

Jewels and Stones

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

The letters in **J** are guaranteed distinct, and all characters in **J** and **S** are letters. Letters are case sensitive, so **"a"** is considered a different type of stone from **"A"**.

Example 1:

Input: J = "aA", S = "aAAbbbb"

Output: 3

Example 2:

Input: J = "z", S = "ZZ"

Output: 0

Note:

- **S** and **J** will consist of letters and have length at most 50.
- The characters in **J** are distinct.

Solution 1

First, read **J** and build jewels hash set.

Second, read **S** and count jewels.

I used hash set so that the time complexity will be **O(N)**, instead of O(MN)

C++

```
int numJewelsInStones(string J, string S) {  
    int res = 0;  
    set<char> setJ(J.begin(), J.end());  
    for (char s : S) if (setJ.count(s)) res++;  
    return res;  
}
```

Java:

```
public int numJewelsInStones(String J, String S) {  
    int res = 0;  
    Set setJ = new HashSet();  
    for (char j : J.toCharArray()) setJ.add(j);  
    for (char s : S.toCharArray()) if (setJ.contains(s)) res++;  
    return res;  
}
```

Python:

```
def numJewelsInStones(self, J, S):  
    setJ = set(J)  
    return sum(s in setJ for s in S)
```

written by [lee215](#) original link [here](#)

Solution 2

```
public int numJewelsInStones(String J, String S) {
    if(J.length() == 0 || S.length() == 0)
        return 0;

    // Using helper array for O(1) lookup when traversing S
    int[] jewels = new int[58];
    for(int i=0; i<J.length(); i++) {
        jewels[(J.charAt(i) - 'A')] = 1;
    }

    int result = 0;
    for(int i=0; i<S.length(); i++) {
        if(jewels[(S.charAt(i) - 'A')] == 1) {
            result++;
        }
    }

    return result;
}
```

Why an array of length 58? Two reasons

1. We need to consider both upper-case and lower-case characters
2. ASCII of 'z' - 'A' is 58. (<https://www.cs.cmu.edu/~pattis/15-1XX/common/handouts/ascii.html>)

Thanks to [@thaliahard](#) for pointing out the reduction in array size.

written by [SkandaB](#) original link [here](#)

Solution 3

Ruby

```
def num_jewels_in_stones(j, s)
  s.count(j)
end
```

```
def num_jewels_in_stones(j, s)
  s.scan(/[{j}]/).size
end
```

```
def num_jewels_in_stones(j, s)
  s.chars.count { |c| j.include?(c) }
end
```

Python

```
def numJewelsInStones(self, J, S):
    return sum(map(J.count, S))
```

```
def numJewelsInStones(self, J, S):
    return sum(map(S.count, J)) # this one after seeing https://discuss.leetcode.com/post/244105
```

```
def numJewelsInStones(self, J, S):
    return sum(s in J for s in S)
```

Java

```
public int numJewelsInStones(String J, String S) {
    return S.replaceAll("[^" + J + "]", "").length();
}
```

written by [StefanPochmann](#) original link [here](#)

From [LeetCoder](#).