* Linear Search in Java *

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Searching: It is a process of finding a given value position in a list of values.

* Linear / Sequential Search:

- It is a simple search algorithm
- In sequential search, we compare the target value with all other elements given in the list.

e.g. arr = [18, 12, 19, 77, 29, 50] (unsorted array)

0 1 2 3

start

target = 77

In above example, the target value is compared with all the elements in array in sequential / linear way.

Time Complexity:

→ Best Case: O(1) → constant

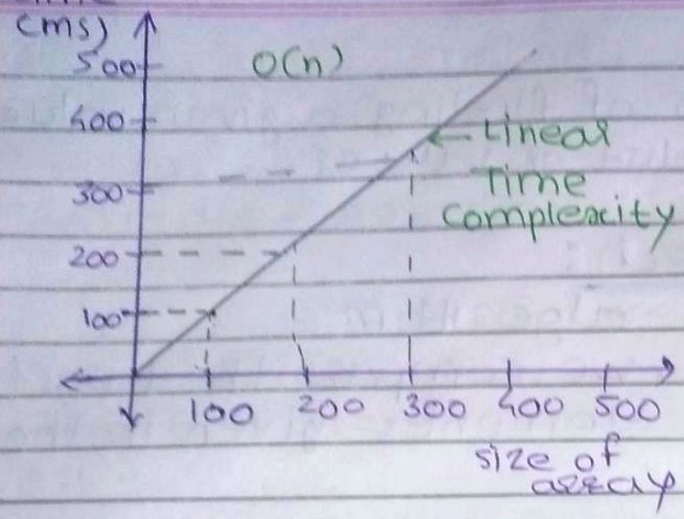
⇒ How many checks will the loop make in best case i.e. the element will be found at 0^{th} index i.e. only one comparison will be made for best case.

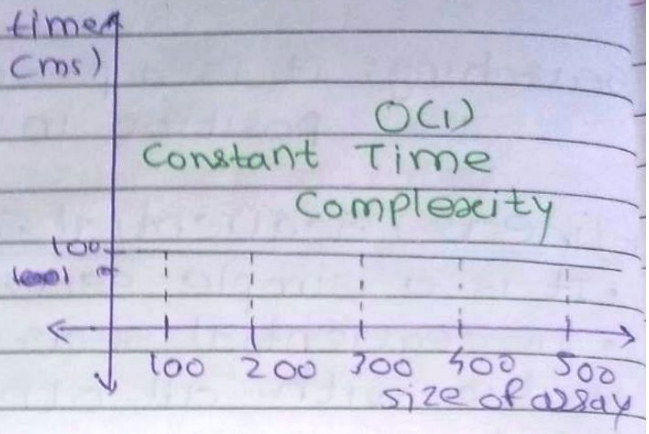
→ Worst Case: O(n)

⇒ worst case, here it will go through every element and then it says element not found.

⇒

size of array	No. of comparisons	time (ms)
100	100	100 ms
200	200	200 ms
n	n	





worst case

Best Case

Ex –

```
Pubic Static void main (string[] args){
  int [] arr = { 12, 13, 88, 67, 50};
  int target = 88;
  System.out.Print ln (linearSearch (arr, target));
}
Static int linearSearch (int[] arr, int target){
    if (arr.length ==0){
        return -1;
    }
    for (int i=0; i<arr.length; i++){
        int element = arr [i];
      if (element == target){
        return i;
      }
    }
    return -1;
},
```