

## Experiment No:10

### Write a shell script to find factorial of a given number

#### Aim:

To write a shell script to find the factorial of a given number.

#### Theory:

The factorial of a non-negative integer  $n$  is the product of all positive integers less than or equal to  $n$ . This can be calculated using a loop in shell scripting by multiplying the numbers from 1 to  $n$ .

#### Procedure:

1. **Create the Shell Script:** Open a terminal and create a shell script file:

```
nano factorial.sh
```

2. **Write the Simple Shell Script:** Add the following code:

```
#!/bin/bash
# Simple script to calculate factorial

echo "Enter a number:"
read number

factorial=1
for (( i=1; i<=number; i++ ))
do
    factorial=$((factorial * i))
done

echo "Factorial of $number is $factorial"
```

3. **Save and Exit:** Press Ctrl + X, then Y, and hit Enter to save and exit.
4. **Make the Script Executable:**

```
chmod +x factorial.sh
```

5. **Run the Script:**

```
./factorial.sh
```

6. **Enter a Number:** When prompted, enter a number. For example, if you enter 5, the output will be:

Enter a number:

5

Factorial of 5 is 120

**Conclusion:**

This simple shell script reads a number from the user and calculates its factorial using a loop. The script demonstrates basic shell scripting skills in Linux.