Shell Scripting Programs (PART 2)

9. Write a shell program to find the sum of squares of first n numbers (use while).

```
#Jithu S
#Roll no:28
#!/bin/bash
echo -n "Enter a number: "
read n
sum=0
i=1
while [ $i -le $n ]
do
    sum=$((sum + (i * i)))
    i=$((i + 1))
done
echo "Sum of squares of first $n numbers: $sum"
```

```
jithu@jithu-VirtualBox:~/shellscript$ ./sumofsquares.sh
Enter a number: 5
Sum of squares of first 5 numbers: 55
```

10. Write a menu driven shell program to find the sum, difference, product, quotient of 2 numbers.

```
#Jithu S
#Roll no: 28
#!/bin/bash
while true
do
    echo "MENU:"
    echo "1. Sum"
    echo "2. Difference"
    echo "3. Product"
    echo "4. Quotient"
    echo "5. Exit"
    echo -n "Enter your choice: "
    read choice
    if [ $choice -eq 5 ]; then
        echo "Exiting..."
        exit
    fi
    echo -n "Enter first number: "
    read num1
    echo -n "Enter second number: "
    read num2
    case $choice in
        1) echo "Sum: $((num1 + num2))" ;;
        2) echo "Difference: $((num1 - num2))" ;;
        3) echo "Product: $((num1 * num2))" ;;
        4) if [ $num2 -eq 0 ]; then
                echo "Division by zero is not allowed!"
           else
                echo "Quotient: $((num1 / num2))"
           fi
           ;;
        *) echo "Invalid choice!" ;;
    esac
done
```

```
jithu@jithu-VirtualBox:~/shellscript$ ./arithmetic.sh
MENU:
1. Sum
2. Difference
3. Product
4. Quotient
5. Exit
Enter your choice: 1
Enter first number: 4
Enter second number: 5
Sum: 9
MENU:
1. Sum
2. Difference
3. Product
4. Quotient
5. Exit
Enter your choice: 2
Enter first number: 5
Enter second number: 2
Difference: 3
MENU:
1. Sum
2. Difference
3. Product
4. Quotient
5. Exit
Enter your choice: 3
Enter first number: 4
Enter second number: 5
Product: 20
MENU:
1. Sum
2. Difference
3. Product
4. Quotient
5. Exit
Enter your choice: 4
Enter first number: 9
Enter second number: 3
Quotient: 3
MENU:
1. Sum
2. Difference
3. Product
4. Quotient
5. Exit
Enter your choice: 5
Exiting...
```

11. Write a menu driven shell program to find the month if a number gives (repeat the menu infinitely).

```
#Jithu S
#Roll No:28
#!/bin/bash
while true
do
    echo "Enter a number (1-12) to get the corresponding month, or 0 to exit:"
    read num
    if [ $num -eq 0 ]; then
        echo "Exiting..."
        exit
    fi
    case $num in
        1) echo "January" ;;
        2) echo "February" ;;
        3) echo "March" ;;
        4) echo "April" ;;
        5) echo "May" ;;
        6) echo "June" ;;
        7) echo "July" ;;
        8) echo "August" ;;
        9) echo "September" ;;
        10) echo "October" ;;
        11) echo "November" ;;
        12) echo "December" ;;
        *) echo "Invalid number! Enter a value between 1 and 12." ;;
    esac
done
```

```
jithu@jithu-VirtualBox:~/shellscript$ ./month.sh
Enter a number (1-12) to get the corresponding month, or 0 to exit:
6
June
Enter a number (1-12) to get the corresponding month, or 0 to exit:
4
April
Enter a number (1-12) to get the corresponding month, or 0 to exit:
3
March
Enter a number (1-12) to get the corresponding month, or 0 to exit:
9
September
Enter a number (1-12) to get the corresponding month, or 0 to exit:
13
Invalid number! Enter a value between 1 and 12.
Enter a number (1-12) to get the corresponding month, or 0 to exit:
0
Exiting...
```

12.Write a shell program to find the factorial of a number (Use function).

```
#Jithu S
#Roll no: 28
#!/bin/bash
factorial() {
    num=$1
    fact=1
    while [ $num -gt 1 ]
    do
        fact=$((fact * num))
        num=$((num - 1))
    done
    echo "Factorial: $fact"
}
echo -n "Enter a number: "
read n
factorial $n
```

```
jithu@jithu-VirtualBox:~/shellscript$ ./factorialfn.sh
Enter a number: 5
Factorial: 120
```

13.Write a shell program to print the Fibonacci numbers upto N.

```
#Jithu S
#Roll no: 28
#!/bin/bash
echo -n "Enter N: "
read n
a=0
b=1
echo "Fibonacci series up to $n:"
echo -n "$a $b "
while [ $((a + b)) -le $n ]
do
    fib=$((a + b))
    echo -n "$fib "
    a=$b
    b=$fib
done
echo
```

```
jithu@jithu-VirtualBox:~/shellscript$ ./fibonacci.sh
Enter N: 8
Fibonacci series up to 8:
0 1 1 2 3 5 8
```

14. Write a shell program to find the sum of squares of first n numbers (Use while).

```
#Jithu S
#Roll no:28
#!/bin/bash
echo -n "Enter a number: "
read n
sum=0
i=1
while [ $i -le $n ]
do
    sum=$((sum + (i * i)))
    i=$((i + 1))
done
echo "Sum of squares of first $n numbers: $sum"
```

```
jithu@jithu-VirtualBox:~/shellscript$ ./sumofsquares.sh
Enter a number: 5
Sum of squares of first 5 numbers: 55
```

15. Read a Decimal number. Convert it to Binary and display the result (Use while).

```
#Jithu S
#Roll no: 28
#!/bin/bash
echo -n "Enter a decimal number: "
read num
binary=""
while [ $num -gt 0 ]
do
    remainder=$((num % 2))
    binary="$remainder$binary"
    num=$((num / 2))
done
echo "Binary: $binary"
```

```
jithu@jithu-VirtualBox:~/shellscript$ ./dectobin.sh
Enter a decimal number: 64
Binary: 1000000
```