password:
welcome
```

➢ **Loop Statement:**

- **While:**

```
  GNU nano 4.8                                                    loop.sh
#! /bin/bash
i=1
while [ $i -lt 10 ]
do
echo $i
((i++))
done
```

```
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano loop.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./loop.sh
1
2
3
4
5
6
7
8
9
```

```
  GNU nano 4.8                                                  loop.sh
#! /bin/bash
i=1
while (($i <= 10 ))
do
echo $i
((i++))
done
```

```
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano loop.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./loop.sh
1
2
3
4
5
6
7
8
9
10
```

- **For:**

```
  GNU nano 4.8                                                  loop.sh
#! /bin/bash
for i in {1..10}
do
echo $i
done
```

```
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano loop.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./loop.sh
1
2
3
4
5
6
7
8
9
10
```

```
  GNU nano 4.8                                                  loop.sh
#! /bin/bash
for ((i=1;i<=10;i++))
do
echo $i
done
```

```
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano loop.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./loop.sh
1
2
3
4
5
6
7
8
9
10
```

- **Array:**

```
  GNU nano 4.8                                                  array.sh
#! /bin/bash
arr=(Amit)
echo ${arr[@]}
echo ${arr[*]}
echo ${arr[@]:0}
echo ${arr[*]:0}
```

```
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./array.sh
Amit
Amit
Amit
Amit
```

```
  GNU nano 4.8                                                  array.sh
#! /bin/bash
arr=(Asharf Ul Alam)
echo ${arr[@]:0}
echo ${arr[@]:1}
echo ${arr[@]:2}
echo ${arr[0]:1}

amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ nano array.sh
amit@DESKTOP-V5UJJLP:/mnt/f/32/01 OS/Lab/Lab2$ ./array.sh
Asharf Ul Alam
Ul Alam
Alam
sharf
```