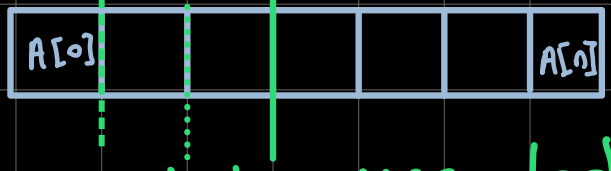
INSERTION SORT

Given array



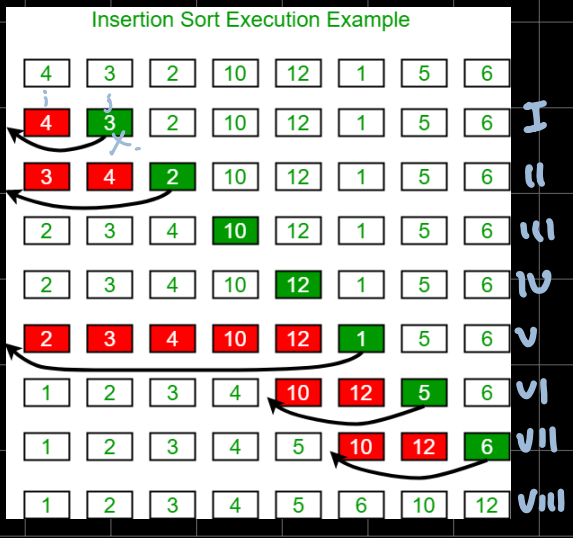
Sorted vs unsorted

virtually split array into → left (sorted) and right (unsorted)

Forexample : I step ---------- initial phase
II step .....
III step ——

→ Each step expand the sorted left subarray by comparing first element of the right subarray with the all elements of left subarray until it is in the correct position, in other words it is smaller than compared elements.

For example



in this case initially our left subarray : → [4]

→ we don't need to compare 12 with the rest of the left subarray since we know that it is already in the cosrect position.

C Code.

```c
void insertionSort(int arr[], int n)
{
  int i, key, j;
  for (i = 1; i < n; i++) {
    key = arr[i];
    j = i - 1;
    while (j >= 0 && arr[j] > key) {
      arr[j + 1] = arr[j];
      j = j - 1;
    }
    arr[j + 1] = key;
  }
}
```

-> right subarray counter

-> select element from right to place

-> left subarray counter

-> check phase to find correct position.

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