**Task 6-Unit Testing in Python**

**Problem:**

You have a Python module string\_functions.py that contains the following functions:

def reverse\_string(s):

return s[::-1]

def is\_palindrome(s):

return s == s[::-1]

def count\_characters(s):

return len(s)

def join\_strings(s1, s2):

return s1 + " " + s2

Write unit tests for the functions reverse\_string, is\_palindrome, count\_characters, and join\_strings using the unittest library. Include test cases to cover different scenarios, such as valid inputs and edge cases.

Guidelines:

* Create a new Python script for writing your unit tests.
* Use the unittest library to create and run your tests.
* Include test cases for each function, covering both normal and edge cases.
* Use assert statements or appropriate unittest assertion methods to validate the output of each function.
* Ensure that your tests provide adequate coverage and handle possible error scenarios.

Example Output:

....

----------------------------------------------------------------------

Ran 4 tests in 0.001s

OK

Ensure that your unit tests thoroughly test the functions in the string\_functions.py module and handle various scenarios to ensure the correctness of the functions. This assignment will help you become more proficient in writing unit tests in Python using the unittest library.