

CSC110Y1F, Fall 2022

Term Test 1

3. [4 marks] Debugging and testing.

Consider the following function definition.

assert actual == expected

This implementation of sum_of_squares does pass the doctest example, but actually has a subtle error, and so is not correct on all possible inputs to the function.

Hint: recall what you have learned about the differences between various collection types (set, list, dict).

(a) [2 marks] Complete the unit test below to show an example valid input to sum_of_squares that will fail because this implementation returns an incorrect value.

```
def test_sum_of_squares_error() -> None:

"""A test case for sum_of_squares that reveals an error in the given implementation.

If we ran this test with pytest and the current implementation, we would expect this test to *fail* because of the error in the function body.

"""

actual = sum_of_squares(\{\frac{2}{2},\frac{1}{2},\frac{2}{2},\frac{3}{2}\frac{2}{2}\})

# FILL THIS IN

expected = | \{\frac{2}{2}}
```



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- (b) [1 mark] Explain what is the error in the given implementation. Do not say how to fix the error in your response.

 The set comprehension used in the networn statement climinates neperted walles, this is because sets do not allow duplicate values. So if two integers (manely a +ve and -ve of the same number) have the same value when squared the value will be taken only once in the sum. Thus creating an error in the implementation.
 - (c) [1 mark] Write a correct function implementation for sum_of_squares. Your code should be similar to the implementation written at the start of this question, but with the error corrected.