

23. You are given a string s . $s[i]$ is either a lowercase English letter or '?'. For a string t having length m containing only lowercase English letters, we define the function $\text{cost}(i)$ for an index i as the number of characters equal to $t[i]$ that appeared before it, i.e. in the range $[0, i - 1]$. The value of t is the sum of $\text{cost}(i)$ for all indices i . For example, for the string $t = \text{"aab"}$:

$\text{cost}(0) = 0$

$\text{cost}(1) = 1$

$\text{cost}(2) = 0$

Hence, the value of "aab" is $0 + 1 + 0 = 1$. Your task is to replace all occurrences of '?' in s with any lowercase English letter so at the value of s is minimized.

Program:

```
def min_cost(s):
    char_counts = Counter(c for c in s if c.isalpha())
    cost = 0
    result = ""
    for char in s:
        if char == '?':
            min_char = min(char_counts.keys(), key=char_counts.get)
            result += min_char
            cost += char_counts[min_char]
            char_counts[min_char] -= 1
        else:
            result += char
            cost += char_counts[char]
    return result, cost
```

```
s = "aab?c??"
```

```
result, cost = min_cost(s)
```

```
print(result, cost)
```

