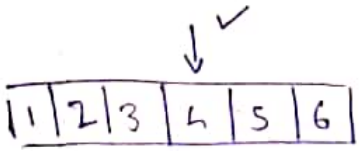
Searching

DSA notes



① Linear Search

```
for (int i=0; i<n; i++)
    if (arr[i] == Key)
        break;
```

② Binary Search

```
while (low<=high)
{  mid = (low+high)/2;
   if (Key < mid)
       high = mid-1
   else if (Key > mid)
       Low = mid+1
   else if (Key == mid)
       cout<< found;
}
```

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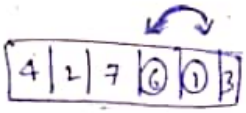
Sorting

→

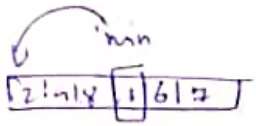
1	2	3	4	...

① Bubble Sort




```
for (i=0 → n-1)
  for(j=0 → n-i-1)
    if (arr[j] > arr[j+1])
      swap
```

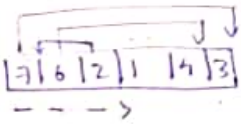
② Selection Sort




```
for(i=0 → n-1)
  for(j= i+1 → n)
    if(arr[j] < arr[min])
      min = j

swap arr[min] ↔ arr[i]
```

③ Insertion sort




```
for(i = 1 → n) {
  key = arr[i];
  j = i-1
  while (j>=0 && arr[j] > key)
  {  arr[j+1] = arr[j];
     j = j-1;
  }
  arr[j+1] = key;
}
```

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