Insertion Sort Project

Given array = **[22,27,16,2,18,6]**

1. Stages with respect to insertion sort:

Insertion sort algorithm finds the smallest element inside the array and assigns that element with the first element of that array. The first element of the array goes where the smallest element of the array was assigned initially.

Algorithms searches for the second smallest element and changes its place with the element that has been already there.

If the element is in the right place as a descending order, it does not replaces it with any of the other elements.

The algorithm does the first 3 steps over and over until the array has been sorted in a descending order.

2. Big-O Notation

n+(n-1)+(n-2)...+1 = n.(n+1)/2 = n^2 + n /2

Big-O Notation = O(n) Best case time complexity

Big'O Notation = O(n^2) Average case time complexity

Big'O Notation = O(n^2) Worst case time complexity

3. Sorted array = [2,6,16,18,22,27]

The number 18 is located in the middle element of the array so it represents the average case.

THE FIRST 4 STEPS OF **[7,3,5,8,2,9,4,15,6]** ARRAY WITH RESPECT TO INSERTION SORT

1. **[2,3,5,8,7,9,4,15,6]**
2. **[2,3,5,8,7,9,4,15,6]**
3. **[2,3,4,8,7,9,5,15,6]**

4. **[2,3,4,5,7,9,8,15,6]**