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Algorithms

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Linear Search

TUTORIAL **PROBLEMS**

Linear search is used on a collections of items. It relies on the technique of traversing a list from start to end by exploring properties of all the elements that are found on the way.

For example, consider an array of integers of size N . You should find and print the position of all the elements with value x . Here, the linear search is based on the idea of matching each element from the beginning of the list to the end of the list with the integer x , and then printing the position of the element if the condition is `True`.

Implementation:

The pseudo code for this example is as follows :

```
for(start to end of array)
{
    if (current_element equals to 5)
    {
        print (current_index);
    }
}
```

For example, consider the following image:

?

Arr

0

1

2

3

4

5

6

7

8

9

If you want to determine the positions of the occurrence of the number **7** in this array. To determine the positions, every element in the array from start to end, i.e., from index **1** to index **10** will be compared with number **7**, to check which element matches the number **7**.

Time Complexity:

The time complexity of the linear search is $O(N)$ because each element in an array is compared only once.

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Did you find this tutorial helpful?



YES



NO

TEST YOUR UNDERSTANDING**Last Occurrence**

You have been given an array of size N consisting of integers. In addition you have been given an element M you need to find and print the index of the last occurrence of this element M in the array if it exists in it, otherwise print -1. Consider this array to be 1 indexed.

Input Format:

The first line consists of 2 integers N and M denoting the size of the array and the element to be searched for in the array respectively. The next line contains N space separated integers denoting the elements of the array.

Output Format

Print a single integer denoting the index of the last occurrence of integer M in the array if it exists, otherwise print -1.

Constraints

$$1 \leq N \leq 10^5$$

$$1 \leq A[i] \leq 10^9$$

$$1 \leq M \leq 10^9$$