5. *Insert Element in Array*

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

```cpp
//Insert Elements in the array

    for (int i = 0; i < n; i++)
    {
        cin >> a[i];
    }
```

Hence inserting elements at each index needs traversal:

$$a[0]\longrightarrow a[1]\longrightarrow a[2]\longrightarrow \cdots \longrightarrow a[n]$$

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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