**AI LAB TASK 1**

**Explanation of Calculator Class in Python**

**Introduction**

This program defines a **Calculator class** in Python.  
It can perform the following tasks:

* Addition
* Subtraction
* Multiplication
* Division (with divide-by-zero check)
* Solving full mathematical expressions entered by the user

**1. Constructor Method**

* The constructor runs automatically when an object of the class is created.
* It prints **“Dynamic calculator”**.
* It stores all supported operations in a **dictionary**, where each operator (+, -, \*, /) is linked to the correct method.
* We design this to avoids long if-else conditions.

**2. Arithmetic Methods**

* **Addition**: Takes two numbers, adds them, and shows the result in a clear format.
* **Subtraction**: Takes two numbers, subtracts them, and shows the result in a clear format.
* **Multiplication**: Multiplies two numbers and displays the result.
* **Division**: Divides the first number by the second. If the second number is zero, it returns a error message instead of crashing the program.

**3. The Calculate Method**

* This method accepts three things:
  1. The first number
  2. The operator (+, -, \*, /)
  3. The second number
* It checks the dictionary of operations and calls the correct method.
* If the operator is not valid, it tells the user to enter a correct one.

**4. The Solving Method**

* This method allows the user to enter a full mathematical expression, such as 2+3\*5-4/2.
* It uses Python’s built-in expression solver to calculate the answer.
* If the user enters something invalid, the program shows error message instead of crashing.

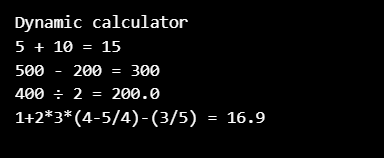
**5. Program Execution**

* First, an object of the Calculator class is created.
* Then, the program perform basic operations like addition, subtraction, and division.
* Then, it asks the user to type their own expression, solves it, and displays the answer.

**6. Example Output**

* When the program runs, the output looks like this:
  + “Dynamic calculator” is displayed.
  + The results of sample calculations (e.g., 5 + 10 = 15) are shown.
  + The user is asked to enter an expression, and the solved result is printed.

**OUTPUT**

****