

Programming Fundamentals and Unit Testing

Regular Exam – 7 July 2024

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4. Unit Test List: Vowels Counter

Test a given method which takes in a **list of strings** and **returns the total number of vowels** found in the list. The program considers **vowels to be 'a', 'e', 'i', 'o', 'u' (both uppercase and lowercase)**.

The method is found in the **VowelsCounter.cs** file:

```
public class VowelsCounter
{
    5 references
    public static int CountTotalVowels(List<string> words)
    {
        int totalVowels = 0;

        string allChars = string.Join(string.Empty, words);

        foreach (char singleChar in allChars.ToLower())
        {
            if ("aeiou".Contains(singleChar))
            {
                totalVowels += 1;
            }
        }

        return totalVowels;
    }
}
```

You are given a **test file VowelsCounterTests.cs** containing **5 empty tests**. Implement all the unit tests:

```
public class VowelsCounterTests
{
    [Test]
    0 references
    public void Test_CountTotalVowels_GetEmptyList_ReturnsZero()...

    [Test]
    0 references
    public void Test_CountTotalVowels_GetListWithEmptyStringValue_ReturnsZero()...

    [Test]
    0 references
    public void Test_CountTotalVowels_MultipleLowerCaseStrings_ReturnsVowelsCount()...

    [Test]
    0 references
    public void Test_CountTotalVowels_GetStringsWithNoVowels_ReturnsZero()...

    [Test]
    0 references
    public void Test_CountTotalVowels_StringsWithMixedCaseVowels_ReturnsVowelsCount()...
}
```

When you are ready make sure your **tests run**:

- ✓ VowelsCounterTests (5)
 - ✓ Test_CountTotalVowels_GetEmptyList_ReturnsZero
 - ✓ Test_CountTotalVowels_GetListWithEmptyStringValue_ReturnsZero
 - ✓ Test_CountTotalVowels_GetStringsWithNoVowels_ReturnsZero
 - ✓ Test_CountTotalVowels_MultipleLowerCaseStrings_ReturnsVowelsCount
 - ✓ Test_CountTotalVowels_StringsWithMixedCaseVowels_ReturnsVowelsCount

IMPORTANT: DO NOT REMOVE OR CHANGE ANY NAMESPACES AND USING.