Chapter 8:

Data Structures -1

Linear Lists (D)

(Searching & Sorting Techniques)

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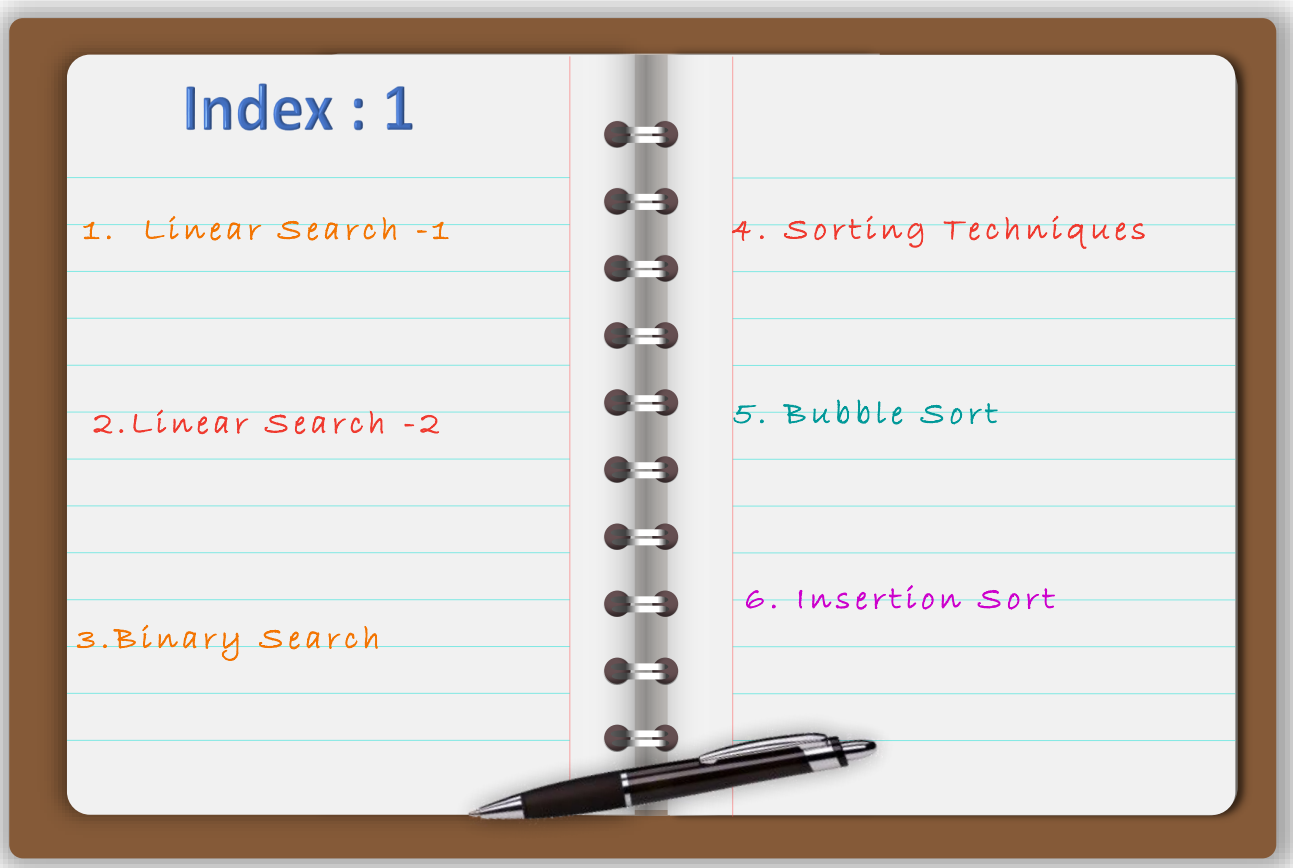


```
#WAP to enter N elements of integer type in a Linear List
#and an element of integer type and check whether the list
#contains that element or not
def Linearsearch(list,n):

    for i in range(len(list)):
        if list[i] == n:
            return True
    return False
# _main_
N=int(input("Enter how many number of elements"
            "you want to enter"))
L=[]
for i in range(1,N+1):
    elem=int(input("Enter element"))
    L.append(elem)
num=int(input("Enter element to search"))

if Linearsearch(L, num):
    print("Found")
else:
    print("Not Found")
```

```
#WAP to enter N elements of integer type in a
#Linear List and an element of integer type
#and count the occurance of the  element
def Linearsearch(list,n):
    c=0
    for i in range(len(list)):
        if list[i] == n:
            c=c+1
    return c
# _main_

N=int(input("Enter how many number of elements "
            "you want to enter"))
L=[]
for i in range(1,N+1):
    elem=int(input("Enter element"))
    L.append(elem)
num=int(input("Enter element to search"))

occ=Linearsearch(L, num)
print("Total number of ", num, "is",occ)
```

```
#WAP TO SEARCH ELEMENT USING BINARY SEARCH
def binary_search(alist, num):
    beg = 0
    end = len(alist)-1
    while (beg <= end):
        mid = (beg + end)//2
        if(num==alist[mid]):
            return True
        elif (num<alist[mid]):
            end = mid-1
        else:
            beg = mid + 1
    return False
# _main_
list = [1,2,3,4,5,6,7,8,9,10]
# Driver Code
ele = 10

if binary_search(list, ele):
    print("Found")
else:
    print("Not Found")
```

```
#Bubble sorting  in ascending order.

L1=[]
N=int(input("How many elements you want to enter"))
for i in range(N):
    num=int(input("Enter element"))
    L1.append(num)

print("Before Sorting List elements are")
print(L1)
for i in range(0,N-1):
    for j in range(0,N-i-1):
        if L1[j]>L1[j+1]:
            L1[j],L1[j+1]=L1[j+1],L1[j]

print("After Sorting List elements are")
print(L1)
```

```
#Bubble sorting  in descending order.

L1=[]
N=int(input("How many elements you want to enter"))
for i in range(N):
    num=int(input("Enter element"))
    L1.append(num)

print("Before Sorting List elements are")
print(L1)
for i in range(0,N-1):
    for j in range(0,N-i-1):
        if L1[j]<L1[j+1]:
            L1[j],L1[j+1]=L1[j+1],L1[j]

print("After Sorting List elements are")
print(L1)
```

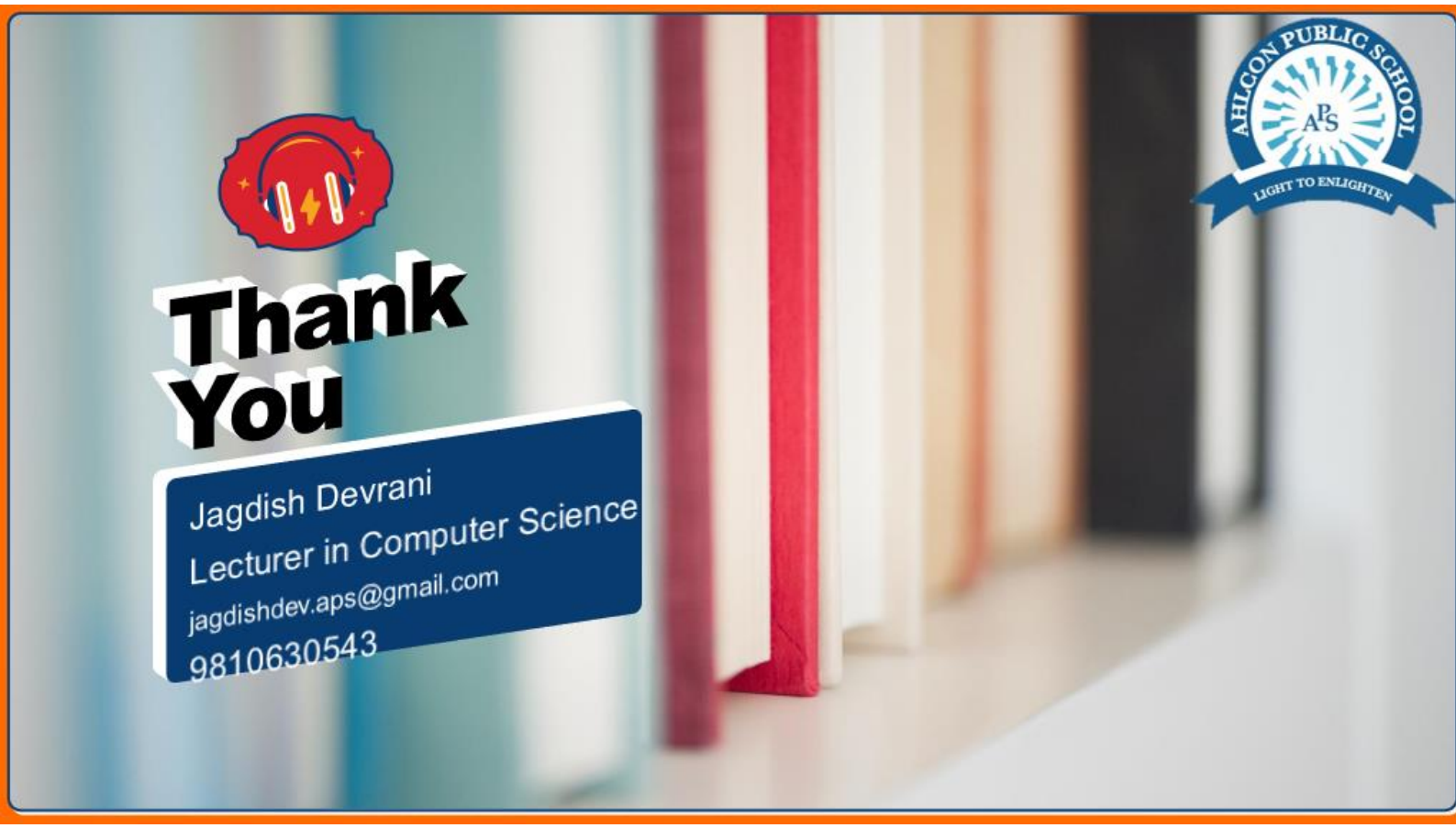
```
#Insertion sorting  in ascending order.

L1=[]
N=int(input("How many elements you want to enter"))
for i in range(N):
    num=int(input("Enter element"))
    L1.append(num)

print("Before Sorting List elements are")
print(L1)
for i in range(1,N):
    temp=L1[i]
    j=i-1
    while temp<L1[j] and j>=0:
        L1[j+1]=L1[j]
        j=j-1

    L1[j+1]=temp

print("After Sorting List elements are")
print(L1)
```


Thank
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