

# 3.Longest Substring Without Repeating Characters

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

## My Answer

Difficulty	Status	Runtime	Distribution(%)	Memory	Distribution(%)
Medium	AC	7ms	65.52	5.9MB	65.13

```
int lengthOfLongestSubstring(char * s){
    int lenth = strlen(s);
    int i, j;
    int head = 0;
    int tail = 0;
    int result = 0;
    for (i = 0; i < lenth; i++) {
        for (j = head; j < tail; j++) {
            if (s[j] == s[tail]) {
                head = j + 1;
                break;
            }
        }
        result = (result < (tail - head + 1)) ? (tail - head + 1) : result;
        tail++;
    }
    return result;
}
```

## Algorithm

Time complexity	Space complexity
$O(n^2)$	$O(n)$

If a substring  $S_{ij}$  from index  $i$  to  $j - 1$  is already checked to have no duplicate characters. We

only need to check if  $S[j]$  is already in the substring  $S_{ij}$