

Course: Artificial Intelligence	Course Code: CSC - 407
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Assignment 1: Building a Simple Calculator in Python

Stage 1: Using Variables

You are tasked with building a basic calculator that can perform simple arithmetic operations: addition, subtraction, multiplication, and division. In the first version of the calculator, use separate variables for storing the numbers and the results.

1. Ask the user to input two numbers.
2. Ask the user to select an operation (add, subtract, multiply, divide).
3. Perform the calculation based on the operation selected.
4. Display the result.

Stage 2: Using a List

Enhance the calculator by allowing users to perform multiple calculations at once. Instead of using individual variables for the numbers, store the numbers in a list.

1. Ask the user to input any number of values (up to 5 numbers).
2. Store these numbers in a list.
3. Ask the user to select an operation (add, subtract, multiply, divide).
4. Perform the selected operation on all the numbers in the list and display the result.

Stage 3: Using a Tuple

Now, implement the calculator using a tuple to store a pair of numbers. This will demonstrate the immutability of tuples.

1. Ask the user to input exactly two numbers.
2. Store these numbers in a tuple.
3. Ask the user to select an operation (add, subtract, multiply, divide).
4. Perform the calculation on the tuple's values.
5. Display the result.

Stage 4: Using a Dictionary

Modify the calculator to include a history of operations. Use a dictionary to store the operation as the key and the result as the value.

1. Ask the user to input two numbers.
2. Ask the user to select an operation (add, subtract, multiply, divide).
3. Perform the calculation and store the result in a dictionary, with the operation as the key.
4. Display the result and the operation history.

Stage 5: Using a Set

Finally, implement a feature that checks for duplicate numbers. Use a set to store the user's input numbers and ensure that no duplicate numbers are used in the calculation.

1. Ask the user to input any number of values (up to 5 numbers).
2. Store these numbers in a set (duplicates will be removed).
3. Ask the user to select an operation (add, subtract, multiply, divide).
4. Perform the calculation on the unique numbers.
5. Display the result and mention if any duplicates were removed.