

Long Passed keyword (LC - 925)

$\left. \begin{array}{l} \text{alex} \\ \text{allex} \end{array} \right\} \text{true.}$

$\left. \begin{array}{l} \text{alex} \\ \text{apex} \end{array} \right\} \text{false}$

$\left. \begin{array}{l} \text{alex} \\ \text{allex} \end{array} \right\} \text{false}$

$\left. \begin{array}{l} n \rightarrow \text{alex} \\ t \rightarrow \text{allexx} \end{array} \right\} \text{true}$

true

$\left\{ \begin{array}{l} \text{allex} \\ \text{allexx} \end{array} \right.$

$\left. \begin{array}{l} \text{name} \rightarrow \text{allex} \\ \text{typed} \rightarrow \text{allexx} \end{array} \right\} \text{false}$

$\begin{array}{c} \text{a} \text{ (l) } \text{ex} \\ | \quad | \quad | \\ \text{a} \quad \text{x} \quad \text{exx} \end{array}$

false

$\left. \begin{array}{l} n \rightarrow \text{alex} \\ t \rightarrow \text{alex} \end{array} \right\}$

$\boxed{t.length() < n.length()}$
false

$n \rightarrow$

a l e e x \uparrow
i

$$n[i] == x[i]$$

$t \rightarrow$

a l l e e e e x \uparrow
i

$$n[i-1] == x[i]$$

a l e x



a l l e x



$\rightarrow n[i] == t[j] \rightarrow i++ \quad j++$

$\rightarrow n[i-1] == t[j] \rightarrow j++$

else \rightarrow false

~~false.~~

n → a l e x x z
i

t → a l e x x x
j

i → remaining

j → end

a l e x



a l e x x x f



```

5 public class Solution {
6
7     public static boolean isLongPressed(String n, String t){ //n->"   t -> ""
8         if(t.length() < n.length()){
9             return false;
10        }
11        // if(n.charAt(0) != t.charAt(0)){
12        //     return false;
13        // }
14        int i = 0;
15        int j = 0;
16
17        while(i < n.length() && j < t.length()){
18            if(n.charAt(i) == t.charAt(j)){
19                i++;
20                j++;
21            } else if(i > 0 && n.charAt(i-1) == t.charAt(j)){
22                j++;
23            } else{
24                return false;
25            }
26        }
27
28        while( j < t.length()){
29            if(i > 0 && n.charAt(i-1) == t.charAt(j)){
30                j++;
31            }else{
32                return false;
33            }
34        }
35
36        if(i < n.length()){
37            return false;
38        }
39        return true;
40    }
41
42    public static void main(String[] args) {
43        Scanner scn = new Scanner(System.in);
44        String n = scn.next();
45        String t = scn.next();
46        System.out.println(isLongPressed(n,t));
47    }
48

```

ama.
amaan
j

ama.
↑
k m a a a

↑

Binary Search.

* sorted \rightarrow array/data/range

$x = 55$

10	20	30	40	50	60	70	80
0	1	2	3	4	5	6	7

$i \leq j$ \rightarrow not valid.

i

j

m

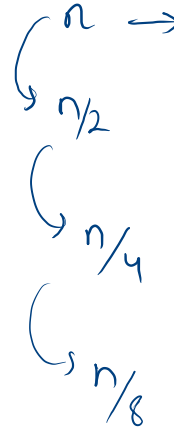
```

1 import java.io.*;
2 import java.util.*;
3
4 public class Solution {
5
6     public static int binarySearch(int [] A, int x){
7         int i = 0;           //i, j and m are index
8         int j = A.length-1;
9         while(i <= j){
10             int m = (i + j)/2;
11             if(x == A[m]){
12                 return m;
13             }
14             else if(x > A[m]){ //right
15                 i = m + 1;
16             }else{           // x < A[m] -> left
17                 j = m - 1;
18             }
19         }
20         return -1;
21     }
22
23     public static void main(String[] args) {
24         Scanner scn = new Scanner(System.in);
25         int n = scn.nextInt();
26         int [] A = new int[n];
27         for(int i = 0; i < n; i++){
28             A[i] = scn.nextInt();
29         }
30         int x = scn.nextInt();
31         int ans = binarySearch(A, x);
32         System.out.println(ans);
33     }
34 }

```

$x = 80$

0	20	30	40	50	60	70	80
0	1	2	3	4	5	6	7



x						
n	$\frac{n}{2}$	$\frac{n}{4}$	$\frac{n}{8}$	$\frac{n}{16}$...	1
$\frac{n}{2^0}$	$\frac{n}{2^1}$	$\frac{n}{2^2}$	$\frac{n}{2^3}$...		$\frac{n}{2^x}$

$$1 = \frac{n}{2^x} \Rightarrow 2^x = n$$

$n \rightarrow \log n$
 iter \nearrow

$$\log_2 2^x = \log_2 n$$

$$\cancel{x \log_2 2}^1 = \log_2 n$$

$$x = \log_2 n$$