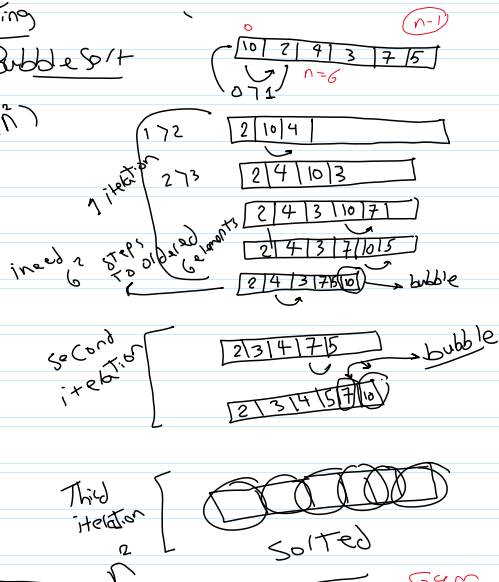


Sorting

① Bubble Sort

 $O(n^2)$ 

Pseudo Code

```

For i=0 to n-1
  For j=0 to n-i-1
    If arr[j] > arr[j+1]
      Temp = arr[j]
      arr[j] = arr[j+1]
      arr[j+1] = Temp
  
```

swap

Selection Sort

Simple implementation
 Space complexity $O(1)$
 Unstable, i.e. arr with equal elements.

```

int minIndex = j;
For j=0 to n-1
  For i=j+1 to n-1
    if arr[i] < arr[minIndex]
      minIndex = i
  swap(data[minIndex], data[j])
  
```

sorted area

sorted like bubble

$O(n^2)$



Time Complexity

merge Sort

$O(n \log n)$ divide

1000 log(1000) worst case

Implementation Complex

Space Complexity $O(n)$