

SYSTEM SOFTWARE

SEMESTER-IV

LAB SHEET-6

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Batch: A2

- 1) Shell script to print Fibonacci series.

```
#!/bin/bash

# Function to calculate the Fibonacci series
fibonacci() {
    n=$1
    a=0
    b=1

    echo -n "Fibonacci Series up to $n terms: "

    # Loop to calculate Fibonacci series up to n terms
    for (( i=0; i<n; i++ ))
    do
        echo -n "$a "
        fn=$((a + b))
        a=$b
        b=$fn
    done
    echo

}

# Take user input for the number of terms
read -p "Enter the number of terms for Fibonacci series: " num_terms

# Call the fibonacci function with user input
fibonacci $num_terms
```

```
username@Linux:~$ bash SS_LAB_ASSIGNMENT06.sh
Enter the number of terms for Fibonacci series: 23
Fibonacci Series:
0 1 1 2 3 5 8 13 21
```

- 2) script to find the factorial of a number using recursion.

```
#!/bin/bash

# Define the factorial function
factorial() {
    if [ $1 -eq 0 ]; then
        echo 1 # Base case: factorial of 0 is 1
    else
        prev=$(factorial $(( $1 - 1 ))) # Recursive call
        echo $(( $1 * $prev ))          # Multiply current number with factorial of previous number
    fi
}

# Take user input for the number whose factorial needs to be calculated
read -p "Enter a number to calculate its factorial: " num

# Call the factorial function with user input
result=$(factorial $num)

echo "Factorial of $num is: $result"
```

```
username@Linux:~$ bash SS_LAB_ASSIGNMENT6.sh
Enter a number to find its factorial: 4
Factorial of 4 is 24
username@Linux:~$
```