

## **5. Insert Element in Array**

If we insert element through user input, at each index of an array, it looks like:

```
//Insert Elements in the array  
for (int i = 0; i < n; i++)  
{  
    cin >> a[i];  
}
```

Hence inserting elements at each index needs traversal:

$a[0] \rightarrow a[1] \rightarrow a[2] \rightarrow \dots \rightarrow a[n - 1]$

### **Time Complexity**

Time complexity of the above is clearly :  $O(n)$

Where  $n$  is the size of the array  $n$ .

*The time complexity of inserting a single element into an array at a specific index is  $O(1)$  if the index is known. However, the time complexity of inserting ' $n$ ' elements into an array sequentially is  $O(n)$ , since we need to perform the insertion operation ' $n$ ' times.*

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