_____

2A)

Program:

```
echo "Welcome to the Basic Calculator"

echo "-----------------------------"

echo "Enter first number:"

read num1

echo "Enter second number:"

read num2

echo "Choose operation:"

echo "1. Addition (+)"

echo "2. Subtraction (-)"

echo "3. Multiplication (*)"

echo "4. Division (/)"

read choice

case $choice in

  1)

    result=$((num1 + num2))

    echo "Result: $num1 + $num2 = $result"

    ;;

  2)
```

```bash
        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=$(echo "scale=2; $num1 / $num2" | bc)

            echo "Result: $num1 / $num2 = $result"

        fi

        ;;

    *)

        echo "Invalid choice. Please select from 1 to 4."
```

Input:

Output:

```
praveen@LAPTOP-Q0D806DB:~$ vi cal.sh
praveen@LAPTOP-Q0D806DB:~$ sh cal.sh
Welcome to the Basic Calculator
-------------------------------
Enter first number:
44
Enter second number:
77
Choose operation:
1. Addition (+)
2. Subtraction (-)
3. Multiplication (*)
4. Division (/)
1
Result: 44 + 77 = 121
```

_____

2B)

Program:

```
echo -n "Enter a year: "

read year

if [ $((year % 4)) -eq 0 ] && [ $((year % 100)) -ne 0 ] ||
[ $((year % 400)) -eq 0 ]; then

    echo "$year is a leap year."

else

    echo "$year is not a leap year."

Fi
```

Input:

```
praveen@LAPTOP-Q0D806DB:~$ vi leap.sh
praveen@LAPTOP-Q0D806DB:~$ sh leap.sh
Enter a year: 2005
```

OUTPUT:

```
praveen@LAPTOP-Q0D806DB:~$ vi cal.sh
praveen@LAPTOP-Q0D806DB:~$ vi leap.sh
praveen@LAPTOP-Q0D806DB:~$ sh leap.sh
Enter a year: 2005
2005 is not a leap year.
```