

Task 1

Calculator

1. Objective: Create a simple console-based calculator application.
2. Features:
 - Addition, subtraction, multiplication, and division operations.
 - User-friendly interface for input and result display.
 - Error handling for invalid inputs.
 - Continuously prompt the user for calculations until they choose to exit.
 - Utilize functions to modularize code and enhance maintainability.
 - Include a welcome message and farewell message for a friendly user experience.
 - Implement a loop to allow users to perform multiple calculations in a single run.

Program:

```
def print_welcome_message():  
    print("Welcome to the Simple Console Calculator!")  
    print("You can perform addition, subtraction, multiplication, and division operations.")  
    print("Type 'exit' at any time to quit.\n")  
  
def print_farewell_message():  
    print("\nThank you for using the Simple Console Calculator. Goodbye!")  
  
def get_number(prompt):  
    while True:  
        try:  
            return float(input(prompt))  
        except ValueError:  
            print("Invalid input. Please enter a valid number.")  
  
def get_operator():
```

```
operators = ['+', '-', '*', '/']
```

```
while True:
```

```
    operator = input("Enter operator (+, -, *, /): ").strip()
```

```
    if operator in operators:
```

```
        return operator
```

```
    print("Invalid operator. Please enter one of +, -, *, /.")
```

```
def perform_calculation(num1, operator, num2):
```

```
    if operator == '+':
```

```
        return num1 + num2
```

```
    elif operator == '-':
```

```
        return num1 - num2
```

```
    elif operator == '*':
```

```
        return num1 * num2
```

```
    elif operator == '/':
```

```
        if num2 == 0:
```

```
            return "Error: Division by zero is not allowed."
```

```
        return num1 / num2
```

```
def main():
```

```
    print_welcome_message()
```

```
while True:
```

```
    num1 = get_number("Enter the first number: ")
```

```
    operator = get_operator()
```

```
    num2 = get_number("Enter the second number: ")
```

```
    result = perform_calculation(num1, operator, num2)
```

```
print(f"\nThe result of {num1} {operator} {num2} = {result}\n")

continue_calculation = input("Do you want to perform another calculation? (yes/no):
").strip().lower()

if continue_calculation != 'yes':
    break

print_farewell_message()

if __name__ == "__main__":
    main()
```

Output:

Welcome to the Simple Console Calculator!

You can perform addition, subtraction, multiplication, and division operations.

Type 'exit' at any time to quit.

Enter the first number: 28

Enter operator (+, -, *, /): *

Enter the second number: 13

The result of $28.0 * 13.0 = 364.0$

Do you want to perform another calculation? (yes/no): no

Thank you for using the Simple Console Calculator. Goodbye!

=== Code Execution Successful ===