**Ex. No: 3a**
**Date: 24/1/25**

# Shell Script

**AIM:**

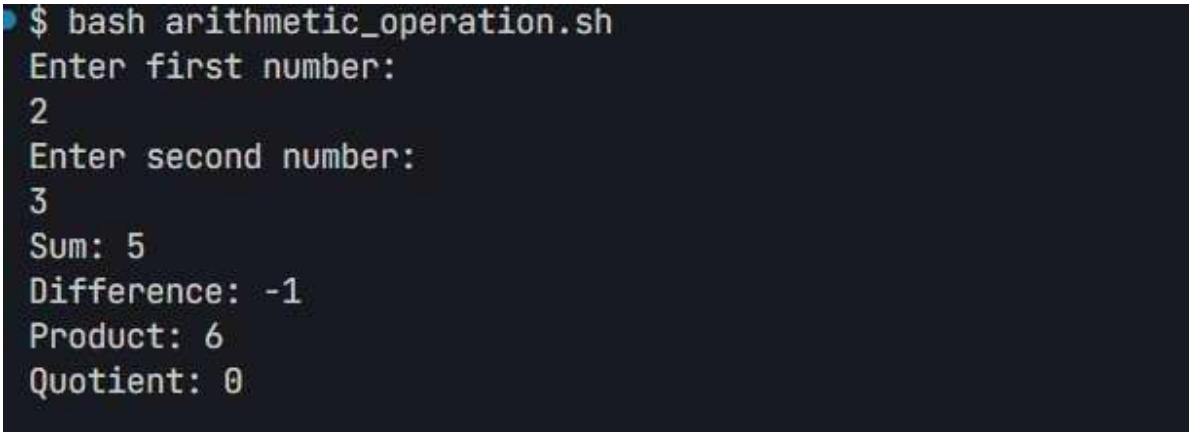
To write a Shell script to display a basic calculator.

**PROGRAM:**

```
#!/bin/bash

while true; do
   echo "========================"
   echo "    Basic Calculator"
   echo "========================"
   echo "1. Addition"
   echo "2. Subtraction"
   echo "3. Multiplication"
   echo "4. Division"
   echo "5. Exit"
   echo -n "Choose an option (1-5): "
   read choice

   if [[ $choice -eq 5 ]]; then
      echo "Exiting Calculator. Goodbye!"
      exit 0
   fi

   echo -n "Enter first number: "
   read num1
   echo -n "Enter second number: "
   read num2

   case $choice in
      1) result=$((num1 + num2))
        echo "Result: $num1 + $num2 = $result"
        ;;
      2) result=$((num1 - num2))
        echo "Result: $num1 - $num2 = $result"
        ;;
      3) result=$((num1 * num2))
        echo "Result: $num1 * $num2 = $result"
        ;;
```

```
        4) if [[ $num2 -eq 0 ]]; then
              echo "Error: Division by zero is not allowed!"
           else

              result=$(awk "BEGIN {print $num1 / $num2}")
              echo "Result: $num1 / $num2 = $result"
           fi
           ;;
        *) echo "Invalid option! Please choose between 1-5."
           ;;
    esac
    echo "----------------"
    echo
"" done
```

**OUTPUT:**




**RESULT:**

Thus, the basic calculator program was successfully implemented using shell scripting.

**Ex. No: 3b**
**Date: 24/1/25**

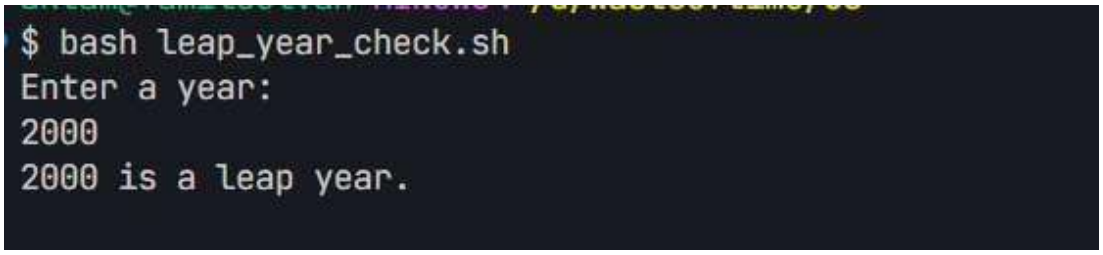
# Shell Script

**AIM:**
To write a Shellscript to test given year is leap or not using conditional statement

**PROGRAM:**

```
#!/bin/bash

read -p "Enter year: " year

if (( year % 4 == 0 && year % 100 != 0 )) || (( year % 400 == 0 ));
                then echo "$year is a Leap Year"
else fi                                                 echo "$year is not a Leap Year"
```

**OUTPUT:**




**RESULT:**

Thus, the leap year program was successfully implemented using shell scripting.

**Ex. No: 3a**
**Date: 28/1/25**

# Shell Script – Reverse of Digit

**AIM:**

To write a Shell script to reverse a given digit using looping statement.

**PROGRAM:**

```
#!/bin/bash
read -p "Enter a number: " num

reverse=0

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

echo "Reversed number: $reverse"
```

**OUTPUT:**

```
$ bash reverse_number.sh
Enter a number:
100102
Reversed number: 201001
```

**RESULT:**

Thus, the shell script to reverse a given digit is successfully implemented.

**Ex. No: 3b**
**Date: 28/1/25**

# Shell Script – Fibonacci Series

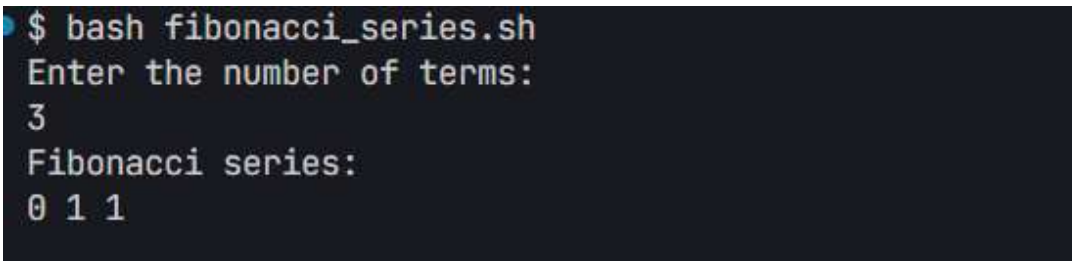
**AIM:**

To write a Shell script to generate a Fibonacci series using a for loop.

**PROGRAM:**

```
#!/bin/bash

read -p "Enter the number of terms: " n
a=0
b=1

echo "Fibonacci Series:"
for (( i=0; i<n; i++ )); do
        echo -n "$a "
          temp=$((a + b))
          a=$b
          b=$temp
done

echo
```

**OUTPUT**




**RESULT:**

Thus, the Shell Script to generate the Fibonacci series is successfully implemented.