

CPP-A07: Strings

1. Reverse a String

- Write a function to reverse a given string **without using** `reverse()`.

Input:

```
Hello World
```

Output:

```
dlrow olleH
```

2. Check if a String is a Palindrome

- A string is a palindrome if it reads the same forward and backward. Ignore case and spaces.

Input:

```
racecar
```

Output:

```
Yes, it is a palindrome
```

3. Count the Number of Vowels and Consonants in a String

- Count the number of vowels (`a, e, i, o, u`) and consonants.

Input:

```
OpenAI ChatGPT
```

Output:

```
Vowels: 5  
Consonants: 7
```

4. Find the Most Frequent Character in a String

- Find the character that appears most frequently.

Input:

```
programming
```

Output:

```
Most frequent character: g
```

5. Remove All Duplicates from a String

- Remove duplicate characters while preserving order.

Input:

```
banana
```

Output:

```
ban
```

6. Find the First Non-Repeating Character

- Find the first character that appears only once.

Input:

```
aabccdeff
```

Output:

```
First non-repeating character: b
```

7. Convert a String to Title Case

- Capitalize the first letter of each word.

Input:

```
hello world
```

Output:

```
Hello World
```

8. Check if Two Strings are Anagrams

- Two strings are anagrams if they contain the same characters in any order.

Input:

```
listen  
silen
```

Output:

```
Yes, they are anagrams
```

9. Check if a String Contains Only Digits

- Check if a string contains only numeric characters.

Input:

```
123456
```

Output:

```
Yes, it contains only digits
```

10. Replace a Word in a Sentence

- Replace all occurrences of a word in a given sentence.

Input:

```
"I love C++, C++ is great!"  
Replace "C++" with "Python"
```

Output:

```
"I love Python, Python is great!"
```

11. Reverse Each Word in a String

- Reverse individual words but maintain their order.

Input:

```
Hello World
```

Output:

```
olleH dlrow
```

12. Find the Longest Word in a Sentence

- Find the longest word in a given sentence.

Input:

```
C++ is a powerful programming language
```

Output:

```
Longest word: programming
```

13. Count the Occurrences of Each Character in a String

- Count how many times each character appears.

Input:

```
apple
```

Output:

```
a: 1
p: 2
l: 1
e: 1
```

14. Check if a String is a Rotation of Another String

- A string is a rotation of another if moving characters from the start to end results in the same string.

Input:

```
original: "waterbottle"
rotated: "erbottlewat"
```

Output:

```
Yes, it is a rotation
```

15. Find All Substrings of a Given String

- Generate all possible substrings.

Input:

```
abc
```

Output:

```
a, ab, abc, b, bc, c
```

Happy Coding!