

## Assignment 11

11

**Aim:** Create a basic calculator which include only basic operations of addition, multiplication, division and subtraction.

**Code:**

```
def add(x, y):
    return x + y

def subtract(x, y):
    return x - y

def multiply(x, y):
    return x * y

def divide(x, y):
    if y == 0:
        return "Error: Division by zero"
    return x / y

def calculator():
    print("Simple Calculator")
    print("Operations:")
    print("1. Addition")
    print("2. Subtraction")
    print("3. Multiplication")
    print("4. Division")

    while True:
        try:
            choice = int(input("Enter operation number (1/2/3/4): "))

            if choice not in [1, 2, 3, 4]:
                print("Invalid input. Please enter 1, 2, 3, or 4.")
                continue

            num1 = float(input("Enter first number: "))
            num2 = float(input("Enter second number: "))

            if choice == 1:
                print(f"{num1} + {num2} = {add(num1, num2)}")
            elif choice == 2:
                print(f"{num1} - {num2} = {subtract(num1, num2)}")
            elif choice == 3:
```

```

        print(f"{num1} * {num2} = {multiply(num1, num2)}")
    elif choice == 4:
        print(f"{num1} / {num2} = {divide(num1, num2)}")

    another_calculation = input("Perform another calculation?
(y/n): ")

    if another_calculation.lower() != 'y':
        break

except ValueError:
    print("Invalid input. Please enter a number.")

if __name__ == "__main__":
    calculator()

```

### Output Screenshot:

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  GITLENS  COMMENTS

● > python3 -u "/Users/debdootmanna/VSCoDe/Python/Assignment 11.py"
Simple Calculator
Operations:
1. Addition
2. Subtraction
3. Multiplication
4. Division
Enter operation number (1/2/3/4): 1
Enter first number: 43
Enter second number: 23
43.0 + 23.0 = 66.0
Perform another calculation? (y/n): y
Enter operation number (1/2/3/4): 2
Enter first number: 43
Enter second number: 23
43.0 - 23.0 = 20.0
Perform another calculation? (y/n): y
Enter operation number (1/2/3/4): 3
Enter first number: 23
Enter second number: 43
23.0 * 43.0 = 989.0
Perform another calculation? (y/n): y
Enter operation number (1/2/3/4): 4
Enter first number: 43
Enter second number: 23
43.0 / 23.0 = 1.8695652173913044
Perform another calculation? (y/n): n

~/VSCoDe/Python on main #1 ?3
>

```

**Conclusion/Summary:**

In this assignment, I created a basic calculator application using Python that performs four fundamental arithmetic operations: addition, subtraction, multiplication, and division. The program demonstrates several important programming concepts:

**Function Implementation:** I defined separate functions for each operation to maintain clean, modular code.

**Input Validation:** The calculator checks for invalid inputs and handles potential errors like division by zero.

**User Interface:** A simple text-based menu guides users through selecting operations and entering numbers.

**Exception Handling:** Try-except blocks prevent the program from crashing when users enter invalid data.

**Control Flow:** While loops and conditional statements control program execution and decision-making.

This project helped me understand how to create a practical application that processes user input, performs calculations, and displays results in a user-friendly manner. The modular design also makes it easy to extend the calculator with additional operations in the future.

Through building this calculator, I've strengthened my understanding of Python fundamentals and gained experience in creating interactive command-line applications.

<b>Student Signature &amp; Date</b>	<b>Marks:</b>	<b>Evaluator Signature &amp; Date</b>
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