

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.
