LAB PROGRAMS 1 – 12

Lab Program 1:

Q. Shell script to find if the given year is leap or not.

PROGRAM:

```
#!/bin/sh
echo "Enter the year: "
read year
if [ `expr $year % 4` -eq 0 ]
then
        echo "Leap Year"
else
        echo "Not a Leap Year"
fi
```

OUTPUT:

```
Enter the year
2016
The entered year is a leap year
```

```
Enter the year
2019
The entered year is not a leap year
```

Lab Program 2:

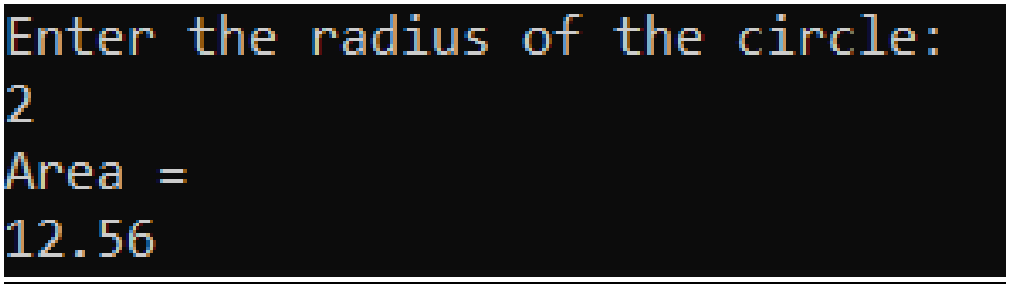
Q. Shell script to find the area of a circle.

PROGRAM:

```
#!/bin/sh
```

```
echo "Enter the radius of the circle: "
read radius
echo "Area of the circle: "
echo "3.14 * $radius * $radius" | bc
```

OUTPUT:



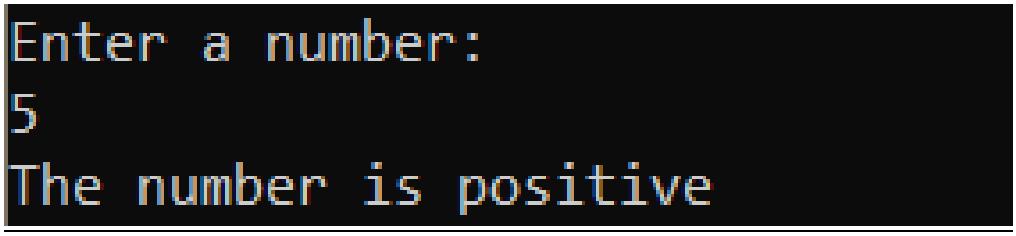
Lab Program 3:

Q. Shell script to check whether the number is zero/ positive/ negative.

PROGRAM:

```
#!/bin/sh
echo "Enter a number: "
read num
if [ $num -eq 0 ];
then
        echo "Number is Zero"
elif [ $num -gt 0 ];
then
        echo "Number is Positive"
else
        echo "Number is Negative"
fi
```

OUTPUT:



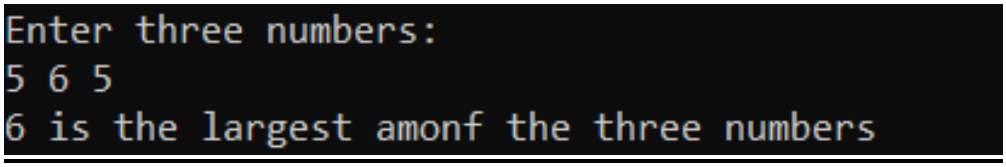
Lab Program 4:

Q. Shell script to find the biggest of three numbers.

PROGRAM:

```
#!/bin/sh
echo "Enter three numbers: "
read x y z
if [ $x -gt $y -a $x -gt $z ]
then
        echo "$x is greatest"
elif [ $y -gt $x -a $y -gt $z ]
then
        echo "$y is greatest"
else
        echo "$z is greatest"
fi
```

OUTPUT:



Lab Program 5:

Q. Shell script to find the factorial of a number.

PROGRAM:

```
#!/bin/sh
echo "Enter a number: "
read num
fact=1
i=1
while [ $i -le $num ]
do
        fact=`expr $i \* $fact`
        i=`expr $i + 1`
done
echo "Factorial of $num = $fact"
```

OUTPUT:

```
Enter a number:
5
The factorial of the number is = 120
```

Lab Program 6:

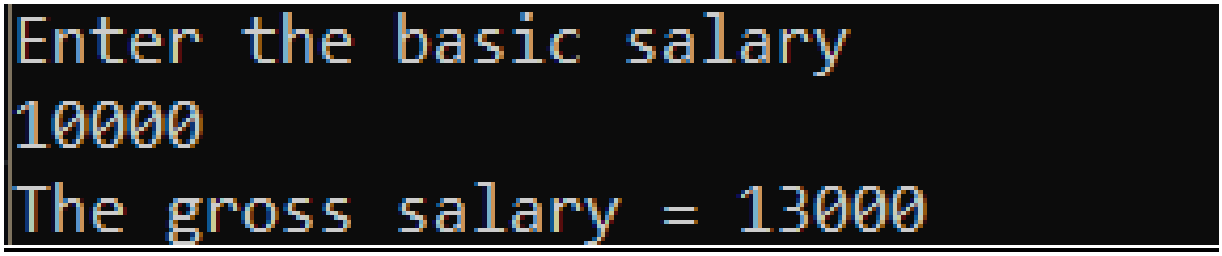
Q. Shell script to compute the gross salary of an employee.

PROGRAM:

```
#!/bin/sh
echo -n "Enter the basic salary: "
read basic
da=$(echo "0.1 * $basic" | bc)
hra=$(echo "0.2 * $basic" | bc)
gross=$(echo "$basic + $da + $hra" | bc)
```

```
echo "DA of the employee : $da"
echo "HRA of the employee : $hra"
echo "Gross salary of the employee : $gross"
```

OUTPUT:



Lab Program 7:

Q. Shell script to convert the temperature Fahrenheit to Celsius.

PROGRAM:

```
#!/bin/sh
echo -n "Read the temperature in Fahrenheit: "
read f
v1=$( echo "$f - 32" | bc )
v2=$( echo "$v1 * 5" | bc )
v3=$( echo "scale=2; $v2 / 9" | bc -l )
echo "Temperature in Celsius = $v3"
```

OUTPUT:

```
Enter the temperature in Fahrenheit:
51
Temperature in Celcius = 10.555
```

Lab Program 8:

Q. Shell script to perform arithmetic operations on given two numbers.

PROGRAM:

```
#!/bin/sh
echo "Enter two numbers: "
read x y
echo "1)Addition 2)Subtraction 3)Multiplication 4)Division 5)Remainder"
echo "Choose an Option: "
read ch
case $ch in
        1) echo "$x + $y = `expr $x + $y`";;
        2) echo "$x - $y = `expr $x - $y`";;
        3) echo "$x X $y = `expr $x \* $y`";;
        4) echo "$x / $y = `expr $x / $y`";;
        5) echo "$x % $y = `expr $x % $y`";;
        *) echo "Invalid Choice!!"
esac
```

OUTPUT:

```
Welcome to the calculator
Enter two numbers
2 5
Do you want to continue to the calculator? (1) or (2)
1
Select the arithmetic operation to be opeated on the numbers:
[1]Add [2]Sub [3]Mul [4]Div [5]Exit
2
-3
Select the arithmetic operation to be opeated on the numbers:
[1]Add [2]Sub [3]Mul [4]Div [5]Exit
1
7
Select the arithmetic operation to be opeated on the numbers:
[1]Add [2]Sub [3]Mul [4]Div [5]Exit
5
```

Lab Program 9:

Q. Shell script to find the sum of even numbers up to n.

PROGRAM:

```
#!/bin/bash
echo -n "Enter a number: "
read num
sum=0
for (( i=0 ; i<=$num ; i=i+2 ))
do
        sum=$(( $sum + $i ))
done
echo "Sum of even numbers utpo $num = $sum"
```

OUTPUT:

```
Enter the upper limit:
12
The sum = 42
```

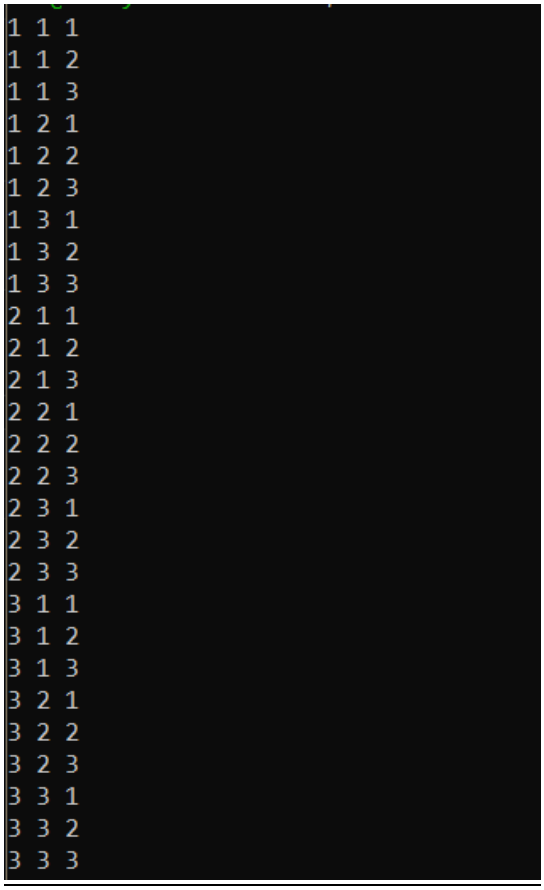
Lab Program 10:

Q. Shell script to print the combinations of numbers 123.

PROGRAM:

```
#!/bin/sh
for i in 1 2 3
do
	for j in 1 2 3
	do
		for k in 1 2 3
		do
			echo "$i$j$k"
		done
	done
done
```

OUTPUT:



Lab Program 11:

Q. Shell script to find the power of a number.

PROGRAM:

```
#!/bin/bash
echo -n "Enter the number: "
read x
echo -n "Enter the power: "
read y
res=1
for (( i=1; i<=$y; i++ ))
do
        res=`expr $res \* $x`
done
echo "$x ^ $y = $res"
```

OUTPUT:

```
Enter a number
5
Enter the power
3
The exponent of the number is = 125
```

Lab Program 12:

Q. Shell script to find the sum of n natural numbers.

PROGRAM:

```
#!/bin/bash
echo -n "Enter a number : "
read num
sum=0
for (( i=1 ; i<=$num ; i++ ))
do
        sum=$(( $sum + $i ))
done
echo "Sum of $num natural numbers = $sum"
```

OUTPUT:

```
Enter a number
7
The sum of natural numbers upto 7 = 28
```