Graded Lab - Week 3

June 14, 2024

1 Week 3: Graded Lab

1.0.1 Topic: Clean Code in Python

1.0.2 Assignment Instructions

In this assignment, you will write a Python program that calculates the sum of a provided list of even numbers.

1.0.3 Grading Rubric

The code will be graded based on the following criteria.

PEP 8 Compliance (2 points): - Proper function and variable naming conventions. - Correct indentation (4 spaces per level). - Appropriate use of whitespace, line length, and comments.

Function Correctness (4 points): - The function should correctly sum even numbers in the input list. - It should raise a ValueError if non-integer elements are present in the input list. - Handling Exceptions (1 points): - The function should properly handle exceptions as described in the prompt.

Efficiency (2 points): - The function should be efficient and not perform unnecessary calculations.

Test Cases (2 points): - Appropriate test cases will be used to validate the correctness of the function.

Total Score: 10 points.

1.1 Submit Your Work

This week, your code will be manually graded by course staff. Please follow the instructions within the following Staff Graded Assignment to submit a copy of your notebook for review.

[1]:
```
def sum_of_even_numbers(numbers):
    """
    Calculate the sum of even numbers in a list.

    Args:
    numbers (list): A list of integers.
```

```
    Returns:
    int: The sum of even numbers in the list.
    """
    # Ensure that the input is a list
    if not isinstance(numbers, list):
        raise TypeError("Input must be a list")

    # Initialize the sum
    total_sum = 0

    # Iterate through the list and add even numbers to the sum
    for num in numbers:
        if num % 2 == 0:
            total_sum += num

    return total_sum

# Test cases
def test_sum_of_even_numbers():
    # Test case 1: empty list
    assert sum_of_even_numbers([]) == 0

    # Test case 2: list with only odd numbers
    assert sum_of_even_numbers([1, 3, 5]) == 0

    # Test case 3: list with only even numbers
    assert sum_of_even_numbers([2, 4, 6]) == 12

    # Test case 4: mixed list of even and odd numbers
    assert sum_of_even_numbers([1, 2, 3, 4, 5, 6]) == 12

    # Test case 5: list with negative even numbers
    assert sum_of_even_numbers([-2, -4, -6]) == -12

    print("All test cases passed!")

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

```
All test cases passed!
```

[ ]: