1. Write a C++ program that accepts a string from the user and then replaces all occurrences of the letter e with the letter x.

2. You've given strings jewels representing the types of stones that are jewels, and stones representing the stones you have. Each character in stones is a type of stone you have. You want to know how many of the stones you have are also jewels.

Letters are case sensitive, so "a" is considered a different type of stone from "A".

Example 1:

Input: aA aAAbbbb

Output: 3

Example 2:

Input: z ZZ

Output: 0

3. Given a string s, return the first non-repeating character in it and return its index. If it does not exist, return -1.

Example 1:

Input: leetcode

Output: 0

Example 2:

Input: loveleetcode

Output: 2

Example 3:

Input: aabb

Output: -1

4. Given an integer n, return true if it is a power of two. Otherwise, return false.

An integer n is a power of two if there exists an integer x such that n == 2^x.

Example 1:

Input: 1

Output: true

Explanation: 20 = 1

Example 2:

Input: 16

Output: true

Explanation: 24 = 16

Example 3:

Input: 3

Output: false

Example 4:

Input: 4

Output: true

Example 5:

Input: 5

Output: false

(Optional)

5. Given a string s, remove duplicate letters so that every letter appears once and only once. You must make sure your result is the smallest in lexicographical order among all possible results.

Example 1:

Input: s = "bcabc"

Output: "abc"

Example 2:

Input: s = "cbacdcbc"

Output: "acdb"