

177. Given a string s, find the length of the longest substring without repeating characters.

PROGRAM:

```
def length_of_longest_substring(s):
    start = maxLength = 0
    used_chars = {}

    for i, char in enumerate(s):
        if char in used_chars and start <= used_chars[char]:
            start = used_chars[char] + 1
        else:
            maxLength = max(maxLength, i - start + 1)

        used_chars[char] = i

    return maxLength

# Test the function with examples
print(length_of_longest_substring("abcabcbb")) # Output: 3
print(length_of_longest_substring("bbbbb"))   # Output: 1
print(length_of_longest_substring("pwwkew"))  # Output: 3
```

OUTPUT:

```
3
1
3
```

```
=== Code Execution Successful ===
```

TIME COMPLEXITY:O(N)