



@codestorywithmik

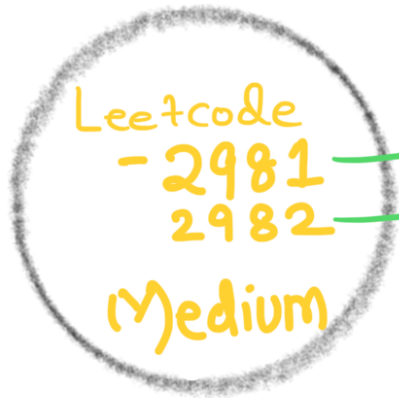
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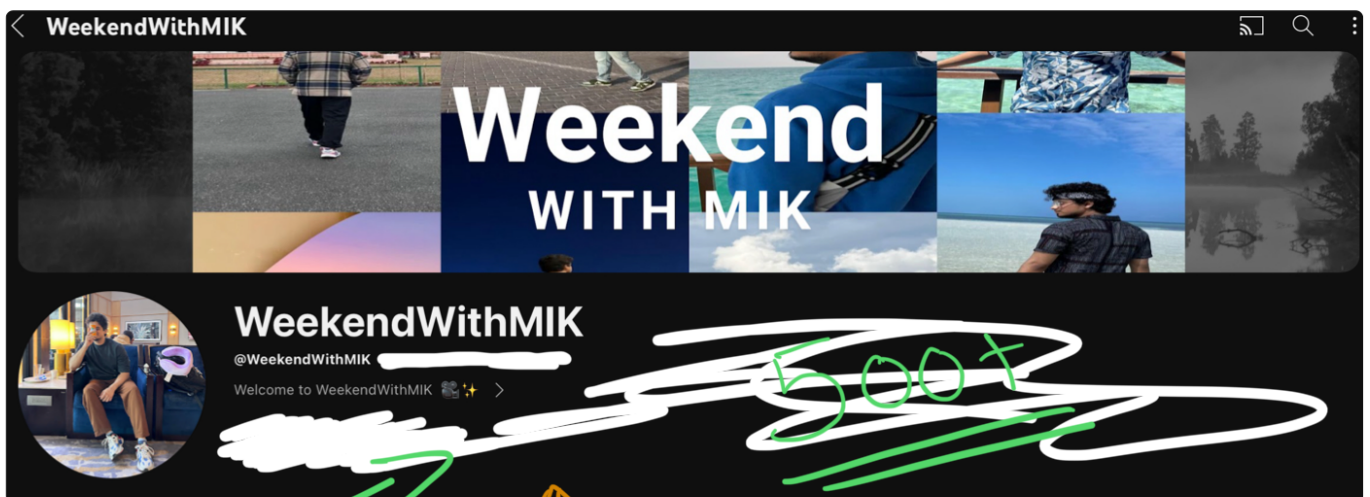


STRINGS



→ Easy

video-53



Try this channel to
see Life Behind The Scenes ...

Motivation Of the Day :-

You did not come this
far to quit.

You don't get what you
wish for ;

You get what you work for



MIK...

2982.

2981. Find Longest Special Substring That Occurs Thrice I & II

Medium

Topics

Companies

Hint

You are given a string `s` that consists of lowercase English letters.

A string is called **special** if it is made up of only a single character. For example, the string `"abc"` is not special, whereas the strings `"ddd"`, `"zz"`, and `"f"` are special.

Return the length of the longest special substring of `s` which occurs at least thrice or `-1` if no special substring occurs at least thrice.

thrice or -1 if no special substring occurs at least thrice.

A **substring** is a contiguous **non-empty** sequence of characters within a string.

Example:- $S = "aaaa"$ $"aa"$

Output :- 2

$S = "abcdef"$ $'a'$ $'b'$

Output :- -1

$S = "abcaba"$

Output :- 1

How will approach this
problem in an
Interview ???

BRUTE Force लगेगा क्या ??? ...

S = "a⁰a¹a²a³"

"a⁴a⁵a⁶b⁷a⁸"

- ① ~~Substrings~~
- ② Special Substrings.
- ③ longest.

{
"a"
"aa"
"aaa"
"aaaa"
"a"
"aa"
"aaa"
"a"
"a"
} special.

map.

"a"	→ 4 ✓
"aa"	→ 3 ✓
"aaa"	→ 2 ✗
"aaaa"	→ 1 ✗

→ Special
substr.

Can we optimize
further :-

"a a a a"
i j

"aa"

copying the
string
 $O(\text{length of str})$.

map

<String>	int>
"a"	1+1
"aa"	1+1
"aaa"	1
"aaaa"	1
"zzzz"	2

map

	<pair(char, int), int>
"a"	{ 'a', 1 } 1+1+1+1
"aa" ←	{ 'a', 2 } 1+1+1
"aaa" ←	{ 'a', 3 } 1+1
"aaaa" ←	{ 'a', 4 } 1

T.C = $O(n^2)$

"aaaa"

currChar = 'a' , length = 1

Can we further Optimize

???

$$3 \leq s \leq 5 \times 10^5$$

0 1 2 3
"aaaa"

map.

$O(n) \uparrow$

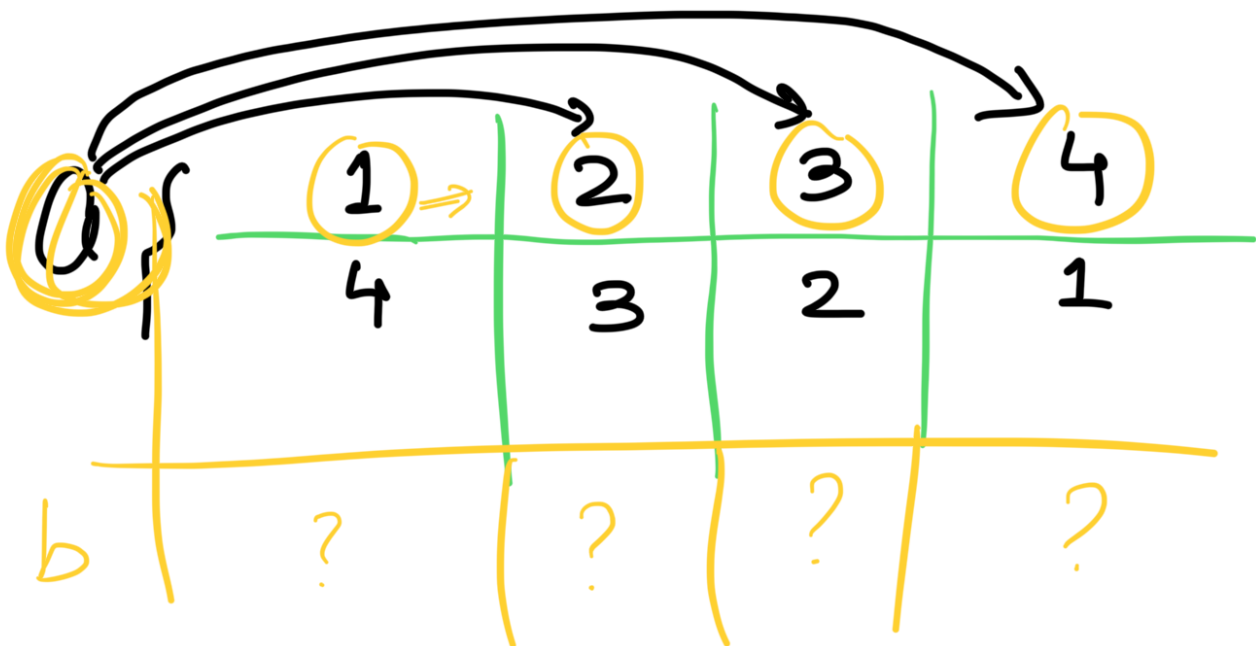
"a" $\rightarrow 1+1+1+1$

"aa" $\rightarrow 3$

"aaa" $\rightarrow 1+1$

"aaaa"

(a,1)	4
(a,2)	3
(a,3)	2
(a,4)	1



"aaa" "aaa"
"aa" "aa" "aa"

0 1 2 3 4 5 6 7 8
"a a a b b b a a a"

T.C = $O(n)$

$n = 9$

"a" "aa" "aaa"

0 1 2 3 4 5 6 7 8 9

\Rightarrow 'c' $\leftarrow 0$
 'b' $\leftarrow 1$
 'c' $\leftarrow 2$
 'd' $\leftarrow 3$
 ...

	2	2	2	0	0	0	0	0	0
	^{"b"} 1	^{"bb"} 1	^{"bbb"} 1	0	0	0	0	0	0

matrix

$result = -1;$
 for (row = 0; row < 26; row++) { $\rightarrow 26$

 cumsum = 0;

\rightarrow for (int col = n ; col >= 1; col--) {

 cumsum += matrix[row][col];

 if (cumsum >= 3) {

 result = max(result, col);
 break;

 }

 }

result = 2

$$O(26 \times n) \approx \underline{\underline{O(n)}}.$$

$$T.C = \underline{\underline{O(n)}}.$$

the 1990s, the number of people in the UK who are employed in the public sector has increased by 1.5 million (1990–1999) and the number of people in the private sector has increased by 1.7 million (1990–1999).

There is a growing emphasis on the need to improve the quality of care in the public sector. The Department of Health (1999) has set out a number of targets for the public sector, including the need to improve the quality of care, to reduce waiting times, and to improve the efficiency of the system.

The following table shows the number of people in the public sector who are employed in the health service, by region, in 1999.

Region	Number of people
England	1,100,000
Scotland	100,000
Wales	100,000
Northern Ireland	100,000
Total	1,400,000

The following table shows the number of people in the private sector who are employed in the health service, by region, in 1999.

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