Question 1:

Write a Java function to find the longest common prefix string among an array of strings. For example, for the input ["flower", "flow", "flight"], the output should be "fl".

Question 2:

You are given a string that represents a sentence. Write a Java function to reverse the order of words in the sentence. For example, the input "Hello world, how are you?" should produce "you? are how world, Hello".

Question 3:

Write a Java program to find and print all the substrings of a given string. For example, if the input is "abc", the output should be ["a", "ab", "abc", "b", "bc", "c"].

Question 4:

Implement a Java function to perform a basic string compression using the counts of repeated characters. If the compressed string is longer than the original, return the original. For example, "aabcccccaaa" would become "a2b1c5a3".

Question 5:

You are given two strings. Write a Java program to determine if the two strings are anagrams of each other. An anagram of a string is another string that uses the same characters, but can be arranged into a different order.

Question 6:

Write a Java function to count and return the number of palindrome substrings in a given string. For example, in the string "ababa", the palindrome substrings are "a", "b", "a", "b", "a", "aba", "bab", so the output should be 7.

Question 7:

Create a Java program that takes a string containing mathematical expressions (e.g., "3 + 5 * 2") and evaluates the expression to return the result.

Question 8:

Write a Java function to perform a case-insensitive search and replace of all occurrences of a specific word in a given sentence with another word.

Question 9:

You are given a string that contains a mix of uppercase and lowercase letters, spaces, and special characters. Write a Java function to sort the string in such a way that uppercase letters come before lowercase letters, and letters come before special characters, while maintaining the original order of each group.

Question 10:

Implement a Java program to find the shortest substring that contains all the characters of a given pattern. For example, for the input string "ADOBECODEBANC" and pattern "ABC", the output should be "BANC".