Problem 1: Count Occurrences of Each Character in a String

Description: Write a program to count the occurrences of each character in a given string.

Input:

String word = "hello";

Output:

Character counts in the word "hello":

h: 1

e: 1

l: 2

o: 1

Problem 2: Remove Repetitive Characters from a String

Description: Write a program to remove repetitive characters from a given string.

Input:

String word = "programming";

Output:

Original word: programming

Word after removing repetitive characters: progamin

Problem 3: Find the First Non-Repeating Character in a String

Description: Write a program to find the first non-repeating character in a given string.

Input:

String word = "swiss";

Output:

The first non-repeating character is: w

Problem 4: Check if Two Strings are Anagrams

Description: Write a program to check if two given strings are anagrams of each other.

Input:

String word1 = "listen";

String word2 = "silent";

Output:

The strings "listen" and "silent" are anagrams.

Problem 5: Count Vowels and Consonants in a String

Description: Write a program to count the number of vowels and consonants in a given string.

Input:

String word = "education";

Output:

Number of vowels: 5

Number of consonants: 4

Problem 6: Reverse a String

Description: Write a program to reverse a given string.

Input:

String word = "hello";

Output:

Original word: hello

Reversed word: olleh

Problem 7: Check if a String is a Palindrome

Description: Write a program to check if a given string is a palindrome.

Input:

String word = "racecar";

Output:

The string "racecar" is a palindrome.

Problem 8: Find the Longest Word in a Sentence

Description: Write a program to find the longest word in a given sentence.

Input:

String sentence = "The quick brown fox jumps over the lazy dog";

Output:

The longest word is: jumps

Problem 9: Count the Number of Words in a Sentence

Description: Write a program to count the number of words in a given sentence.

Input:

String sentence = "The quick brown fox jumps over the lazy dog";

Output:

Number of words: 9

Problem 10: Replace All Spaces in a String with Hyphens

Description: Write a program to replace all spaces in a given string with hyphens.

Input:

String sentence = "The quick brown fox";

Output:

Original sentence: The quick brown fox

Modified sentence: The-quick-brown-fox

Problem 11: Find the Frequency of Words in a Sentence

Description: Write a program to find the frequency of each word in a given sentence.

Input:

String sentence = "the quick brown fox jumps over the lazy dog the fox";

Output:

Word frequencies:

the: 2

quick: 1

brown: 1

fox: 2

jumps: 1

over: 1

lazy: 1

dog: 1

Problem 12: Convert a String to Uppercase

Description: Write a program to convert a given string to uppercase.

Input:

String word = "hello";

Output:

Original word: hello

Uppercase word: HELLO

Problem 13: Convert a String to Lowercase

Description: Write a program to convert a given string to lowercase.

Input:

String word = "HELLO";

Output:

Original word: HELLO

Lowercase word: hello

Problem 14: Find the Length of the Longest Substring Without Repeating Characters

Description: Write a program to find the length of the longest substring without repeating characters in a given string.

Input:

String word = "abcabcbb";

Output:

The length of the longest substring without repeating characters is: 3

Problem 15: Check if a String Contains Only Digits

Description: Write a program to check if a given string contains only digits.

Input:

String word = "12345";

Output:

The string "12345" contains only digits.

Problem 16: Count the Number of Uppercase and Lowercase Letters in a String

Description: Write a program to count the number of uppercase and lowercase letters in a given string.

Input:

String word = "HelloWorld";

Output:

Number of uppercase letters: 2

Number of lowercase letters: 8

Problem 17: Replace All Vowels in a String with a Specific Character

Description: Write a program to replace all vowels in a given string with a specific character.

Input:

String word = "hello";

char replacement = '*';

Output:

Original word: hello

Modified word: h*ll*

Problem 18: Find the Most Frequent Character in a String

Description: Write a program to find the most frequent character in a given string.

Input:

String word = "success";

Output:

The most frequent character is: s

Problem 19: Remove All Non-Alphabetic Characters from a String

Description: Write a program to remove all non-alphabetic characters from a given string.

Input:

String word = "he!llo@123";

Output:

Original word: he!llo@123

Modified word: hello

Problem 20: Reverse Each Word in a Sentence

Description: Write a program to reverse each word in a given sentence.

Input:

String sentence = "The quick brown fox";

Output:

Original sentence: The quick brown fox

Modified sentence: ehT kciuq nworb xof

Problem 21: Find the Second Most Frequent Character in a String

Description: Write a program to find the second most frequent character in a given string.

Input:

String word = "success";

Output:

The second most frequent character is: c

Problem 22: Check if a String is a Valid Palindrome Ignoring Non-Alphanumeric Characters

Description: Write a program to check if a given string is a valid palindrome, ignoring non-alphanumeric characters and case.

Input:

String word = "A man, a plan, a canal: Panama";

Output:

The string "A man, a plan, a canal: Panama" is a valid palindrome.

Problem 23: Find All Substrings of a String

Description: Write a program to find all substrings of a given string.

Input:

String word = "abc";

Output:

Substrings of "abc":

a

ab

abc

b

bc

c

Problem 24: Check if a String is a Rotation of Another String

Description: Write a program to check if one string is a rotation of another string.

Input:

String word1 = "waterbottle";

String word2 = "erbottlewat";

Output:

The string "erbottlewat" is a rotation of "waterbottle".

Problem 25: Find the Longest Palindromic Substring

Description: Write a program to find the longest palindromic substring in a given string.

Input:

String word = "babad";

Output:

The longest palindromic substring is: bab

Problem 26: Count the Number of Substrings with Equal Number of 0s and 1s

Description: Write a program to count the number of substrings with an equal number of 0s and 1s in a given binary string.

Input:

String binaryString = "00110011";

Output:

Number of substrings with equal number of 0s and 1s: 6

Problem 27: Find the Longest Common Prefix Among a Set of Strings

Description: Write a program to find the longest common prefix among a set of strings.

Input:

String[] words = {"flower", "flow", "flight"};

Output:

The longest common prefix is: fl

Problem 28: Check if a String Contains All Unique Characters

Description: Write a program to check if a given string contains all unique characters.

Input:

String word = "abcdef";

Output:

The string "abcdef" contains all unique characters.

Problem 29: Find the Longest Palindromic Subsequence

Description: Write a program to find the longest palindromic subsequence in a given string.

Input:

String word = "bbbab";

Output:

The longest palindromic subsequence is: bbbb

Problem 30: Convert a String to Title Case

Description: Write a program to convert a given string to title case (first letter of each word capitalized).

Input:

String sentence = "the quick brown fox";

Output:

Original sentence: the quick brown fox

Title case sentence: The Quick Brown Fox

Problem 31: Find the Longest Word in a String

Description: Write a program to find the longest word in a given string.

Input:

String sentence = "The quick brown fox jumps over the lazy dog";

Output:

The longest word is: jumps

Problem 32: Count the Number of Sentences in a Paragraph

Description: Write a program to count the number of sentences in a given paragraph.

Input:

String paragraph = "Hello world. This is a test. How many sentences are here?";

Output:

Number of sentences: 3

Problem 33: Check if a String is a Subsequence of Another String

Description: Write a program to check if one string is a subsequence of another string.

Input:

String word1 = "abc";

String word2 = "ahbgdc";

Output:

The string "abc" is a subsequence of "ahbgdc".

Problem 34: Find the Longest Common Subsequence

Description: Write a program to find the longest common subsequence between two strings.

Input:

String word1 = "abcde";

String word2 = "ace";

Output:

The longest common subsequence is: ace

Problem 35: Check if a String is a Valid Number

Description: Write a program to check if a given string is a valid number.

Input:

String word = "123.45";

Output:

The string "123.45" is a valid number.

Problem 36: Find the First Repeating Character in a String

Description: Write a program to find the first repeating character in a given string.

Input:

String word = "swiss";

Output:

The first repeating character is: s

Problem 37: Find the Length of the Shortest Word in a Sentence

Description: Write a program to find the length of the shortest word in a given sentence.

Input:

String sentence = "The quick brown fox jumps over the lazy dog";

Output:

The length of the shortest word is: 3

Problem 38: Replace All Digits in a String with a Specific Character

Description: Write a program to replace all digits in a given string with a specific character.

Input:

String word = "he11o";

char replacement = '*';

Output:

Original word: he11o

Modified word: he**o

Problem 39: Find the Longest Palindromic Substring

Description: Write a program to find the longest palindromic substring in a given string.

Input:

String word = "babad";

Output:

The longest palindromic substring is: bab

Problem 40: Check if a String Contains Only Letters

Description: Write a program to check if a given string contains only letters.

Input:

String word = "hello";

Output:

The string "hello" contains only letters.