Searching: Looking for an item in a given list of n elements and report so if its found .

2 Searches: **Linear Search; Binary search**

Linear Search: *it's a sequential search. It searches every element at one at a time.*

```
Int lsearrch(int a[], int k, int n)
{
Found =-1
For(i=0 to n)
        {
                If(a[i]==k)
                        Found=I or a[i]/*accordingly

        }

Return (found)

}
```

Eff: (Best, Av, Worst)

Best: k at position 1, only one caparison ; Av: n/2; worst: n comparison
Complexity : O(n)

Binary Search: *Here the searching is done on sorted list of n items. The list is broken into two halves from the middle each time and k is searched in each slice. (O(log n)*

```
Int  binary (int a[], int k, n)
{
lo=0; up=n-1, mid

Do
{
        Mid=l+up/2
        If (k>a[mid]
                L=mid+1
        Else
                Up=mid
}While(a[mid]!=k && l<up);
If (a[mid]==k)
        Return(1)
Else(0)
```

```
Int bsearch(a, k, l, u)

{
If(u<l)
        Return(0)

Mid=( l+u)/2

If a[mid]>k

                        Return(bsearch(a,k, l, mid-1)

Ese if(a[mid]<k)
                        Return(bs(a, k, mid+1, u)
Else
        Return(mid)
}
```