

INSERTION SORT EXAMPLE

12, 11, 13, 5, 6

Let us loop for $i = 1$ (second element of the array) to 5 (Size of input array)

$i = 1$. Since 11 is smaller than 12, move 12 and insert 11 before 12

11, 12, 13, 5, 6

$i = 2$. 13 will remain at its position as all elements in $A[0..i-1]$ are smaller than 13

11, 12, 13, 5, 6

$i = 3$. 5 will move to the beginning and all other elements from 11 to 13 will move one position ahead of their current position.

5, 11, 12, 13, 6

$i = 4$. 6 will move to position after 5, and elements from 11 to 13 will move one position ahead of their current position.

5, 6, 11, 12, 13

SORTING METHODS

INSERTION SORT FUNCTION CODE

```
/* Function to sort an array using insertion sort*/
```

```
void insertionSort(int arr[], int n)
```

```
{
```

```
    int i, key, j;
```

```
    for (i = 1; i < n; i++)
```

```
    {
```

```
        key = arr[i];
```

```
        j = i-1;
```

```
        /* Move elements of arr[0..i-1], that are
```

```
           greater than key, to one position ahead
```

```
           of their current position */
```

```
        while (j >= 0 && arr[j] > key)
```

```
        {
```

```
            arr[j+1] = arr[j];
```

```
            j = j-1;
```

```
        }
```

```
        arr[j+1] = key;
```

```
    }
```

```
}
```