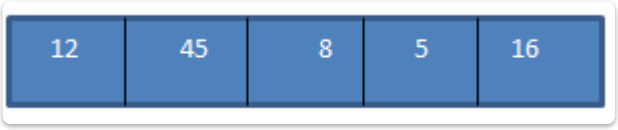
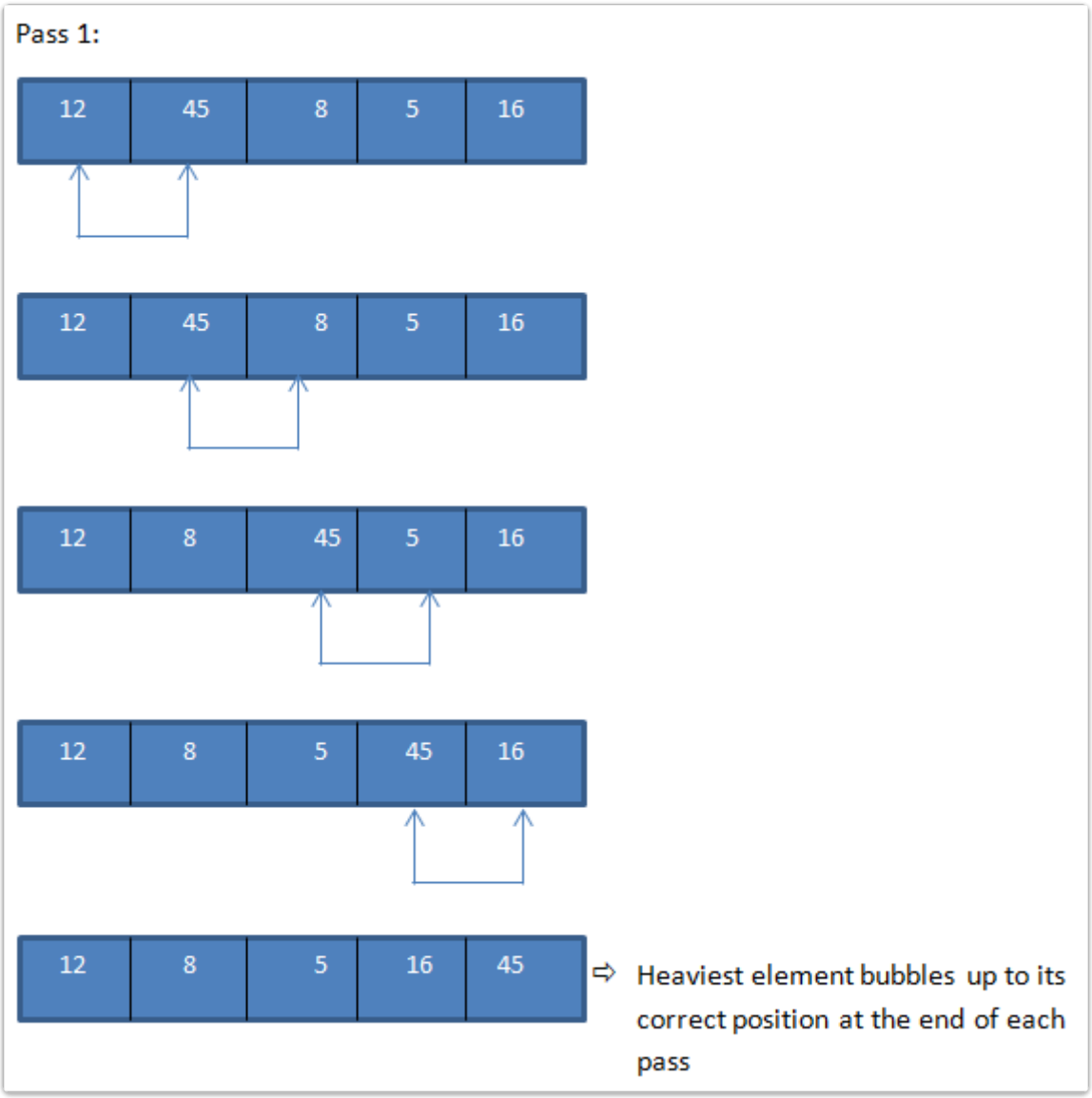
Bubble Sort

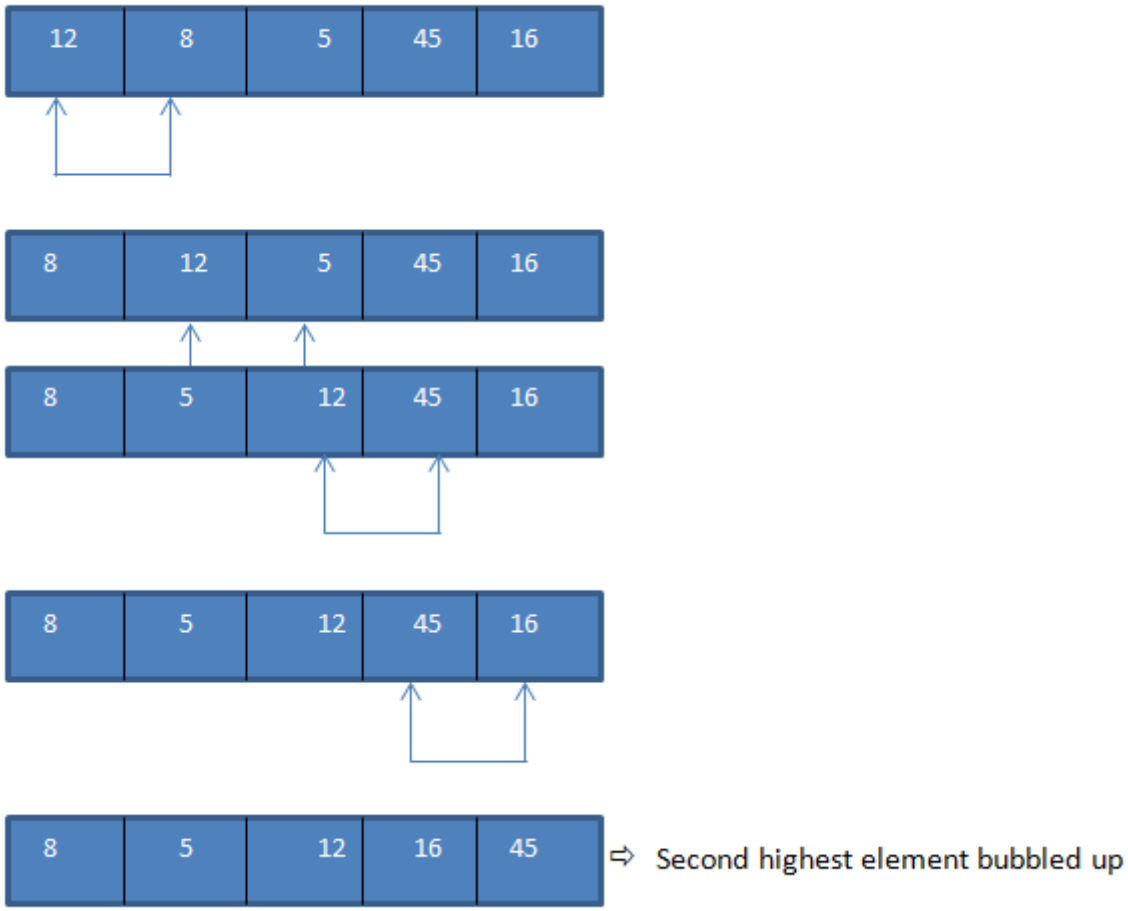
Bubble sort is the simplest technique in which we compare every element with its adjacent element and swap the elements if they are not in order. This way at the end of every iteration (called a pass), *the heaviest element gets bubbled up at the end of the list.*

Array to be sorted:

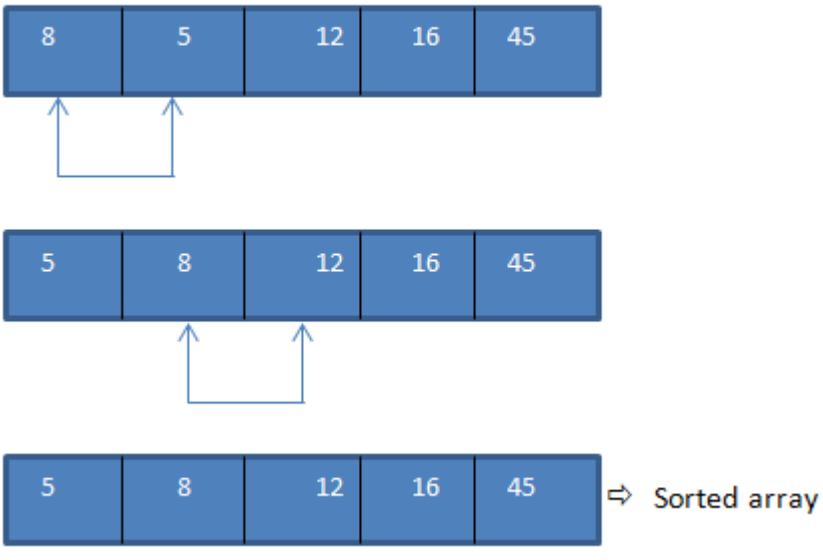




Pass 2:



Pass 3:




```
for(i = 0; i<n; i++) {
 for(j = i+1; j<n; j++)
 {
    if(a[j] < a[i]) {
            swap(arr[i], arr[j]);
```

```
        }
    }
}
```

Time Complexity: O(N^2)
Auxiliary Space: O(1)
Already sorted: O(N)

Where is the Bubble sort algorithm used?

Due to its simplicity, bubble sort is often used to introduce the concept of a sorting algorithm.
In computer graphics, it is popular for its capability to detect a tiny error (like a swap of just two elements) in almost-sorted arrays and fix it with just linear
complexity (2n).