

11 String Assessments in Python

This document provides 21 string assessments in Python, ranging from easy to hard, including their solutions and expected results.

Easy Assessments

1. Reverse a String

Write a function that reverses a given string.

```
def reverse_string(s):  
    return s[::-1]  
  
# Test  
print(reverse_string("hello")) # Output: "olleh"
```

2. Check Palindrome

Write a function to check if a given string is a palindrome.

```
def is_palindrome(s):  
    return s == s[::-1]  
  
# Test  
print(is_palindrome("radar")) # Output: True  
print(is_palindrome("hello")) # Output: False
```

3. Count Vowels

Write a function that counts the number of vowels in a given string.

```
def count_vowels(s):  
    vowels = "aeiouAEIOU"  
    return sum(1 for char in s if char in vowels)  
  
# Test  
print(count_vowels("hello")) # Output: 2
```

4. Remove Whitespace

Write a function to remove all whitespace from a string.

```
def remove_whitespace(s):  
    return s.replace(" ", "")  
  
# Test  
print(remove_whitespace("hello world")) # Output: "helloworld"
```

5. Find the Length of a String

Write a function to find the length of a string.

```
def string_length(s):  
    return len(s)  
  
# Test  
print(string_length("hello")) # Output: 5
```

Medium Assessments

6. Replace Substring

Write a function to replace all occurrences of a substring with another substring.

```
def replace_substring(s, old, new):  
    return s.replace(old, new)  
  
# Test  
print(replace_substring("hello world", "world", "Python")) # Output: "hello Python"
```

7. Find Substring

Write a function to find the index of the first occurrence of a substring.

```
def find_substring(s, sub):  
    return s.find(sub)  
  
# Test  
print(find_substring("hello world", "world")) # Output: 6
```

8. Count Words

Write a function to count the number of words in a string.

```
def count_words(s):  
    return len(s.split())  
  
# Test  
print(count_words("hello world")) # Output: 2
```

9. Convert to Uppercase

Write a function to convert a string to uppercase.

```
def to_uppercase(s):  
    return s.upper()
```

```
# Test
print(to_uppercase("hello")) # Output: "HELLO"
```

10. Convert to Lowercase

Write a function to convert a string to lowercase.

```
def to_lowercase(s):
    return s.lower()
```

```
# Test
print(to_lowercase("HELLO")) # Output: "hello"
```

11. Swap Case

Write a function to swap the case of each character in a string.

```
def swap_case(s):
    return s.swapcase()
```

```
# Test
print(swap_case("Hello World")) # Output: "hELLO wORLD"
```

Hard Assessments

12. Count Character Frequency

Write a function to count the frequency of each character in a string.

```
def character_frequency(s):
    freq = {}
    for char in s:
        if char in freq:
            freq[char] += 1
        else:
            freq[char] = 1
    return freq
```

```
# Test
print(character_frequency("hello")) # Output: {'h': 1, 'e': 1, 'l': 2, 'o': 1}
```

13. Remove Duplicates

Write a function to remove duplicate characters from a string.

```
def remove_duplicates(s):
    return ''.join(sorted(set(s), key=s.index))
```

```
# Test
print(remove_duplicates("hello")) # Output: "helo"
```

14. Convert String to Integer

Write a function to convert a string to an integer.

```
def string_to_integer(s):
    try:
        return int(s)
    except ValueError:
        return None
```

```
# Test
print(string_to_integer("123")) # Output: 123
print(string_to_integer("hello")) # Output: None
```

15. Convert Integer to String

Write a function to convert an integer to a string.

```
def integer_to_string(n):
    return str(n)
```

```
# Test
print(integer_to_string(123)) # Output: "123"
```

16. Reverse Words

Write a function to reverse the order of words in a string.

```
def reverse_words(s):
    return ' '.join(s.split()[::-1])
```

```
# Test
print(reverse_words("hello world")) # Output: "world hello"
```

17. Most Frequent Character

Write a function to find the most frequent character in a string.

```
def most_frequent_character(s):
    return max(s, key=s.count)
```

```
# Test
print(most_frequent_character("banana")) # Output: "a"
```

18. Check if a String is a Valid Identifier

Write a function to check if a string is a valid identifier in Python.

```
def is_valid_identifier(s):
    return s.isidentifier()

# Test
print(is_valid_identifier("variable")) # Output: True
print(is_valid_identifier("123variable")) # Output: False
```

19. Convert CamelCase to Snake_case

Write a function to convert a CamelCase string to snake_case.

```
import re

def camel_to_snake(s):
    return re.sub(r'(?![^])(?=[A-Z])', '_', s).lower()

# Test
print(camel_to_snake("CamelCaseString")) # Output: "camel_case_string"
```

20. Find All Permutations of a String

Write a function to find all permutations of a given string.

```
from itertools import permutations

def all_permutations(s):
    return [''.join(p) for p in permutations(s)]

# Test
print(all_permutations("abc")) # Output: ['abc', 'acb', 'bac', 'bca', 'cab', 'cba']
```

21. Check if a String is a Pangram

Write a function to check if a string is a pangram (contains all the letters of the alphabet at least once).

```
import string

def is_pangram(s):
    return set(string.ascii_lowercase) <= set(s.lower())

# Test
print(is_pangram("The quick brown fox jumps over the lazy dog")) # Output: True
print(is_pangram("Hello World")) # Output: False
```

Stay Updated

Be sure to `pull` this repository to stay updated with new examples and enhancements!

License

This project is protected under the MIT License.

Contact

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Note: This is a Python script and requires a Python interpreter to run.

Happy Coding

Made with `vim` by Panagiotis Moschos (<https://github.com/pmoschos>)