

Lecture notes on Unit - 6
Non-Deterministic Algorithms for Searching and Sorting:

The design of ND Algorithms is based on three major functions:

1. Select ()
2. Success ()
3. Failure ()

To declare the success or failure, verification process should be designed.

Algorithm nd_search(a,n,x)

```
{
  // "a" = array of size "n" and "x" is element to be searched
  for i = 1 to n do
    {
      j = select(a,n) //select a location "j" from given array
      if (a[j] = x)   → Verification process
        success();
    }
  failure();
}
```

//Try above algorithm using repeat until and comment upon the time complexity//

Algorithm nd_sort(a,b,n)

```
{
  // "a" is array to be sorted and "b" is array for auxiliary storage
  for i = 1 to n do
    {
      j = select(a,n)
      b[i] = a[j] //create the array "b" by selecting "n" elements
    }
  for j = 1 to n do
    {
      if(b[i] > b[i+1])
        failure();
    }
  success();
}
```