

3

User Input and Basic Operators

by

CSA101 : Problem Solving with
Programming

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Coffee Shop Barista :



Barista and Customers :

Imagine you are a barista at a busy coffee shop. **Each customer has their own unique preferences** for their coffee. Some like it black, some prefer it with milk, and others want different flavors or toppings. To serve your customers well, **you need to know exactly what they want.**



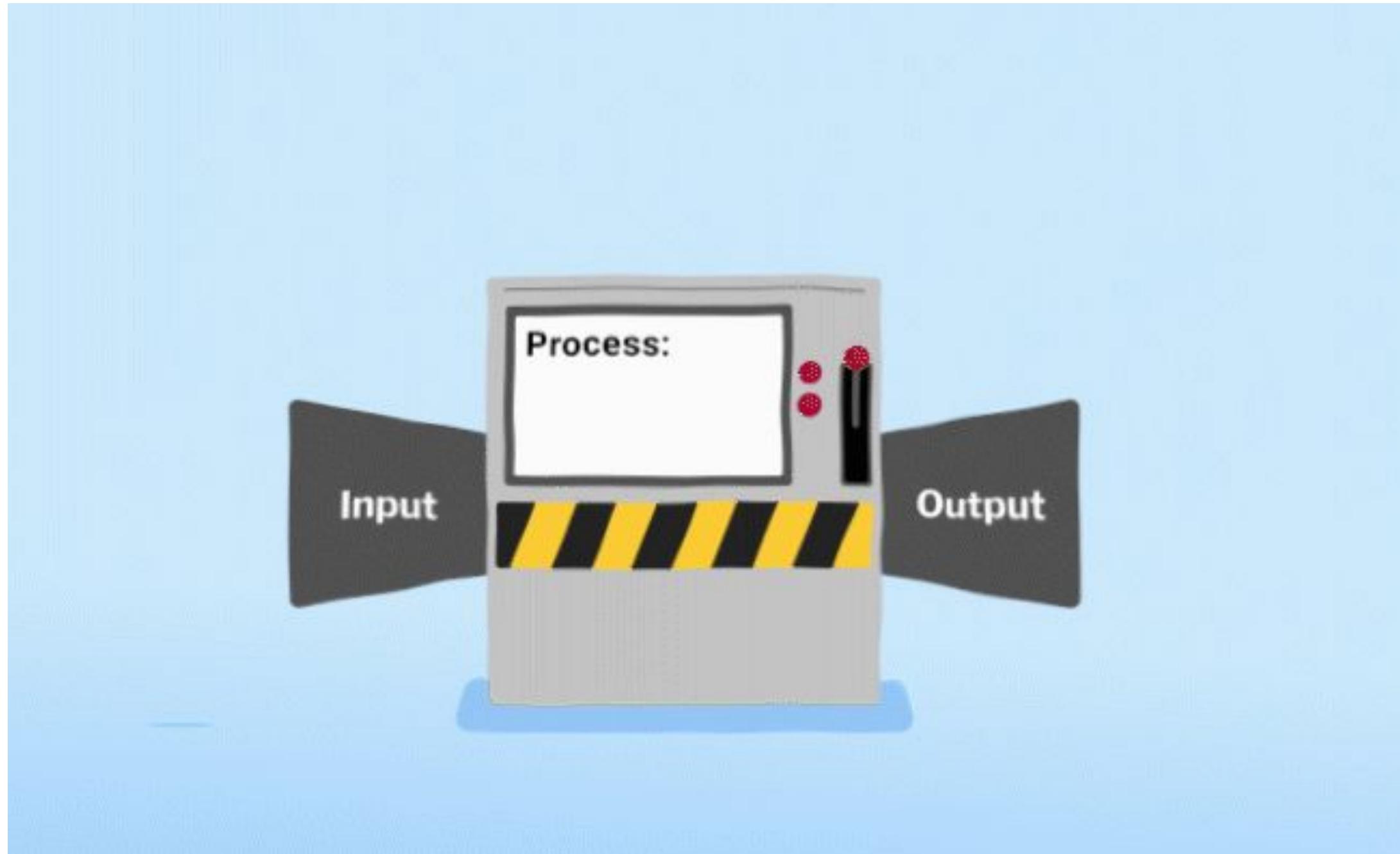
Barista and Customers :

Barista (Program): You, as the barista, are like a program. Your job is to prepare the perfect cup of coffee based on the customer's preferences.

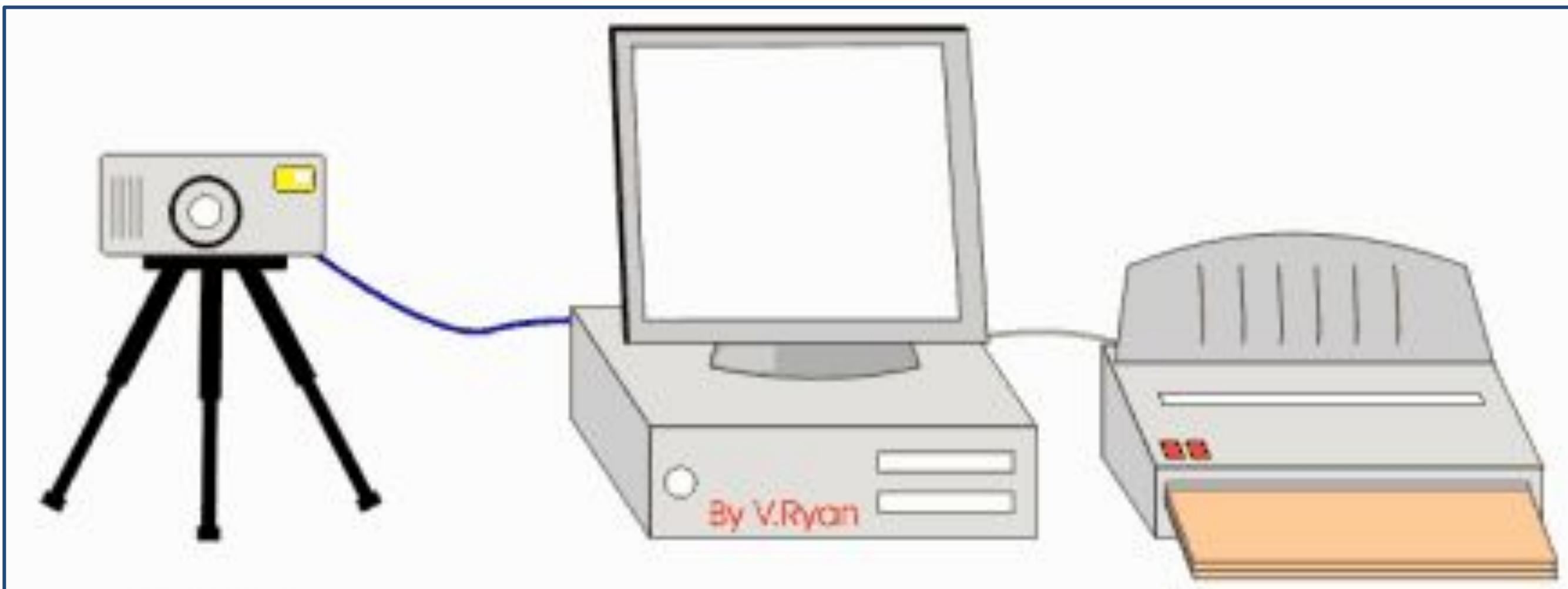
Customers (Users): The customers are like users who interact with your program. Each customer has specific preferences that they need to communicate to you.



Input and Output :



Input and Output :

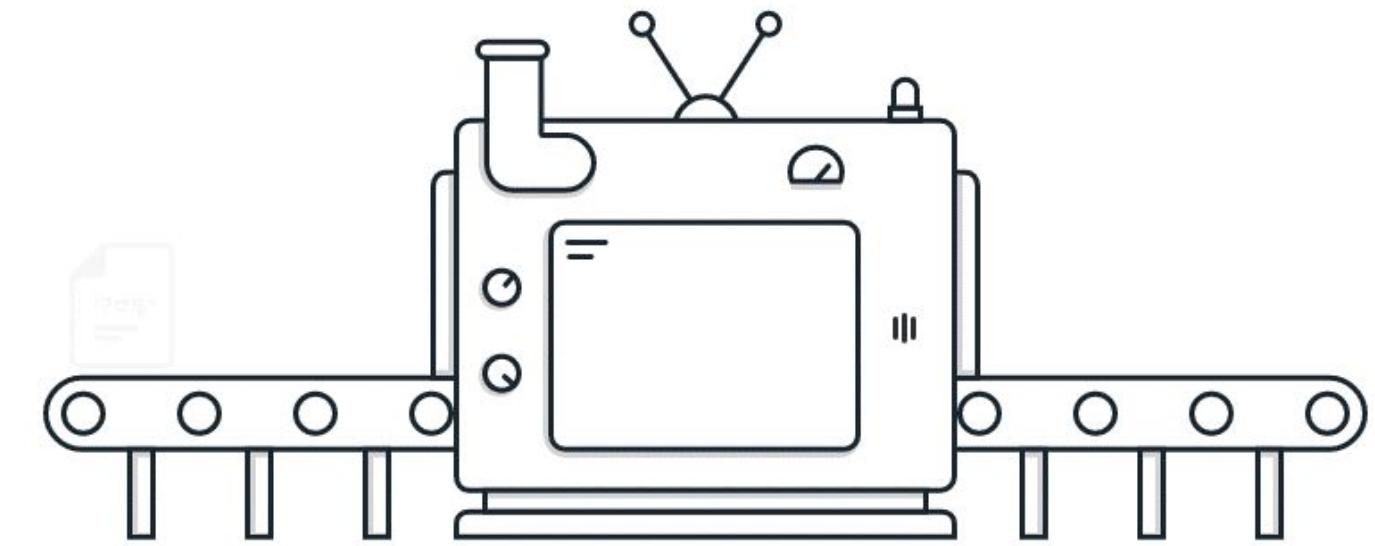


Input and Output :



Input and Output:

- Program output is displayed using the **print() function**
- While user input is obtained with the **input() function.**



The input() Function

The `input()` Function in Python :

The `input()` function is **used to take input from the user.**

Basic Syntax:

```
python
```

 Copy code

```
input()
```

Example - Greeting User :

Ask the user for their name (Input) and Print a Greeting message.

```
# Take user input and store it in the variable 'name'  
name = input()  
  
#displaying a greeting message using the input received  
print("Hello,", name)
```

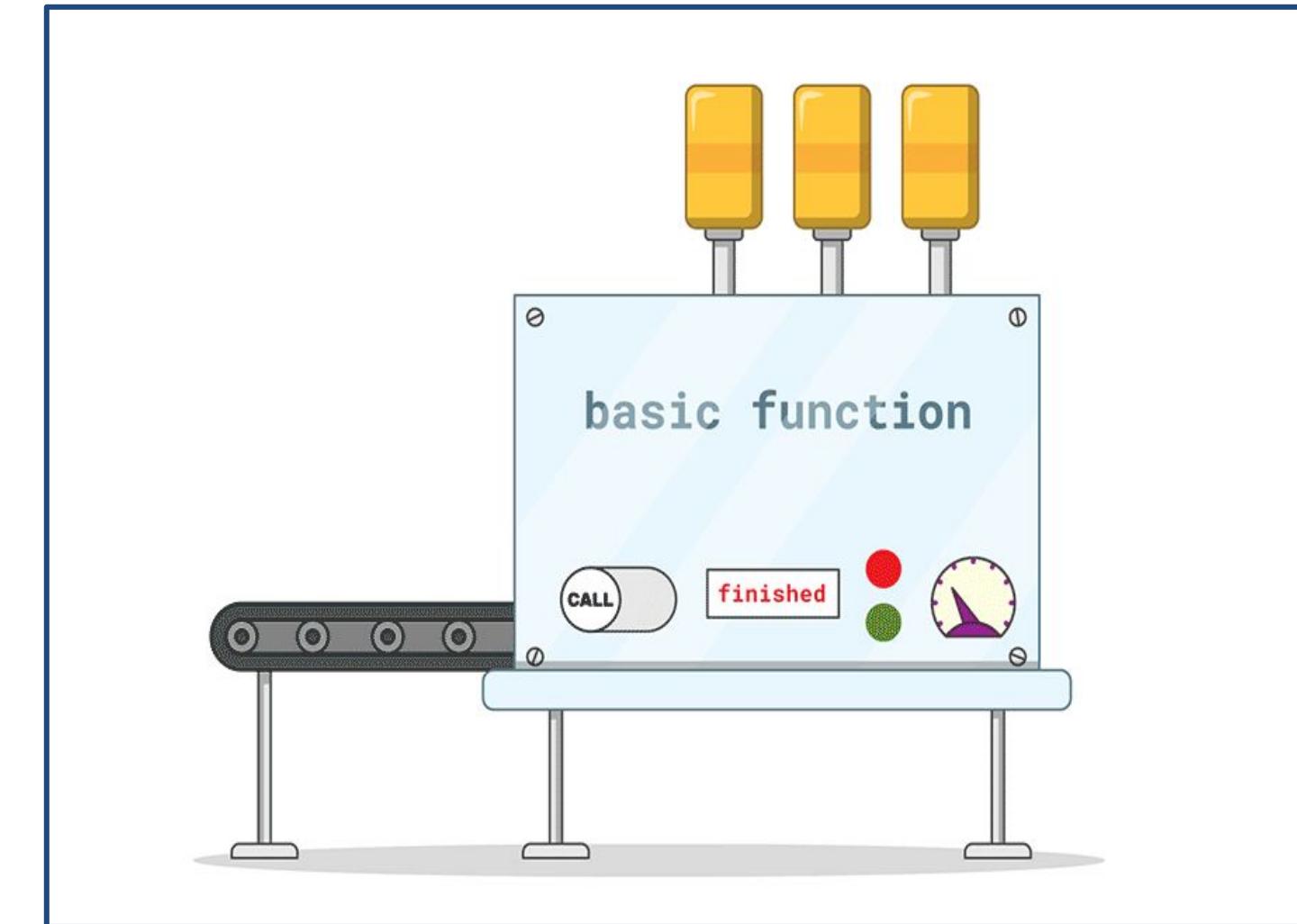
INPUT	OUTPUT	ERROR
1 Alex		

INPUT	OUTPUT	ERROR
1	Hello, Alex	

[Code Snippet](#)

Add two numbers :

- Take two numbers from the user, by using the **input()** function.
- **print()** the summation on the screen.



Input and add two numbers :

What is the output of this code ?

Is there any issue ?

```
# Take input from user and store it in variable num1
num1 = input()

# Take input from user and store it in variable num2
num2 = input()

# Performing addition operation
sum = num1 + num2

# Displaying the result of the addition
print("The sum of the two numbers is:", sum)
```

[Code Snippet](#)

Issue :

It is taking input as a string.

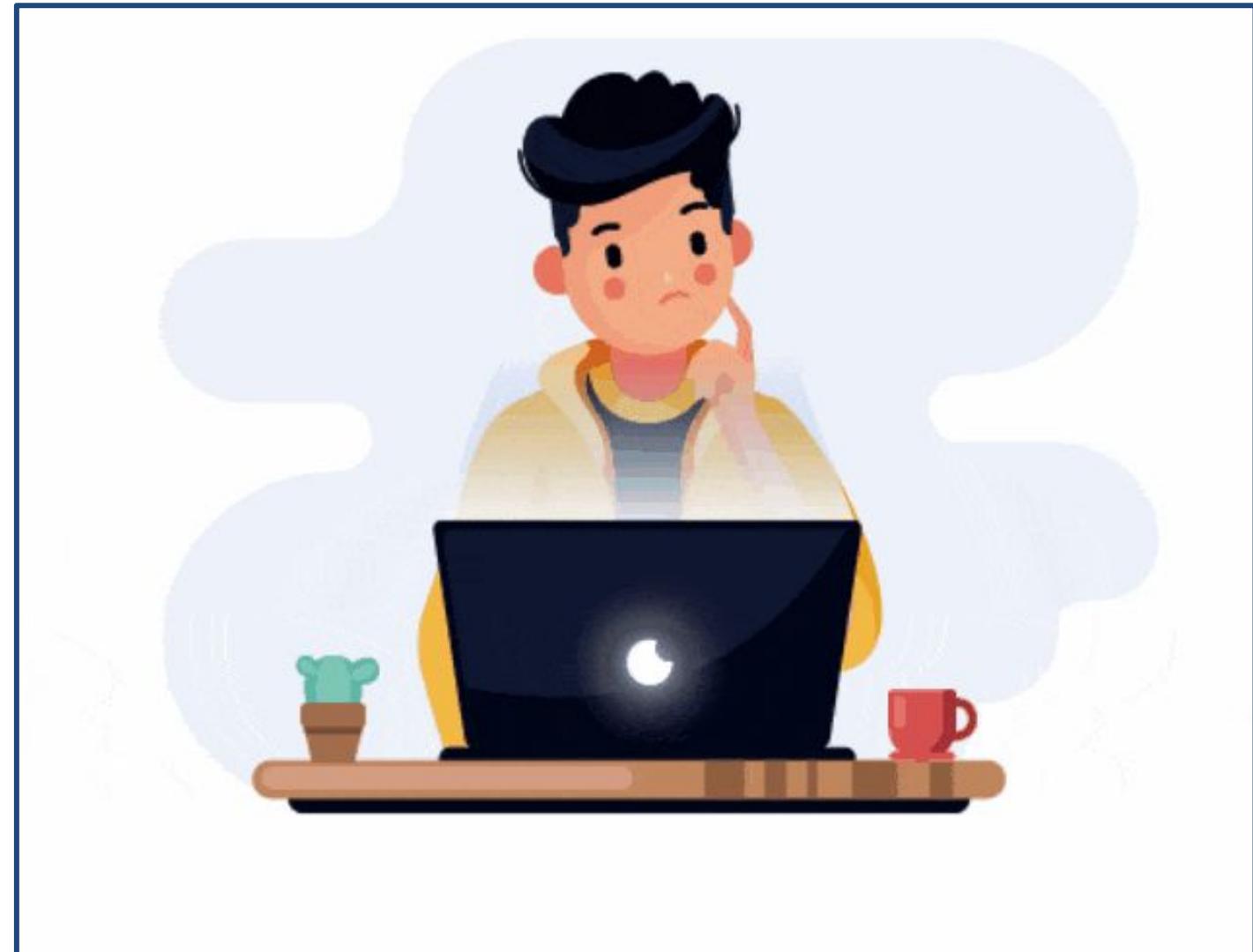
INPUT	OUTPUT	ERROR
1	12	
2	6	

INPUT	OUTPUT	ERROR
1	The sum of the two numbers is: 126	

Handling different Data Types :

Default Behaviour :

- "takes input in the form of a string"
- "returns user input as a string"



Handling different Data Types :

So we need to **convert the input** to the appropriate data type if needed.

For e.g : String to Integer



Convert to Integer :

Example : Ask the user for their age (Input) and print (Output) it.

```
#Take age as input from the user, convert it to integer & store it in variable age
age = int(input())

#displaying age
print("Your age is : ",age)
```

INPUT	OUTPUT	ERROR
1 22		

INPUT	OUTPUT	ERROR
1	Your age is : 22	

Convert to Float :

Example : Ask the user for their height (input) in feet and print (Output) it.

```
#Take height as input from the user, convert it to float & store it in variable height
height = float(input())

#displaying age
print("Your height is : ",height)
```

INPUT	OUTPUT	ERROR
1 6.1		

INPUT	OUTPUT	ERROR
1	Your height is : 6.1	

Convert to Float :

Example : Ask the user for their height (input) in feet and print (Output) it.

```
#Take height as input from the user, convert it to float & store it in variable height
height = float(input())

#displaying height
print("Your height is : ",height)
```

INPUT	OUTPUT	ERROR
1	6.1	

INPUT	OUTPUT	ERROR
1	Your height is : 6.1	

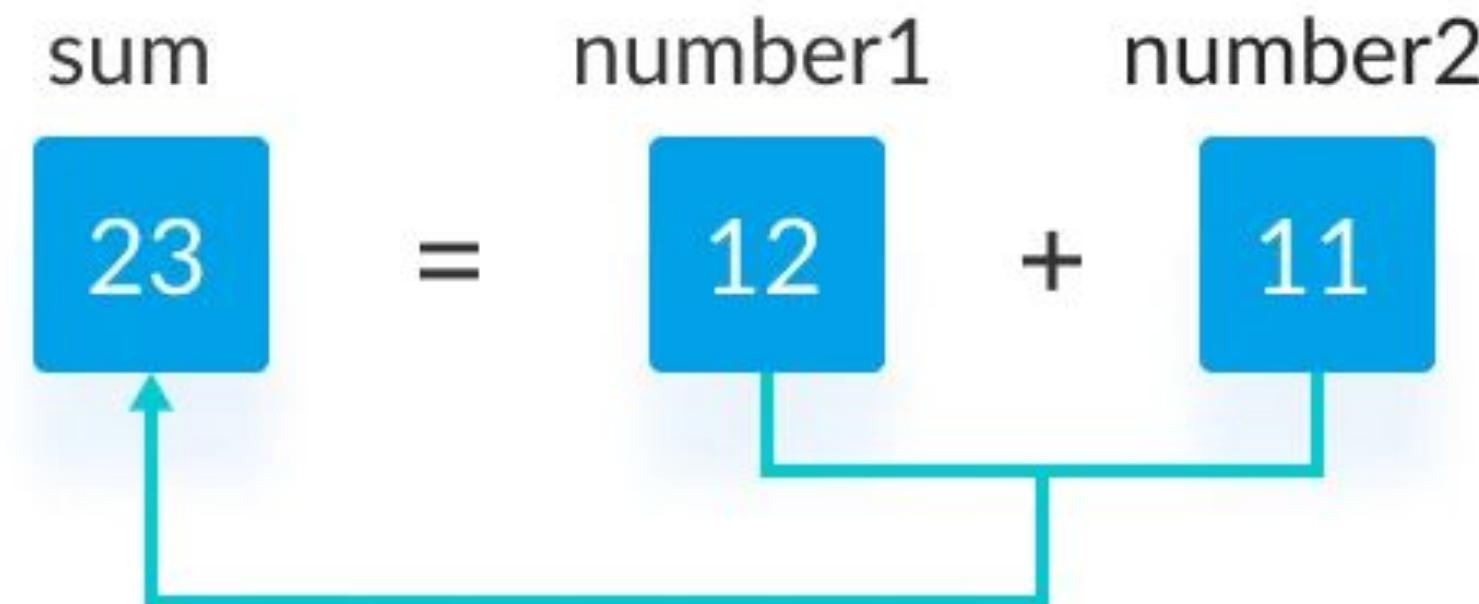
Taking Multiple Inputs :

- In programming, you **often need to take multiple inputs from the user** to perform various operations.
- Using the **input() function**, you can **prompt the user for several pieces of information** and then use that data to carry out computations or other tasks.



Example – Input and add two numbers :

Ask the user to input two numbers and print their sum.



Example : Input and add two numbers :

Ask the user to input two numbers and print their sum.

```
# Take first number as input from the user, convert it to integer & store it in variable num1
num1 = int(input())

# Take second number as input from the user, convert it to integer & store it in variable num2
num2 = int(input())

# Performing addition operation
sum = num1 + num2

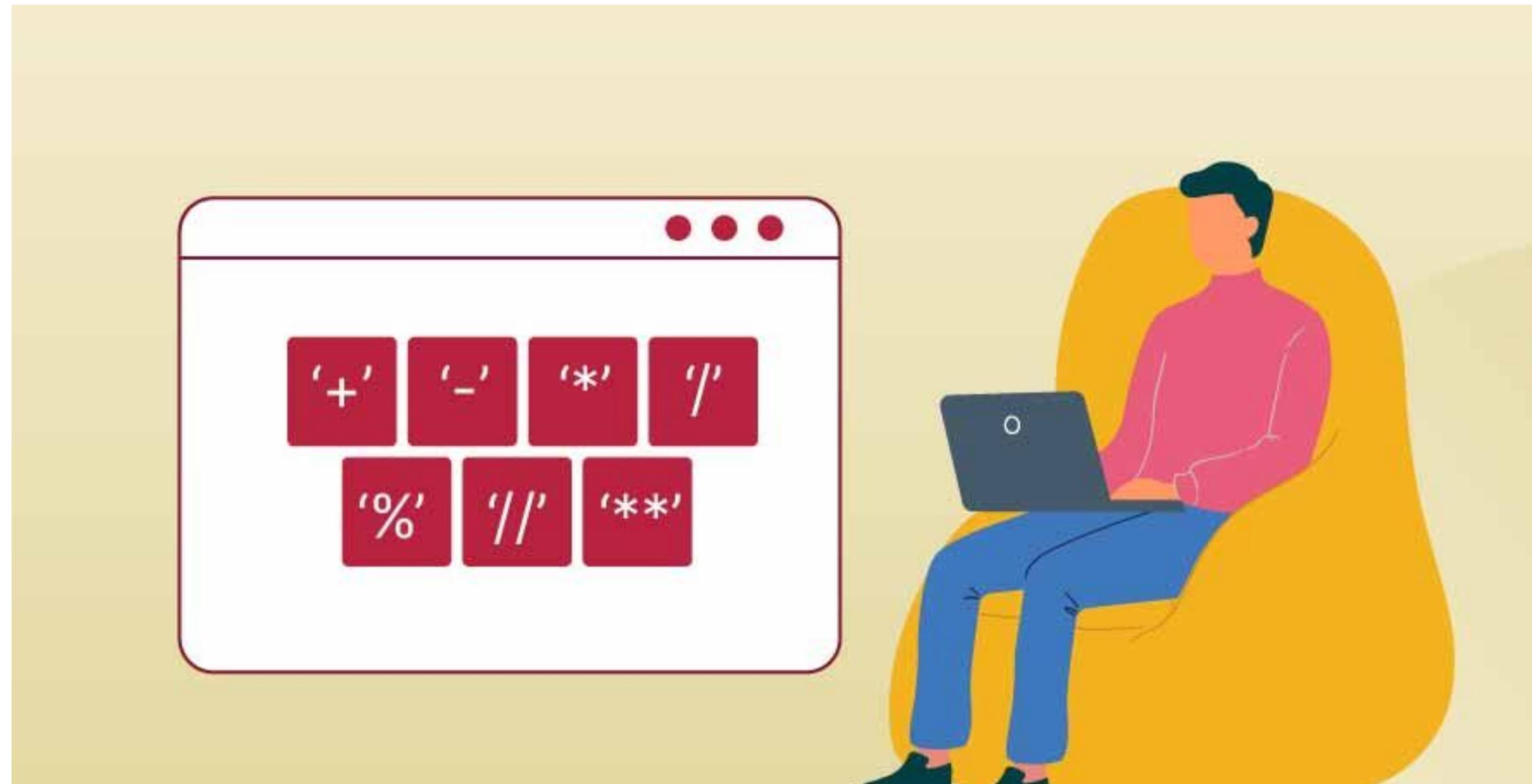
# Displaying the result of the addition
print("The sum of the two numbers is:", sum)
```

Input/Output - Input and add two numbers :

INPUT	OUTPUT	ERROR
1 5		
2 8		

INPUT	OUTPUT	ERROR
1	The sum of the two numbers is: 13	

Arithmetic Operators :



Arithmetic Operators :

Operator	Name	Example	Use Case
<code>+</code>	Addition	<code>x + y</code>	Used to calculate the total or combine two numeric values.
<code>-</code>	Subtraction	<code>x - y</code>	Used to find the difference between two values.
<code>*</code>	Multiplication	<code>x * y</code>	Used to compute the product of two numbers.
<code>/</code>	Division	<code>x / y</code>	Used to divide one number by another, returns the quotient (float result).
<code>%</code>	Modulus	<code>x % y</code>	Used to get the remainder after division. Helpful for checking even/odd etc.
<code>//</code>	Floor Division	<code>x // y</code>	Used to divide and return the largest whole number less than or equal to the result.
<code>**</code>	Exponentiation	<code>x ** y</code>	Used to raise a number to the power of another.

Floor Division :

Ask the user to input two numbers (num1 and num2) and print the result floor division, i.e. (num1 // num2).

```
# Take two numbers as input from the user, convert them to integers, and store in num1 and num2
num1 = int(input())
num2 = int(input())

# Performing floor division
result = num1 // num2

# Displaying the result
print("The result of floor division is:", result)
```

Code Snippet

Input/Output - Floor Division :

INPUT	OUTPUT	ERROR
1	15	
2	2	

INPUT	OUTPUT	ERROR
1	The result of floor division is: 7	

Exponentiation

Ask the user to input two numbers (num1 and num2) and print the result exponentiation, i.e. (num1 ** num2).

```
# Take two numbers as input from the user, convert them to integers, and store in num1 and num2
num1 = int(input())
num2 = int(input())

# Performing exponentiation
result = num1 ** num2

# Displaying the result
print("The result of exponentiation is:", result)
```

Input/Output - Exponentiation :

INPUT	OUTPUT	ERROR
1	5	
2	3	

INPUT	OUTPUT	ERROR
1	The result of exponentiation is: 125	

Coding Questions

Let's Practice on the Playground!

Question 1 : Calculate The Simple Interest

You are given three float values, P, R and T. Write a program to calculate Simple Interest using the formula : $SI = (P * R * T) / 100$ and print the output .

Example : Input

1000
5
2

Output :

Simple Interest : 100.0

Question 2 : Swap Two Variables using third variable - II

Write a program to swap two integers a and b, using a third variable.

Example : Input

10
20

Output :

20 10

Question 3 : Print Five Times

Write a program to take a number as input and print it five times in the same line.

Example : Input

7

Output :

7 7 7 7 7



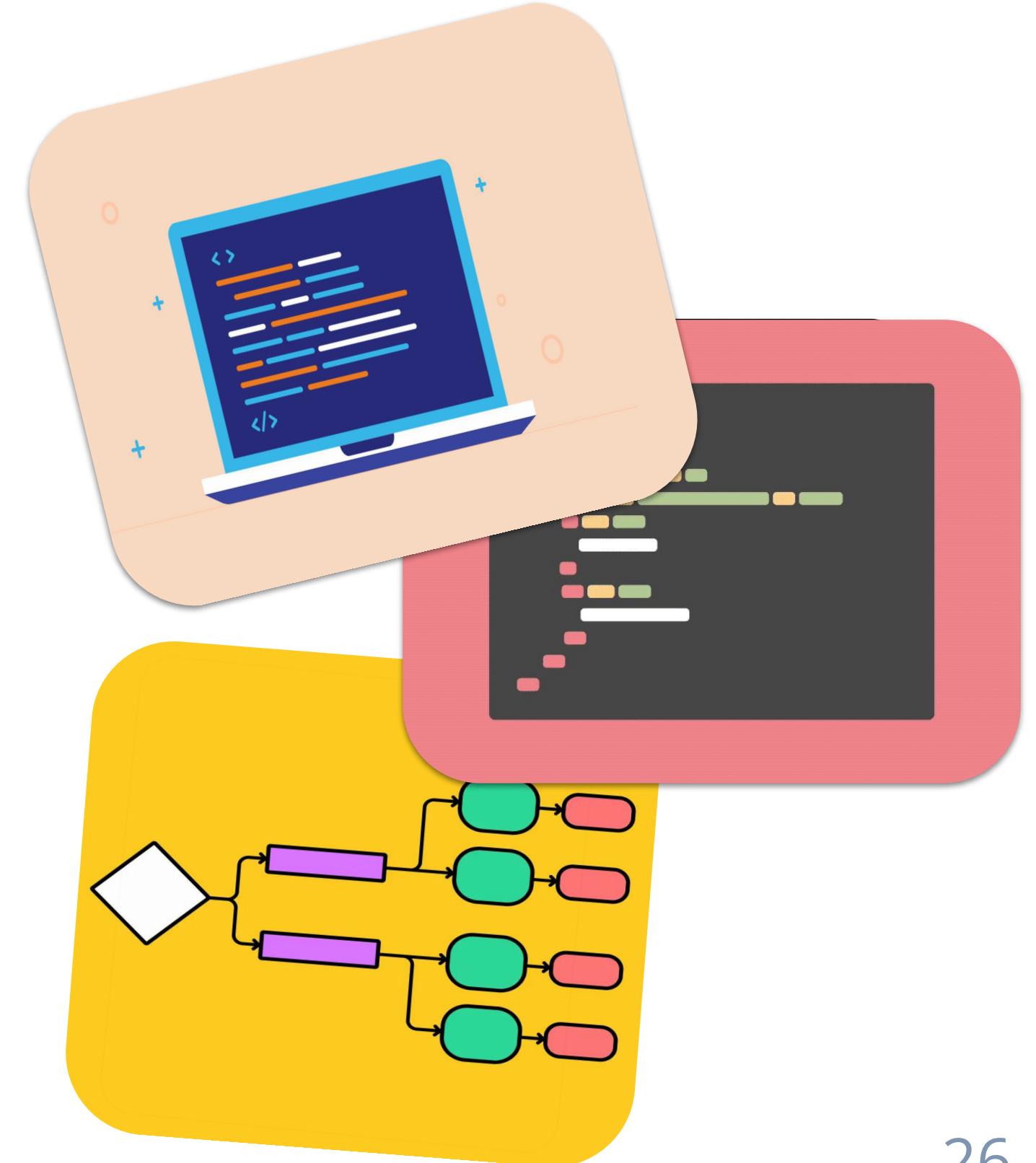
Quiz Time!

Please fill the feedback!

Thank You!

Summary

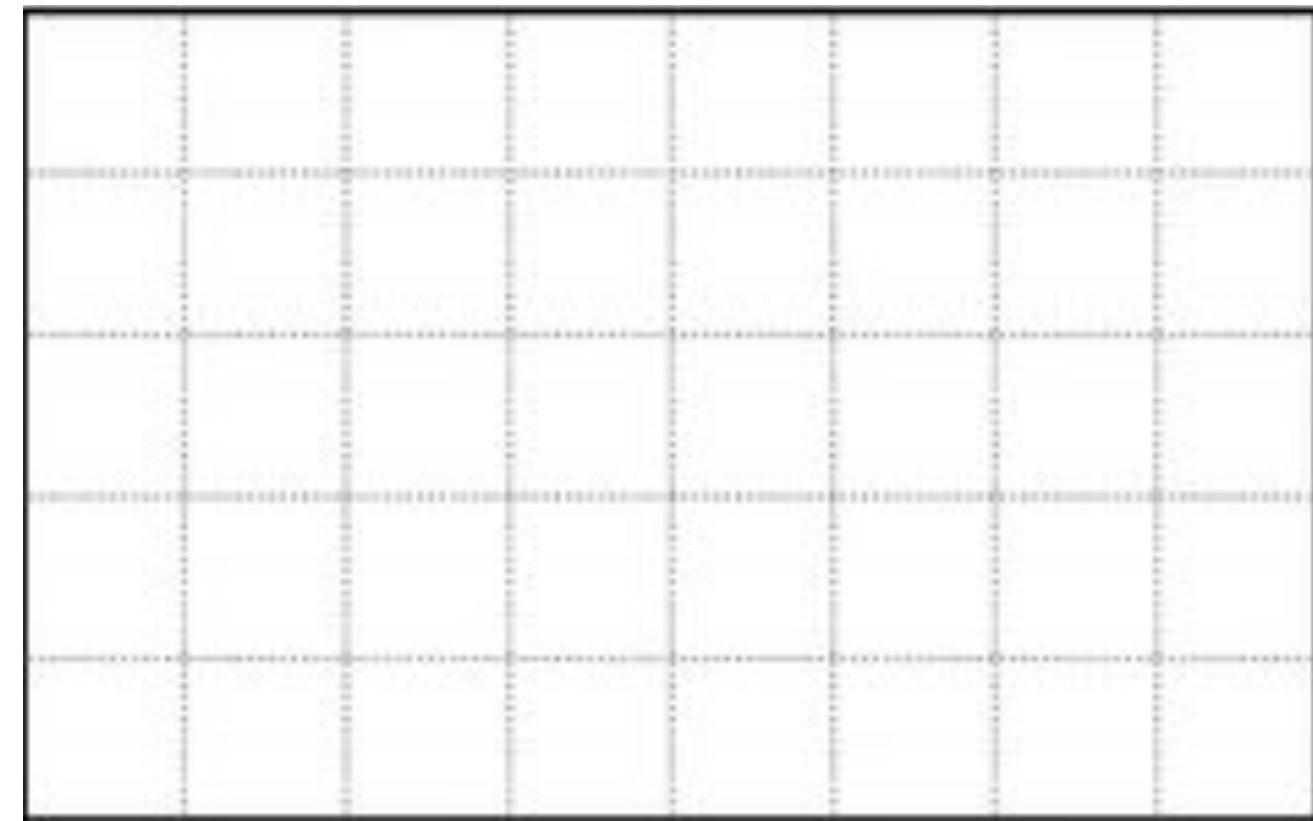
- **Variable** - In Python, a variable is a reference to an object stored in memory.
- **Datatype** -
 - Each variable has a data type in Python.
 - Numeric data types in python represent data with numeric values
 - Boolean has two types of values, True or False
- **Typecasting** - Converting a variable from one data type to another.



Lets solve Coding Questions!

Area of Rectangle

- Write a function to take two **input()** from user.
- **print()** the area of rectangle on the screen.



Example : Area of Rectangle

Ask the user to input two numbers and print their area.

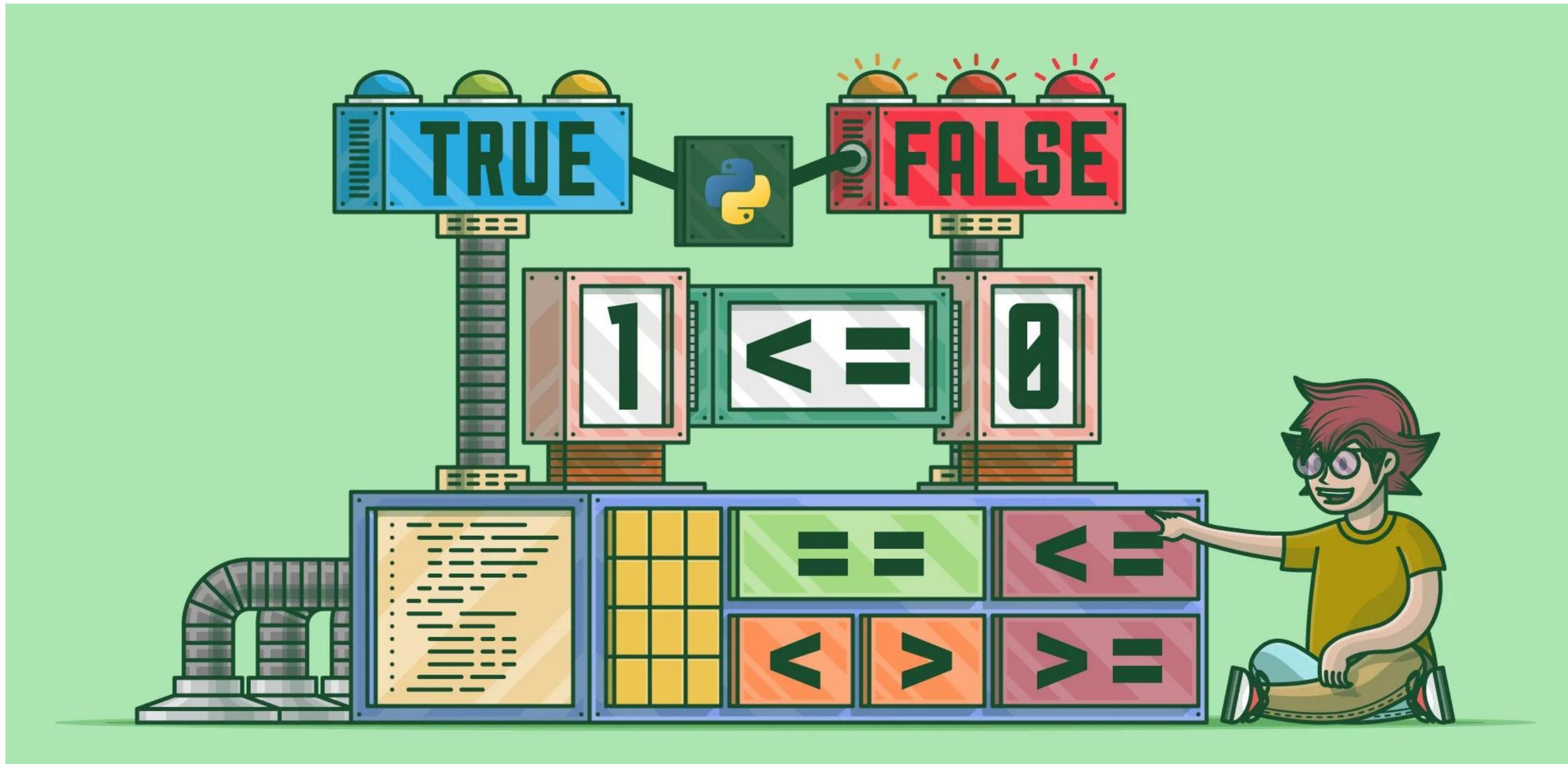
```
python Copy Edit
# Prompting the user to enter the length
length = float(input("Enter the length of the rectangle: "))

# Prompting the user to enter the width
width = float(input("Enter the width of the rectangle: "))

# Calculating the area
area = length * width

# Displaying the result
print("The area of the rectangle is:", area)
```

Comparison Operators :

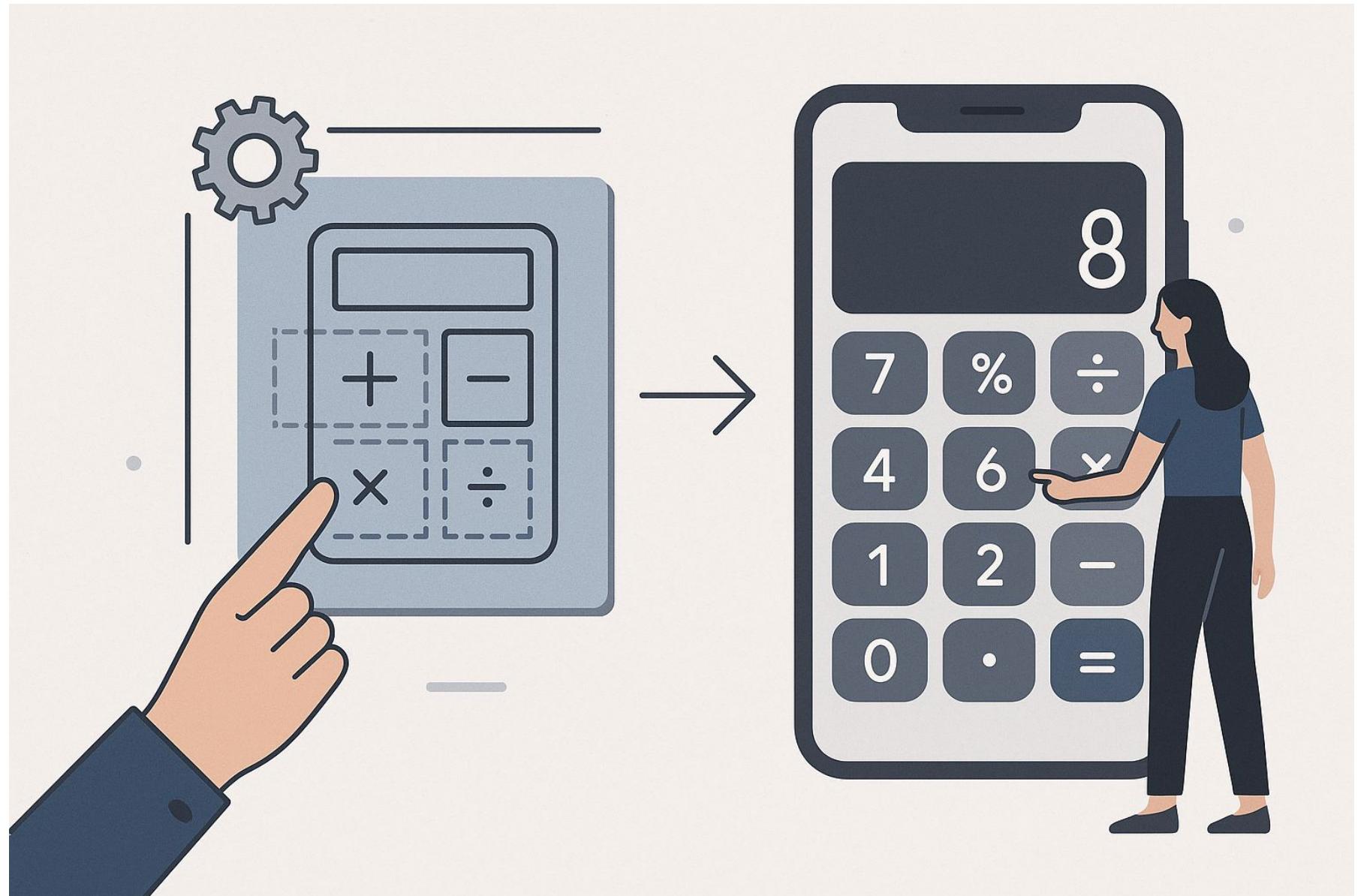


Calculator

How would you build a calculator app that takes input from a user?

What will be the data type of input by default?

- addition
- subtraction
- division
- modulo
- power



Number Transformation

Calculate Age

Village Feast