NAME: RAMYA RAMESH
USN: 1BM19CS227

USP LAB 5-D

Program 1) Shell script to find if the given year is leap or not

SHELL SCRIPT:

```
#!/bin/sh
read -p "Enter the year: " yr
a=$(($yr%4))
b=$(($yr%100))
c=$(($yr%400))
if [ $a -eq 0 -a $b -ne 0 -o $c -eq 0 ] ; then
echo "The given year is a Leap year"
else
echo "The given year is NOT a leap year"
fi
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 1_leapyr.sh
Enter the year: 1900
The given year is NOT a leap year
```

Program 2) Shell script to find the area of a circle

SHELL SCRIPT:

```
#!/bin/sh
read -p "Enter the radius of the circle: " r
area=$(echo "scale=2;3.14*$r*$r" |bc)
echo "Area of the circle: $area"
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 2_area.sh
Enter the radius of the circle: 24
Area of the circle: 1808.64
```

Program 3) Shell script to check whether the number is zero/ positive/ negative

SHELL SCRIPT:

```
#!/bin/sh
read -p "Enter a number: " no
if [ $no -gt 0 ] ; then
echo "Given number is positive"
elif [ $no -lt 0 ] ; then
echo " Given number is negative"
else
echo "Given number is equal to zero"
fi
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 3_checknum.sh
Enter a number: -259
 Given number is negative
```

Program 4) Shell script to find the biggest of three numbers

SHELL SCRIPT:

```
#!/bin/sh
read -p "Enter three numbers: " a b c
if [ $a -ge $b -a $a -ge $c ] ; then
echo "$a is the largest"
elif [ $b -ge $a -a $b -ge $c ] ; then
echo "$b is the largest"
else
echo "$c is the largest"
fi
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 4_largest.sh
Enter three numbers: 8 5 8
8 is the largest
```

Program 5) Shell script to find the factorial of a number

SHELL SCRIPT:

```
read -p "Enter a number: " n
fact=1
i=1
while [ $i -le $n ]
do
fact=$(($i*$fact))
i=$(($i+1))
done
echo "Factorial of $n is : $fact"
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 5_factorial.sh
Enter a number: 6
Factorial of 6 is : 720
```

Program 6) Shell script to compute the gross salary of an employee

SHELL SCRIPT:

```
read -p "Enter the basic salary: " basic
da=$(echo "0.1*$basic"|bc)
hra=$(echo "0.2*$basic"|bc)
gross=$(echo "$basic+$da+$hra"|bc)
echo "Gross Salary of the employee is: $gross"
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 6_grsal.sh
Enter the basic salary: 25580
Gross Salary of the employee is: 33254.0
```

Program 7) Shell script to convert the temperature Fahrenheit to Celsius

SHELL SCRIPT:

```
read -p "Enter the temperature in Fahrenheit: " f
c=$(echo "scale=2;(5/9)*($f-32)"|bc)
echo "The temperature in Celsius is: $c"
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 7_tempconv.sh
Enter the temperature in Fahrenheit: 47
The temperature in Celsius is: 8.25
```

Program 8) Shell script to perform arithmetic operations on given two numbers

SHELL SCRIPT:

```
#!/bin/sh
read -p "Enter two numbers: " x y
echo " Enter 1 for addition\n Enter 2 for subtraction\n Enter 3 for multiplication\n Enter 4 for division\n Enter 5 for remainder"
read -p "Enter your choice: " ch
case $ch in
1)sum=$(echo "$x+$y"|bc) ; echo $sum ;;
2)diff=$(echo "$x-$y"|bc) ; echo $diff ;;
3)mul=$(echo "$x*$y"|bc) ; echo $mul ;;
4)div=$(echo "scale=2;$x/$y"|bc) ; echo $div ;;
5)mod=$(($x%$y)) ; echo $mod ;;
*) echo "Invalid choice"
esac
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 8_calc.sh
Enter two numbers: 293 154
 Enter 1 for addition
 Enter 2 for subtraction
 Enter 3 for multiplication
 Enter 4 for division
 Enter 5 for remainder
Enter your choice: 4
1.90
```

Program 9.1) Shell script to find the sum of even numbers upto n (using while loop)

SHELL SCRIPT:

```
read -p "Enter the value of n: " n
i=2
sum=0
while [ $i -lt $n ]
do
sum=$(($sum+$i))
i=$(($i+2))
done
echo "The sum of even numbers upto $n is : $sum"
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 9.1_sumeven.sh
Enter the value of n: 20
The sum of even numbers upto 20 is : 90
```

Program 9.2) Shell script to find the sum of even numbers upto n (using for loop)

SHELL SCRIPT:

```
read -p "Enter a number: " n
sum=0
for (( i=2; i<$n; i=i+2 ))
do
sum=$((sum+i))
done
echo "The sum of even numbers upto $n is: $sum"
```

OUTPUT:

```
Ramya@LAPTOP-RPIVNK5U MINGW64 ~/OneDrive/Desktop
$ bash 9.2_sumeven2.sh
Enter a number: 20
The sum of even numbers upto 20 is: 90
```

Program 10) Shell script to print the combinations of numbers 123

SHELL SCRIPT:

```
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:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 10_123com.sh
1 1 1
1 1 2
1 1 3
1 2 1
1 2 2
1 2 3
1 3 1
1 3 2
1 3 3
2 1 1
2 1 2
2 1 3
2 2 1
2 2 2
2 2 3
2 3 1
2 3 2
2 3 3
3 1 1
3 1 2
3 1 3
3 2 1
3 2 2
3 2 3
3 3 1
3 3 2
3 3 3
```

Program 11) Shell script to find the power of a number

SHELL SCRIPT:

```
#!/bin/sh
read -p "Enter a number: " n
read -p "Enter a power: " pow
count=0
res=1
while [ $pow -ne $count ]
do
res=$((res*$n))
count=$((count+1))
done
echo "$n raised to the power $pow is : $res"
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 11_powernum.sh
Enter a number: 2
Enter a power: 5
2 raised to the power 5 is : 32
```

Program 12.1) Shell script to find the sum of n natural numbers (using while loop)

SHELL SCRIPT:

```
read -p "Enter a number: " n
i=1
sum=0
while [ $i -le $n ]
do
sum=$(($sum+$i))
i=$(($i+1))
done
echo "Sum of $n natural numbers is : $sum"
```

OUTPUT:

```
bmsce@bmsce-Precision-T1700:~/1BM19CS227$ sh 12.1_sumn.sh
Enter a number: 10
Sum of 10 natural numbers is : 55
```

Program 12.2) Shell script to find the sum of n natural numbers (using for loop)

SHELL SCRIPT:

```
read -p "Enter a number: " n
sum=0
for (( i=1; i<=$n; i++ ))
do
sum=$((sum+i))
done
echo "The sum of $n natural numbers is: $sum"
```

OUTPUT:

```
Ramya@LAPTOP-RPIVNK5U MINGW64 ~/OneDrive/Desktop
$ bash 12.2_sumn.sh
Enter a number: 10
The sum of 10 natural numbers is: 55
```