

**Submitted By:**

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21BCE8421

## Operating Systems

### Lab 4

1. Write a Shell program to print the reverse of a number.

**Code:**

```
harshita@HarshitaP:~$ #!/bin/bash

read -p "Enter a number: " num

reverse=""

while [ $num -gt 0 ]
do
    rem=$((num % 10))
    num=$((num / 10))
    reverse="$reverse$rem"
done

echo "The reverse of the number is: $reverse"
```

**Output:**

```
Enter a number: 34
The reverse of the number is: 43
```

2. Write a Shell program to find the smallest of 'N' numbers.

**Code:**

```
harshita@HarshitaP:~$ #!/bin/bash

read -p "Enter the number of integers you want to compare: " n

read -p "Enter number 1: " num1
smallest=$num1

for((i=2;i<=n;i++))
do
    read -p "Enter number $i: " num
    if [ $num -lt $smallest ]; then
        smallest=$num
    fi
done

echo "The smallest among the numbers is: $smallest"
```

**Output:**

```
Enter the number of integers you want to compare: 3
Enter number 1: 15
Enter number 2: 85
Enter number 3: 44
The smallest among the numbers is: 15
```

3. Write a Shell program to print the Sum of Digits of a Number.

**Code:**

```
harshita@HarshitaP:~$ #!/bin/bash

read -p "Enter a number: " num

sum=0

while [ $num -gt 0 ]
do
    rem=$((num % 10))
    num=$((num / 10))
    sum=$((sum + rem))
done

echo "The sum of digits is: $sum"
```

**Output:**

```
Enter a number: 3852
The sum of digits is: 18
```

4. Write a Shell program to find the factorial of a number using for loop.

**Code:**

```
harshita@HarshitaP:~$ #!/bin/bash

read -p "Enter a number: " num

factorial=1

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

echo "The factorial of $num is: $factorial"
```

**Output:**

```
Enter a number: 9
The factorial of 9 is: 362880
harshita@HarshitaP:~$
```

5. Write a Shell program to generate Fibonacci series.

**Code:**

```
harshita@HarshitaP:~$ #!/bin/bash

read -p "Enter the number of terms you want in the series: " n

first=0
second=1

echo "The Fibonacci series is:"

for((i=0;i<n;i++))
do
    if [ $i -eq 0 ]; then
        echo $first
    elif [ $i -eq 1 ]; then
        echo $second
    else
        next=$((first + second))
        first=$second
        second=$next
        echo $next
    fi
done
```

**Output:**

```
Enter the number of terms you want in the series: 12
The Fibonacci series is:
0
1
1
2
3
5
8
13
21
34
55
89
```

6. Write a Shell program to generate prime numbers between 1 and 50.

**Code:**

```
harshita@HarshitaP:~$ #!/bin/bash

echo "The prime numbers between 1 and 50 are:"

for((num=2;num<=50;num++))
do
    isPrime=1
    for((i=2;i<num;i++))
    do
        if [ $(($num % i)) -eq 0 ]; then
            isPrime=0
            break
        fi
    done
    if [ $isPrime -eq 1 ]; then
        echo $num
    fi
done
```

**Output:**

```
The prime numbers between 1 and 50 are:
2
3
5
7
11
13
17
19
23
29
31
37
41
43
47
```