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# EU CODE WEEK CHALLENGES
# Create your calculator in Python

Author: Profil Klett

Title: Create your calculator in Python

## Purpose of the challenge

The purpose of this challenge is to introduce students to basic programming concepts in Python. They will learn how to accept user input, use conditional statements, and perform mathematical operations. By building a simple calculator, students will understand how logic flows in a program and how to handle user interactions.

## Description of the challenge

Calculator isone of thebasic tools in thecomputerworld. Through thislesson,wewill learnhowto use conditional commands (if, else) to make decisions and how to perform mathematical operations in Python. Finally, we will create a calculator that can add, subtract, multiply and divide numbers.

## Target audience

Primary and secondary school students, beginners in programming, anyone interested in learning Python.

## Experience

No prior experience in programming is required. Basic computer literacy (knowing how to open a program, save a file, etc.) is enough.

## Duration

Approximately 45 to 60 minutes, depending on the students' familiarity with typing and following instructions.

## Recommended tool:

Toget started, you need to have Python installed on your computer.
Ifyou haven't already, download Python from the official website: ~~https://www.python.org~~
Open Python IDLE or any text editor (e.g. Visual Studio Code, PyCharm) to write your code.

## Instructions

**Step 1: Preparing the environment**

To get started, you need to have Python installed on your computer. If you haven't already, download Python from the official website.

When you install Python, you'll open Python IDLE.

### Step 2: Calculator Basic Setting

In Python, we will use input() function to enter numbers and operations, and if, elif and other commands to select the desired operation.

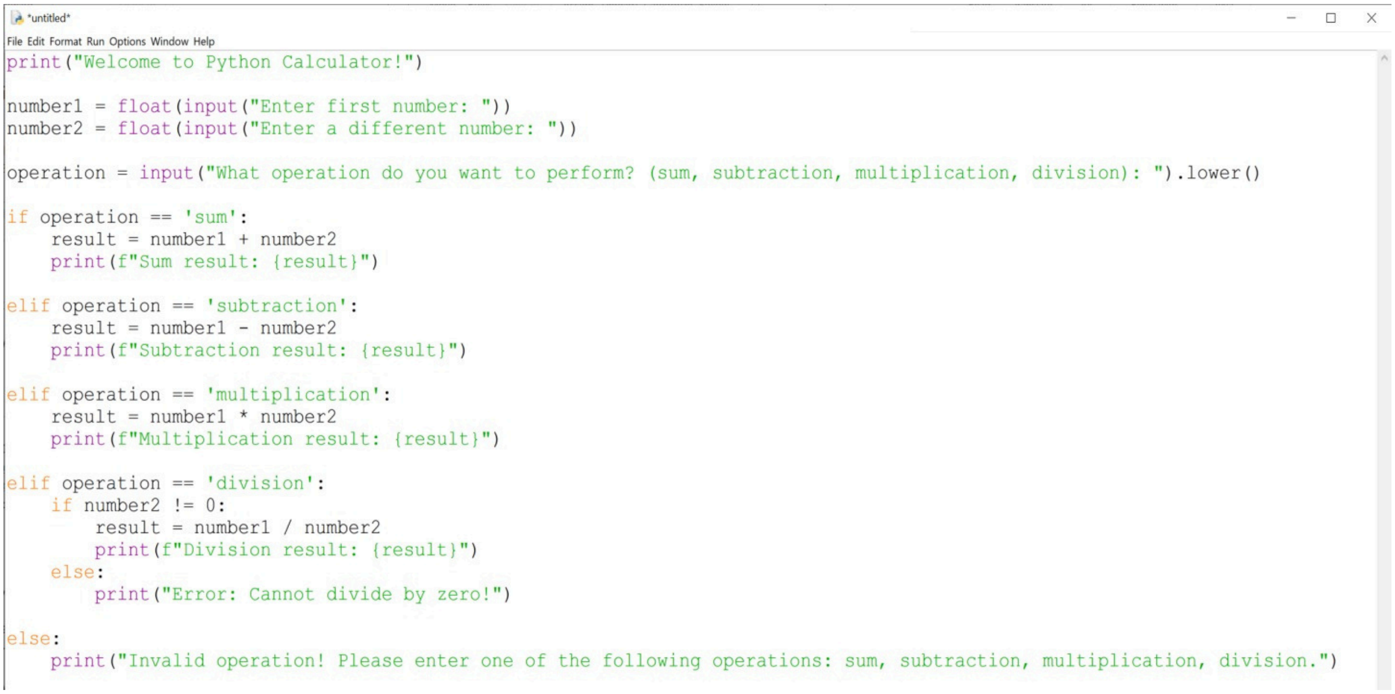
1. Open Python IDLE and create a new file to call calculator.py.
2. Type the following code:

(Note: the "#" sign indicates a comment, you don't have to write it in the code)

```
# Printgreetingtoprint ("Welcome to

Python Calculator!")


# Enter first number number1 = float(input("Enter first number: "))

# Enter a different digit

number2 = float(input("Enter a different number: "))

# Math Operation Entrya da

operation = input("What operation do you want to perform? (sum, subtraction, multiplication,
division):").lower()

# Verification of which operation to

perform if operation == ‘sum’:


    result = number1 + number2

    print(f"Sum result: {result}")


ELIF == operation:

    result = number1 – number2

    print(f"Subtraction result: {result}")


ELIF operation == multiplication:

    result = number1 * number2

    print(f"Multiplication result: {result}")
```

```
ELIF == operation:
    if number2 != 0:
        result = number1 / number2
        print(f"Sharing result: {result}")
    else:
        print("Error: Cannot share with zero!")
else:
    print("Invalid operation! Please enter one of the following operations: sum, subtraction,
multiplication, division.")
```

Code Visual in Python:



```
print("Welcome to Python Calculator!")

number1 = float(input("Enter first number: "))
number2 = float(input("Enter a different number: "))

operation = input("What operation do you want to perform? (sum, subtraction, multiplication, division): ").lower()

if operation == 'sum':
    result = number1 + number2
    print(f"Sum result: {result}")

elif operation == 'subtraction':
    result = number1 - number2
    print(f"Subtraction result: {result}")

elif operation == 'multiplication':
    result = number1 * number2
    print(f"Multiplication result: {result}")

elif operation == 'division':
    if number2 != 0:
        result = number1 / number2
        print(f"Division result: {result}")
    else:
        print("Error: Cannot divide by zero!")

else:
    print("Invalid operation! Please enter one of the following operations: sum, subtraction, multiplication, division.")
```

**Step 3: Explanation of the code**

1. Enter numbers and operations: • We use input() function to enter numbers and operations.

Since input() returns text, we
convert the entered numbers to decimal numbers using float().

2. Conditional Commands (if, elif, else): • The if command verifies which

operation the user wants to select.

- If the user enters "sum", "subtraction", "multiplication" or "division", the calculator will perform the corresponding mathematical operation.

- If the user enters "split", we additionally check that the second number is zero to avoid dividing by zero, which causes an error.

3. Print results:

- The result of each operation is printed on the screen.

**Step 4: Start Calculator**

1. Save file as calculator.py.
2. Run your programme at Python IDLE.
3. Enter two numbers and select the operation for which you want to know the result (e.g., sum, subtraction, multiplication, division).

### Quiz:

1. What is the input() function in Python?

a) Keyboard data entry function
b) Function to print the results on the screen
c) Function for saving files

2. What does an if order in Python do?

a) Conduct a conditional check b)
Prints the result c) Save data in
variable

3. What is the function of the float(s) in Python?
a) Converts text to a number
b) Convert number to decimal
c) Prints text

Correct answers: 1.a, 2.a, 3.b

### Mini simulation:

Modify Calculator:

- Add an option to calculate the residue on sharing (operation module).
- Allow the user to calculate multiple operations without restarting the programme (add a loop that allows the calculator to be reused).