Flowchart Symbols

Flowcharts are used to illustrate algorithms in order to aid in the visualisation of a program.

Flowcharts are to be read top to bottom and left to right in order to follow an algorithms logic from start to finish. Below is an outline of symbols used in flowcharts.

Terminator
Used to represent the Start and end of a program with the Keywords BEGIN and END.

Decision
Used to split the flowchart sequence into multiple paths in order to represent SELECTION and REPETITION.

Process
An instruction that is to be carried out by the program.

Input / Output
Used to represent data entry by a user or the display of data by the program.

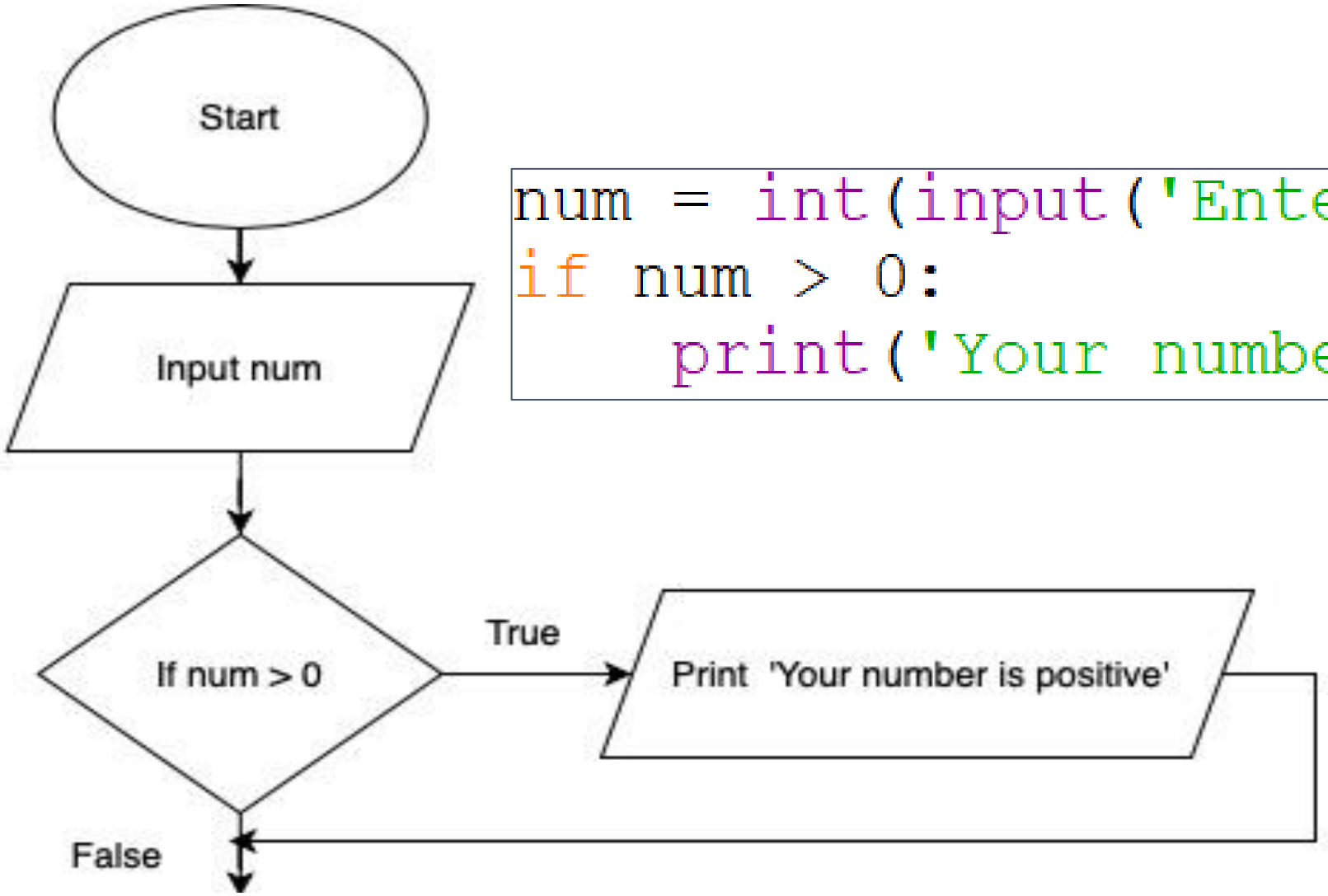
Arrow
Indicates the flow of the algorithm pathways.

Subprogram
References another program within the program.

Listing 1 Python program 1

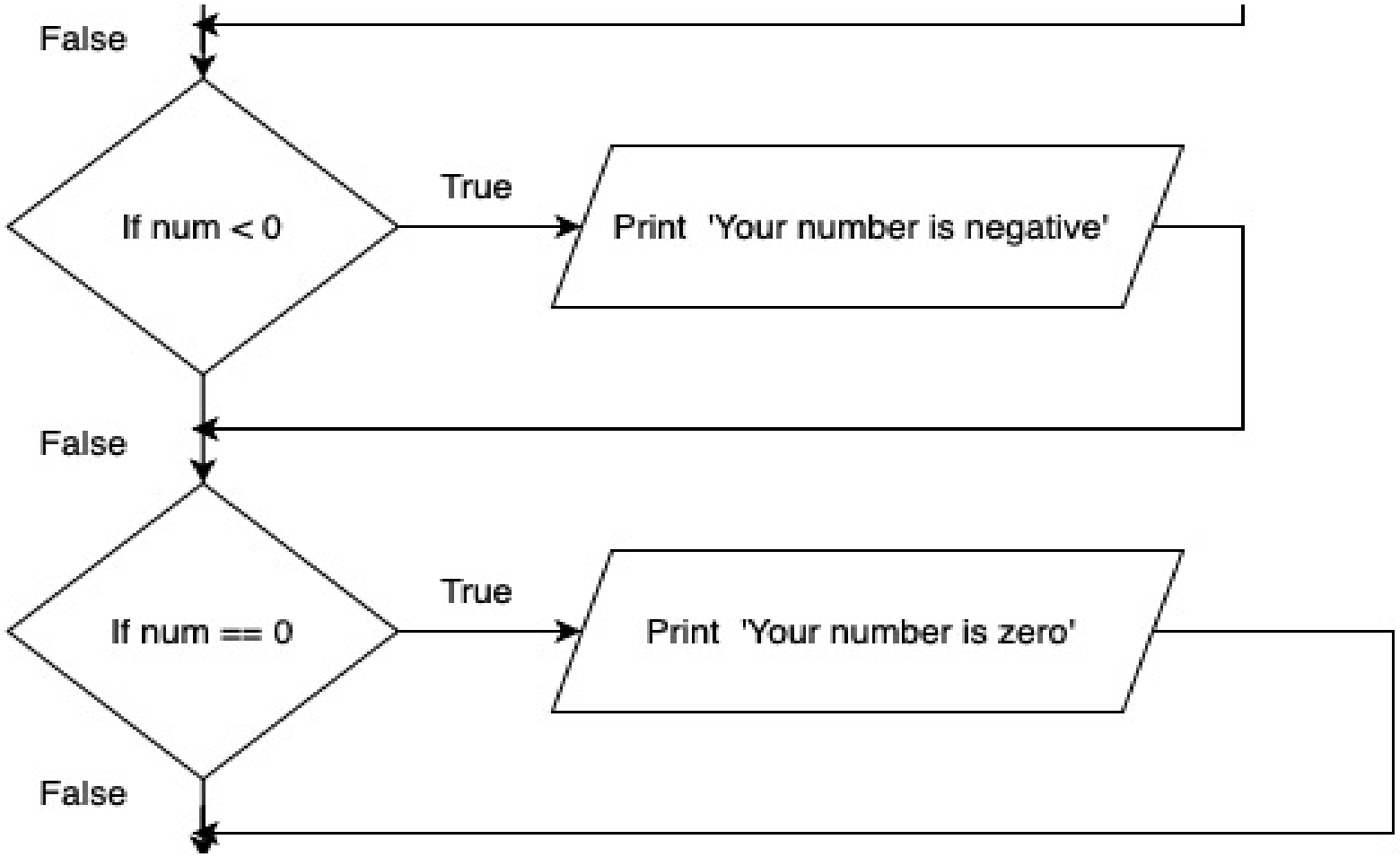
Draw a flowchart for the Python program as shown in Listing 1.

```
num = int(input('Enter a number: '))
if num > 0:
    print('Your number is positive')
    if num < 0:
        print('Your number is negative')
        if num == 0:
            print('Your number is zero')
            print ('Finished!')
```

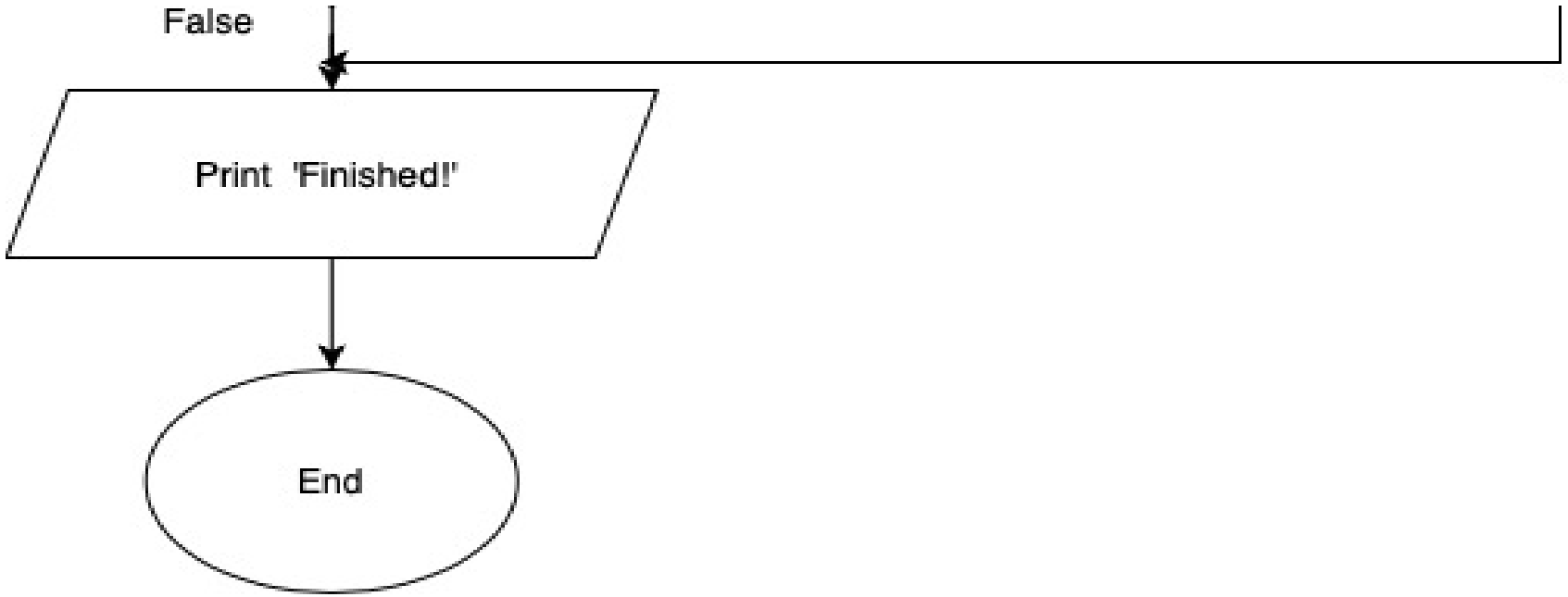



```
num = int(input('Enter a number: '))
if num > 0:
    print('Your number is positive')
```

```
if num < 0:
    print('Your number is negative')
    if num == 0:
        print('Your number is zero')
```



```
print ('Finished!')
```

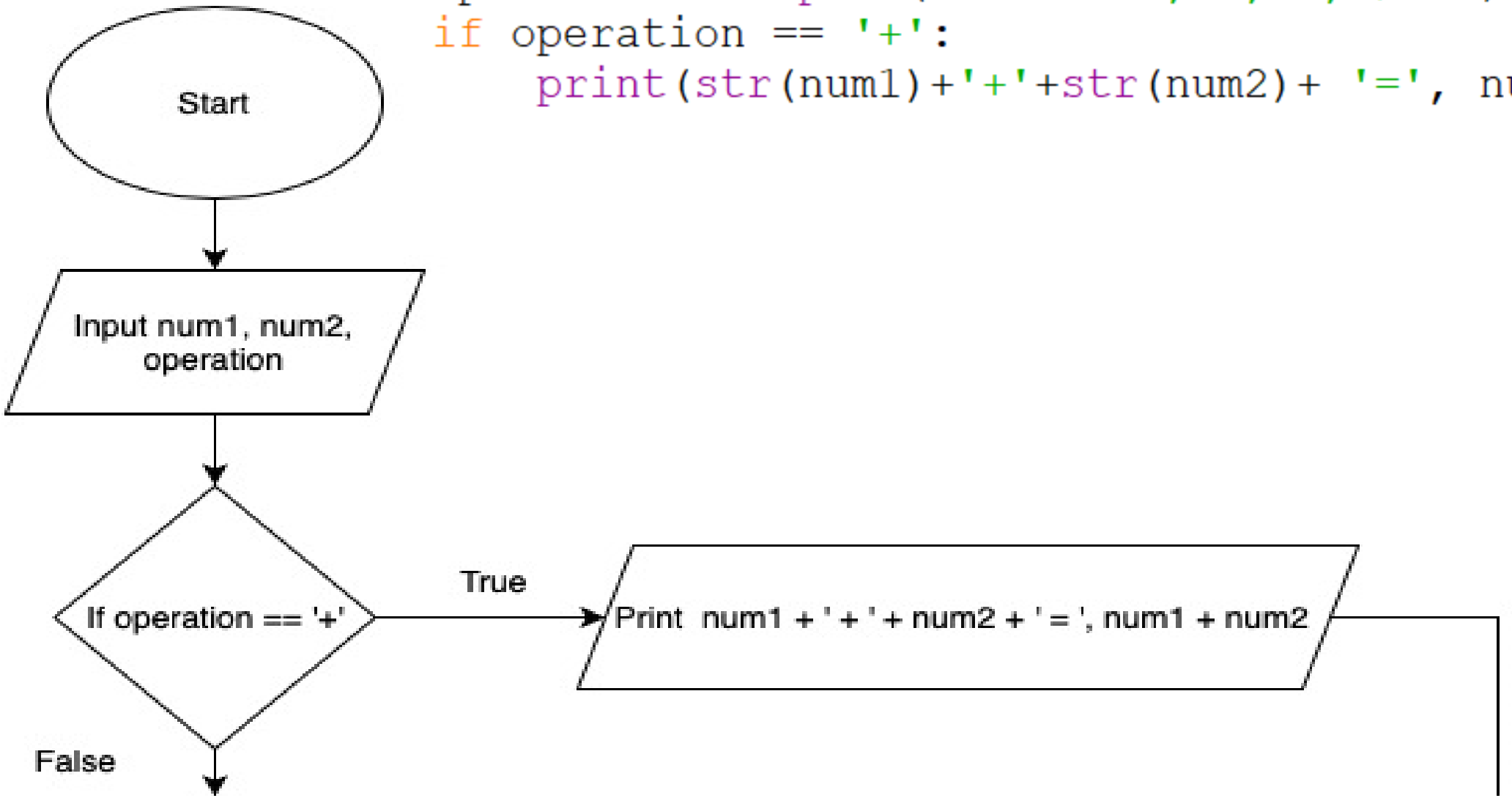


Listing 2 Python program 2

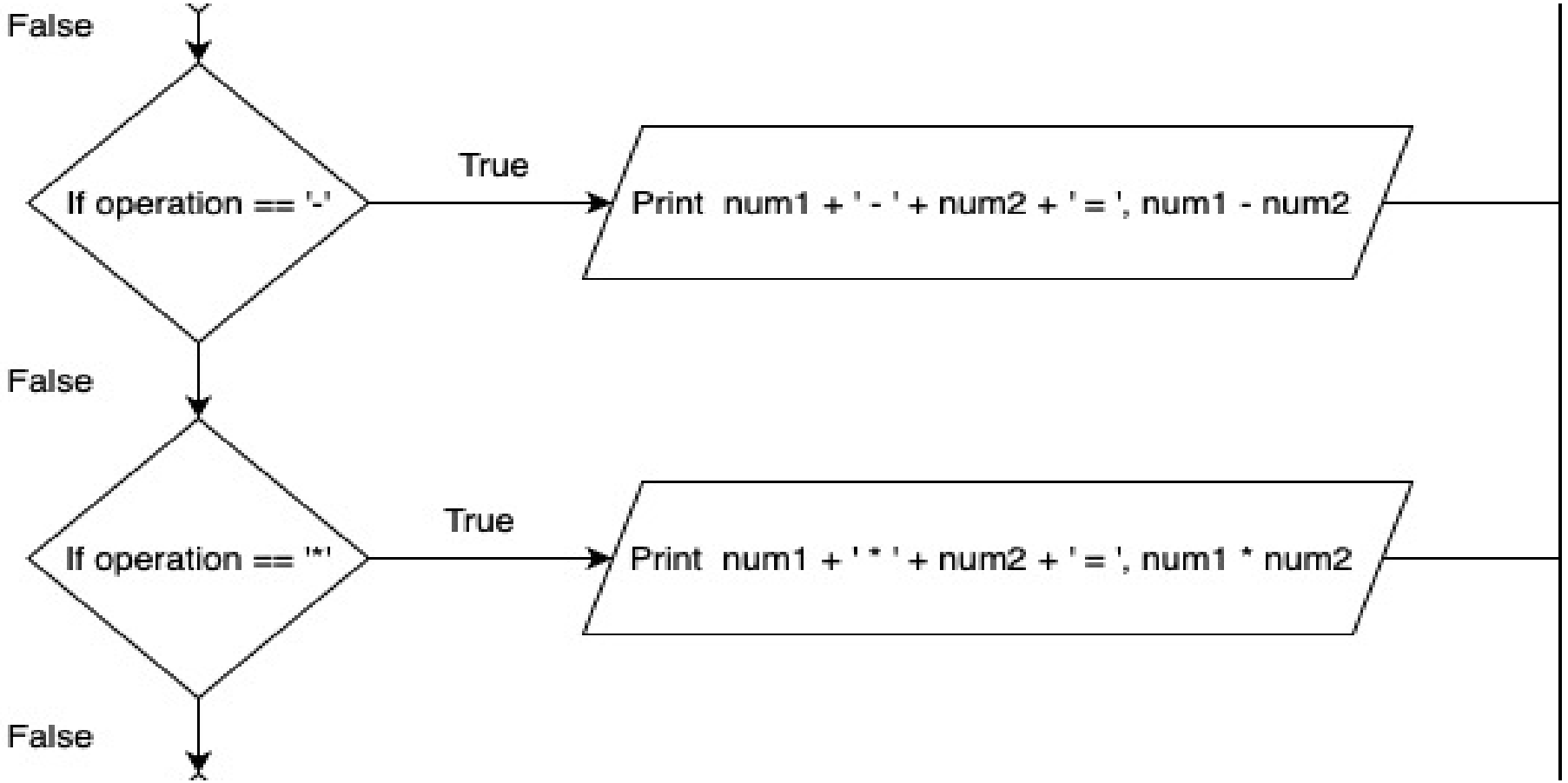
Draw a flowchart for the Python program as shown in Listing 2.

```
num1 = float(input('Enter Num1: '))
num2 = float(input('Enter Num2: '))
operation = input ('Select +, -, *, /: ')
if operation == '+':
    print(str(num1)+'+'+str(num2)+ '=', num1+num2)
elif operation =='-':
    print(str(num1)+'-'+str(num2)+ '=', num1-num2)
elif operation =='*':
    print(str(num1)+'-'+str(num2)+ '=', num1*num2)
elif operation =='/':
    print(str(num1)+'-'+str(num2)+ '=', num1/num2)
else:
    print('ERROR! Wrong Selection.')
```

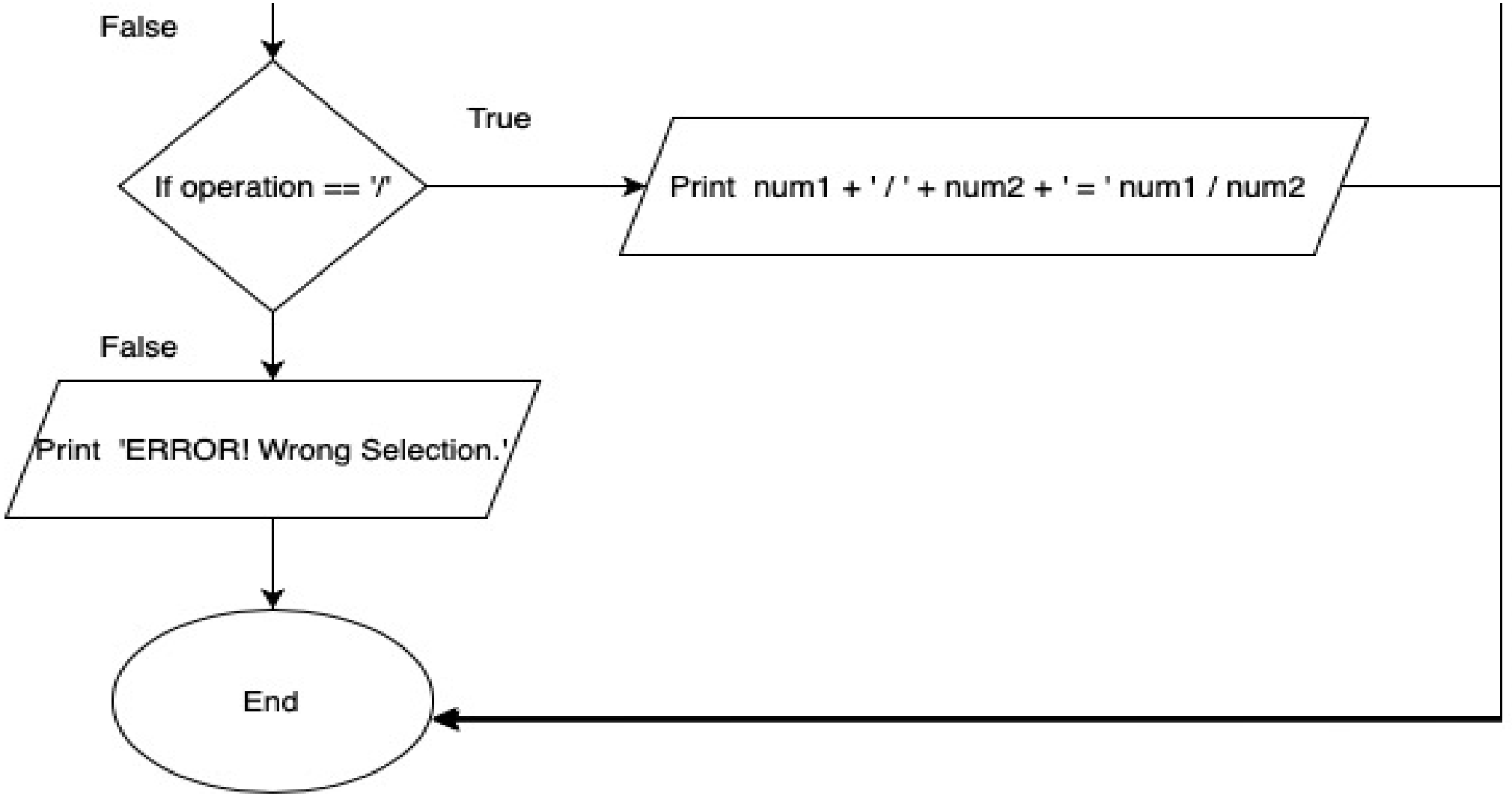
```
num1 = float(input('Enter Num1: '))
num2 = float(input('Enter Num2: '))
operation = input ('Select +, -, *, /: ')
if operation == '+':
    print(str(num1)+'+'+str(num2)+ '=', num1+num2)
```



```
elif operation =='-':
    print(str(num1)+'-'+str(num2)+ '=', num1-num2)
elif operation =='*':
    print(str(num1)+'-'+str(num2)+ '=', num1*num2)
```



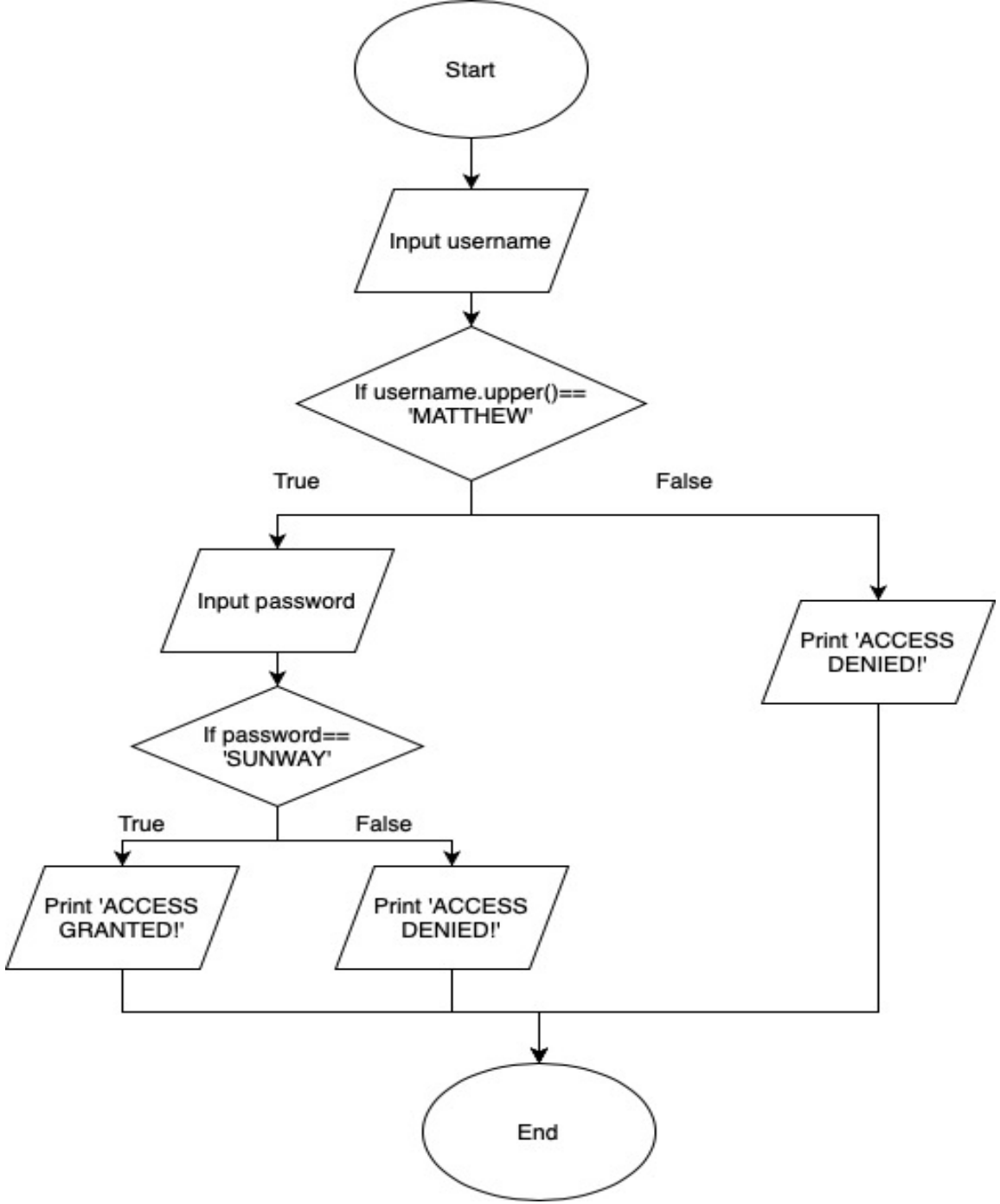
```
        print(str(num1)+'-'+str(num2)+ '=', num1/num2)
    else:
        print('ERROR! Wrong Selection.')
```



Listing 3 Python program 3

Draw a flowchart for the Python program as shown in Listing 3.

```
username = input('Enter Username: ')
if username.upper()=='MATTHEW':
    password = input('Enter Password: ')
    if password == 'SUNWAY':
        print('ACCESS GRANTED')
    else:
        print('ACCESS DENIED!')
else:
    print('ACCESS DENIED!')
```




```
username = input('Enter Username: ')
if username.upper()=='MATTHEW':
    password = input('Enter Password: ')
    if password == 'SUNWAY':
        print('ACCESS GRANTED')
    else:
        print('ACCESS DENIED!')
else:
    print('ACCESS DENIED!')
```