

Given a string, give the longest substring without repeating characters

e.g

"abcabcbb"

↳ abc

"bbbb"

↳ b

"pwwkew"

↳ wke

Algo Expert  $startIdx = \max(startIdx, hash[char] + 1)$   $longest = \max(longest, end - start + 1)$   
hash table = {

0 1 2 3 4 5 6 7 8 9 10 11 12  
c l e m e n t i s a c a p  
↑ ↑ ↑  
\* ↑

c : 10

d : 1

e : 4

m : 3

n : 5

t : 6

i : 7

s : 8

a : 9

Solution for giving best substring

" (  $\rightarrow \max(3, 0+1) = 3$

$$q \rightarrow \max(3, q+1) \neq 10$$

$O(n)$  Time

$O(n)$  Space

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Next Code

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solution for length  $n$  - to substring