**Python Calculator Program – Full Explanation**

1. Functions for Operations

We start by defining four functions: add, subtract, multiply, and divide.  
Each function takes two numbers (x and y) as input and returns the result.

* add(x, y) → adds the two numbers.
* subtract(x, y) → subtracts the second number from the first.
* multiply(x, y) → multiplies the two numbers.
* divide(x, y) → first checks if the second number is zero (since dividing by zero is impossible), then performs division if it’s safe.

This separation into functions makes the program clean, reusable, and easy to maintain.

**2. Displaying the Menu**

Before asking for numbers, the program **shows a menu** so the user knows what to choose:

1. Add

2. Subtract

3. Multiply

4. Divide

1. **Taking User Input**
2. The program then asks the user to:
3. Enter their **choice** (1, 2, 3, or 4) which decides the operation.
4. Enter the **first number**.
5. Enter the **second number**.

Numbers are converted to float so they can handle both whole numbers and decimals.

1. **Performing the Operation**

The program uses an **if-elif-else** block:

* If the choice is '1', it calls the add() function.
* If the choice is '2', it calls subtract().
* If the choice is '3', it calls multiply().
* If the choice is '4', it calls divide().
* If none of these match, it prints **"Invalid input"**.

1. **Error Handling**

There are two types of errors handled here:

* **Division by zero** → If the user tries to divide by zero, the divide() function returns the message "Cannot divide by zero".
* **Invalid menu choice** → If the user enters something other than 1, 2, 3, or 4, they get an "Invalid input" message.

1. **Example Execution**

**Input:**

Enter choice (1/2/3/4): 3

Enter first number: 6

Enter second number: 4

**Output:**

Result: 24.0

Explanation: Choice 3 means multiplication → 6 × 4 = 24.