Python Lists and Strings Coding

Questions

## Total Marks: 30

## Passing Marks: 12

**Excellent Marks:** 24 and above

## Difficulty Level: Easy

**Time:** 60 minutes

# Instructions

* Questions are marked based on difficulty:
* - Easy questions: 3 marks each
* - Medium questions: 5 marks each
* - Difficult questions: 10 marks each
* Write clean, well-commented code
* Include basic error handling where appropriate
* Test your code with the given test cases
* Bonus question is for extra practice and does not count towards total marks

**1: String Length Check [3 marks]**

**Write a function `check\_string\_length(s)` that returns True if the string length is between 5 and 10 characters (inclusive), False otherwise.**

### Example:

Input: "Hello" Output: True

Input: "Hi"

Output: False

**Answer:**

### def check\_string\_length(s):

### return 5 <= len(s) <= 10

### print(check\_string\_length("Hello"))

### print(check\_string\_length("Hi"))

**2: List Sum [3 marks]**

**Write a function `sum\_list(numbers)` that takes a list of numbers and returns their sum. Handle empty lists by returning 0.**

### Example:

Input: [1, 2, 3, 4, 5]

Output: 15

Input: []

Output: 0

# Write your answer here

### Answer:

### def sum\_list(numbers):

### return sum(numbers) if numbers else 0

### print(sum\_list([1, 2, 3, 4, 5]))

### print(sum\_list([]))

**3: String Case Converter [3 marks]**

**Write a function `convert\_case(s)` that converts a string to uppercase if it contains more uppercase letters, and lowercase if it contains more lowercase letters. If equal, return the original string.**

### Example:

Input: "HeLLo" Output: "HELLO"

Input: "hello" Output: "hello"

# Write your answer here

### Answer:

### def convert\_case(s):

### upper\_count = sum(1 for char in s if char.isupper())

### lower\_count = len(s) - upper\_count

### if upper\_count > lower\_count:

### return s.upper()

### elif lower\_count > upper\_count:

### return s.lower()

### else:

### return s

### print(convert\_case("HeLLo"))

### print(convert\_case("hello"))

### print(convert\_case("HeLlO"))

**4: List Duplicate Remover [3 marks]**

**Write a function `remove\_duplicates(lst)` that removes duplicate elements from a list while preserving the order of first occurrence.**

### Example:

Input: [1, 2, 2, 3, 3, 4, 5, 5]

Output: [1, 2, 3, 4, 5]

Input: ["apple", "banana", "apple", "cherry"]

Output: ["apple", "banana", "cherry"] # Write your answer here

### Answer:

### def remove\_duplicates(lst):

### seen = set()

### result = []

### 

### for item in lst:

### if item not in seen:

### result.append(item)

### seen.add(item)

### 

### return result

### print(remove\_duplicates([1, 2, 2, 3, 3, 4, 5, 5]))

### print(remove\_duplicates(["apple", "banana", "apple", "cherry"]))

**5: String Word Counter [3 marks]**

**Write a function `count\_words(s)` that counts the number of words in a string. Words are separated by spaces.**

### Example:

Input: "Hello world" Output: 2

Input: "This is a test sentence"

Output: 5

# Write your answer here

### Answer:

### def count\_words(s):

### words = s.split()

### return len(words)

### print(count\_words("Hello world"))

### print(count\_words("This is a test sentence"))

**6: List Even Numbers [3 marks]**

**Write a function `get\_even\_numbers(lst)` that returns a new list containing only the even numbers from the input list.**

### Example:

Input: [1, 2, 3, 4, 5, 6, 7, 8]

Output: [2, 4, 6, 8]

Input: [1, 3, 5, 7]

Output: []

# Write your answer here

### Answer:

### def get\_even\_numbers(lst):

### return [num for num in lst if num % 2 == 0]

### print(get\_even\_numbers([1, 2, 3, 4, 5, 6, 7, 8]))

### print(get\_even\_numbers([1, 3, 5, 7]))

**7: String Reverser [3 marks]**

**Write a function `reverse\_string(s)` that reverses a string without using the built-in reverse() method.**

### Example:

Input: "hello" Output: "olleh"

Input: "python" Output: "nohtyp"

# Write your answer here

### Answer:

### def reverse\_string(s):

### return s[::-1]

### print(reverse\_string("hello"))

### print(reverse\_string("python"))

**8: List Element Counter [3 marks]**

**Write a function `count\_element(lst, element)` that counts how many times a specific element appears in a list.**

### Example:

Input: lst = [1, 2, 2, 3, 2, 4], element = 2

Output: 3

Input: lst = ["a", "b", "a", "c", "a"], element = "a"

Output: 3

# Write your answer here

### Answer:

### def count\_element(lst, element):

### return lst.count(element)

### print(count\_element([1, 2, 2, 3, 2, 4], 2))

### print(count\_element(["a", "b", "a", "c", "a"], "a"))

**9: String Vowel Counter [3 marks]**

**Write a function `count\_vowels(s)` that counts the number of vowels (a, e, i, o, u) in a string, ignoring case.**

### Example:

Input: "Hello World" Output: 3

Input: "Python Programming"

Output: 4

# Write your answer here

### Answer:

### def count\_vowels(s):

### vowels = "aeiou"

### return sum(1 for char in s.lower() if char in vowels)

### print(count\_vowels("Hello World"))

### print(count\_vowels("Python Programming"))

# Bonus Challenge [Extra Practice]

[Extra Practice]

Write a function `is\_anagram(s1, s2)` that checks if two strings are anagrams of each other.

An anagram is a word formed by rearranging the letters of another word, using all the

original letters exactly once. For example, "listen" and "silent" are anagrams because they contain the same letters in different order.

### Example:

Input: s1 = "listen", s2 = "silent" Output: True

Input: s1 = "hello", s2 = "world"

Output: False

# Write your answer here

### Answer:

### def is\_anagram(s1, s2):

### s1 = s1.replace(" ", "").lower()

### s2 = s2.replace(" ", "").lower()

### return sorted(s1) == sorted(s2)

### print(is\_anagram("listen", "silent"))

### print(is\_anagram("hello", "world"))

# Evaluation Criteria

* Correctness (50%)
* - Function works as expected (30%)
* - Handles edge cases correctly (20%)
* Code Readability (30%)
* - Clear variable names (10%)
* - Proper comments (10%)
* - Clean code structure (10%)
* Basic Error Handling (20%)
* - Input validation (10%)
* - Appropriate error messages (10%)

# Marking Scheme

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* Passing marks: 12
* Excellent marks: 24 and above

***Good Luck!***