

Programming Exam 3

Date/Time: 2024.03.26 08:10 – 09:00

(程式檔命名學號_quiz3.py，上傳至 Moodle PE3 上傳區)

Problem: Simple Calculator

Create a simple calculator program in Python that performs basic arithmetic operations on two numbers. The program should follow these rules and features:

- (1) Print a welcome message to the user when the program starts.
- (2) Prompt the user to enter two numbers and store them as floating-point values.
- (3) Prompt the user to select an arithmetic operation (addition, subtraction, multiplication, or division). For division, if the denominator is zero, display “division by zero” and directly ask the users to input numbers again.
- (4) Use an if-else statement to perform the selected operation on the two numbers, and display the result to the user.
- (5) Ask the user if they want to perform another calculation.
- (6) If the user chooses to perform another calculation, repeat steps 2-5.
- (7) If the user chooses to exit the program, display a goodbye message and exit.

Sample Input/Output

(以下是你程式執行後須印出的結果)

```
c:\workspace\extra>python pe3.py
Welcome to the simple calculator program!
Enter the first number: 3
Enter the second number: 9
Select an arithmetic operation (+, -, *, /): +
Result: 12.0
Do you want to perform another calculation? (yes or no): yes
Enter the first number: 8
Enter the second number: 0
Select an arithmetic operation (+, -, *, /): -
Result: 8.0
Do you want to perform another calculation? (yes or no): yes
Enter the first number: 5
Enter the second number: 5
Select an arithmetic operation (+, -, *, /): *
Result: 25.0
Do you want to perform another calculation? (yes or no): yes
Enter the first number: 6
Enter the second number: 2.5
Select an arithmetic operation (+, -, *, /): /
Result: 2.4
Do you want to perform another calculation? (yes or no): no
Goodbye!

c:\workspace\extra>
```

```
c:\workspace\extra>python pe3.py
Welcome to the simple calculator program!
Enter the first number: 123
Enter the second number: 0
Select an arithmetic operation (+, -, *, /): *
Result: 0.0
Do you want to perform another calculation? (yes or no): yes
Enter the first number: 123
Enter the second number: 0
Select an arithmetic operation (+, -, *, /): /
Error: Division by zero!
Enter the first number: 123
Enter the second number: 3
Select an arithmetic operation (+, -, *, /): /
Result: 41.0
Do you want to perform another calculation? (yes or no): no
Goodbye!

c:\workspace\extra>
```

(繳交是交 pe3.py 檔，不是交截圖)

Note: You need to write comments (註解) for each part in your code.
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