Python Simple Calculator

Overview:

1. **Operations Available:**

   The calculator offers four operations - addition, subtraction, multiplication, and division.

2. **User Input:**

   The user is asked to choose an operation by entering a number (1 for addition, 2 for subtraction, 3 for multiplication, and 4 for division).

3. **Taking Numbers:**

   After choosing the operation, the user is prompted to enter two numbers on which the chosen operation will be performed.

4. **Performing Calculation:**

   Depending on the chosen operation, the calculator performs the calculation and displays the result.

5. **Handling Division by Zero:**

   The code checks if the user tries to divide by zero, and if so, it displays a message saying "Cannot divide by zero."

6. **Invalid Input:**

   If the user enters an invalid choice (not 1, 2, 3, or 4), the program notifies them with an "Invalid input" message.

Question

Imagine you are building a basic calculator program in Python. The program should be able to perform addition, subtraction, multiplication, and division. Below is a simplified version of the code. Explain the logic and design of this calculator program in your own words. Highlight how the code handles user input, performs calculations, and deals with potential errors. Additionally, provide an example of how the program would work for a specific calculation.

Code Logic & Design:

Operations Selection:

- The program starts by asking the user to choose the operation they want to perform: addition, subtraction, multiplication, or division.
- This is done using a simple menu that shows the available options.

```
# Asking User Choice
choice=input("Enter your choice(1,2,3,4):")

#Using Nested if/elif and else for asking user choice and perform relevant operation

if choice in("1","2","3","4"):
    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)}")
    else:
        print("Invalid Input")
```

User Input:

- Once the user selects an operation, they are asked to input two numbers.
- These two numbers will be used for the chosen operation.

```
num1=float(input("Enter First Number: "))
num2=float(input("Enter Second Number: "))
```

Performing Calculation:

- Depending on the user's choice, the program performs the corresponding calculation using functions like add, subtract, multiply, or divide.
- Each function takes two numbers as input and returns the result of the operation.

```
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)}")
else:
    print("Invalid Input")
```

Handling Division by Zero:

- The code checks if the user is attempting to divide by zero (which is not allowed in math).
- If the user tries to divide by zero, the program displays a message saying "Cannot divide by zero."

```
if y!=0:
    return x/y
else:
    return "Can't Divide by zero!"
```

Displaying the Result:

- Finally, the program prints the result of the chosen operation.

```
PS C:\Users\Windows10> python -u "c:\Users\Windows10\Desktop\Project Number 2\Simple_Calculator.py"
Select Operation:
1. Add
2. Subtract
3. Multiply
4. Divide
Enter your choice(1,2,3,4):1
Enter First Number: 5.26
Enter Second Number: 8.18
5.26 + 8.18 = 13.44
```

Invalid Input:

- If the user enters a choice that is not 1, 2, 3, or 4, the program informs them that the input is invalid.

```
else:
    print("Invalid Input")
```

Github Repository Link:

https://github.com/Abdullah4589/BanoQabil-2.0-Python-Course