Homework Questions for String Handling

String Operations and Methods

1. **Basic Operations:**
    - Write a program that takes two strings as input and performs the following operations:
        - Concatenate the strings.
        - Print the first string repeated 3 times.
        - Slice the second string from index 2 to 6.
2. **String Methods:**
    - Take a user input string and perform the following operations:
        - Convert the string to title case.
        - Count the number of occurrences of the letter "a" (case insensitive).
        - Check if the string contains only alphabets.
3. **Manipulating Strings:**
    - Write a program to take a sentence as input and:
        - Replace all spaces with underscores.
        - Print whether the sentence starts with the word "The".
        - Extract the last 5 characters of the string.
4. **Palindrome Check:**
    - Write a program to check if a given string is a palindrome (reads the same forward and backward). Ignore case sensitivity.

String Formatting

5. **Using f-strings:**
    - Write a program to take a name, age, and favorite color as input and display a message like: "Hi Alice! You are 30 years old, and your favorite color is blue."

6. **Using .format() Method:**
    - Create a program that takes two numbers as input and displays the following message using .format(): "The sum of {number1} and {number2} is {result}."
7. **Custom Table:**
    - Write a program to display a table of items, quantities, and prices using f-strings or .format() for formatting:
    - Item Quantity Price
    - Apples 10 $2.50
    - Bananas 5 $1.20
    - Oranges 8 $3.00

Creative String Manipulations

8. **Reverse Each Word:**
    - Write a program to reverse each word in a given sentence while maintaining their order.
        - Input: "Hello World"
        - Output: "olleH dlroW"
9. **Count Vowels and Consonants:**
    - Write a program to count the number of vowels and consonants in a given string. Ignore spaces and special characters.
10. **Remove Duplicates:**
    - Write a program that removes duplicate characters from a string.
        - Input: "hello"
        - Output: "helo"

11. **Word Frequency:**
    - Write a program to count the frequency of each word in a given sentence and display the results.
12. **Anagram Check:**
    - Write a program to check if two strings are anagrams of each other (contain the same characters in a different order).
        - Example:
            - Input: "listen", "silent"
            - Output: True

Challenging Questions

13. **Password Strength Checker:**
    - Write a program to check if a given password is strong. A strong password:
        - Is at least 8 characters long.
        - Contains both uppercase and lowercase letters.
        - Includes at least one numeric digit and one special character.
14. **Pig Latin Converter:**
    - Write a program to convert a sentence into "Pig Latin." For each word:
        - Move the first letter to the end.
        - Add "ay" to the end.
        - Input: "Python is fun"
        - Output: "ythonPay siay unfay"

15. **Caesar Cipher:**
    - Implement a simple Caesar cipher that shifts characters in a string by a fixed number. For example:
        - Input: "abc", shift = 2
        - Output: "cde"