ASSIGNMENT – I

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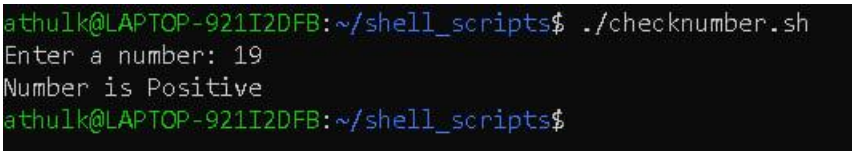
1. Check Whether a Number is Positive, Negative, or Zero:

Script:

```
check_number() {
   if [ $1 -gt 0 ]; then
      echo "Number is Positive"
   elif [ $1 -lt 0 ]; then
      echo "Number is Negative"
   else
      echo "Number is Zero"
   fi
}

read -p "Enter a number: " num
check_number $num
```

Output:

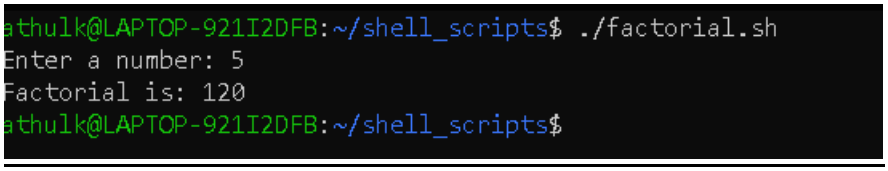


2. Factorial of a Number:

Script:

```
factorial() {
   n=$1
   fact=1

   while [ $n -gt 0 ]
   do
      fact=$((fact * n))
      n=$((n - 1))
   done

   echo "Factorial is: $fact"
}

read -p "Enter a number: " num
factorial $num
```

Output:

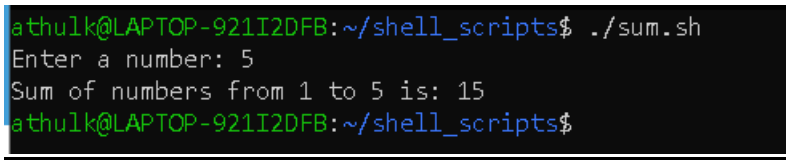


3. Sum of N Numbers:

Script:

```
sum_n() {
   n=$1
   sum=0

   for ((i=1; i<=n; i++))
   do
      sum=$((sum + i))
   done

   echo "Sum of numbers from 1 to $n is: $sum"
}

read -p "Enter a number: " num
sum_n $num
```

Output:

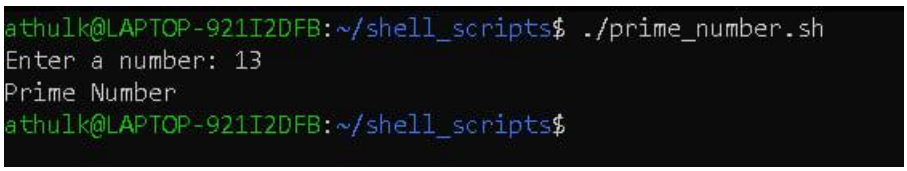


4. Prime Number Check:

Script:

```
is_prime() {
   n=$1

   if [ $n -le 1 ]; then
      echo "Not a Prime Number"
      return
   fi

   for ((i=2; i<=n/2; i++))
   do
      if [ $((n % i)) -eq 0 ]; then
         echo "Not a Prime Number"
         return
      fi
   done

   echo "Prime Number"
}

read -p "Enter a number: " num
is_prime $num
```

Output:



5. Reverse a Number:

Script:

```
read -p "Enter a number: " num

rev=0

if [ $num -lt 0 ]; then
   num=$(( -num ))
fi

while [ $num -gt 0 ]
do
   digit=$((num % 10))
   rev=$((rev * 10 + digit))
   num=$((num / 10))
done

echo "Reversed number: $rev"
```

Output:

```
athulk@LAPTOP-921I2DFB:~/shell_scripts$ ./reverse.sh
Enter a number: 567
Reversed number: 765
athulk@LAPTOP-921I2DFB:~/shell_scripts$
```

6. File Existence & Permission Check:

Script:

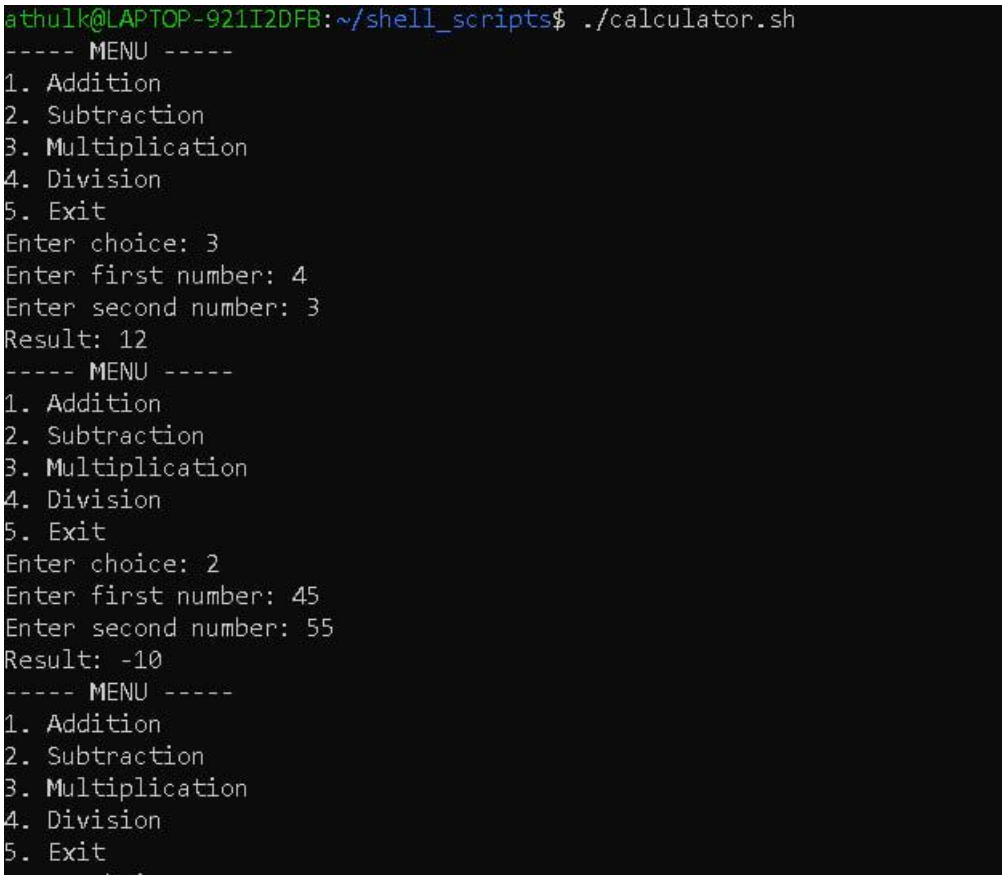
```
check_file() {
  file=$1

  if [ -e "$file" ]; then
    echo "File exists"

    if [ -r "$file" ]; then
      echo "Read permission: Yes"
    else
      echo "Read permission: No"
    fi

    if [ -w "$file" ]; then
      echo "Write permission: Yes"
    else
      echo "Write permission: No"
    fi

    if [ -x "$file" ]; then
      echo "Execute permission: Yes"
    else
      echo "Execute permission: No"
    fi
  else
    echo "File does not exist"
  fi
}

read -p "Enter file name: " fname
check_file "$fname"
```

Output:

7. Menu-Driven Calculator:

Script:

```
add() {
   echo "Result: $((a + b))"
}

sub() {
   echo "Result: $((a - b))"
}

mul() {
   echo "Result: $((a * b))"
}

div() {
   if [ $b -eq 0 ]; then
      echo "Division by zero not allowed"
   else
      echo "Result: $((a / b))"
   fi
}

while true
do
   echo "----- MENU -----"
   echo "1. Addition"
   echo "2. Subtraction"
   echo "3. Multiplication"
   echo "4. Division"
   echo "5. Exit"

   read -p "Enter choice: " choice

   if [ $choice -eq 5 ]; then
      echo "Exiting..."
      break
   fi

   read -p "Enter first number: " a
   read -p "Enter second number: " b
```

```
    case $choice in
        1) add ;;
        2) sub ;;
        3) mul ;;
        4) div ;;
        *) echo "Invalid choice" ;;
    esac
done
```

Output: