In [1]:

```
# Sorting the numbers using selection sort
def selection_sort(arr):
    for i in range(len (arr)):
        min_index=i
        for j in range (i+1,len(arr)):
            if arr[min_index]>arr[j]:
               min_index=j
        arr[i],arr[min_index]=arr[min_index],arr[i]
    return arr
list1=[]
n=int(input("Number of elements to be present in list : "))
for i in range (n):
    list1.append(int(input("enter the element at index %d: "%(i))))
print("Sorted array is :"+str(selection_sort(list1)))
```

```
Number of elements to be present in list : 4
enter the element at index 0: 9
enter the element at index 1: 8
enter the element at index 2: 7
enter the element at index 3: 6
Sorted array is :[6, 7, 8, 9]
```

In [2]:

```
# Sorting the numbers using insertion sort
def insertion_sort(arr):
    for i in range (1,len(arr)):
        j=i
        while j>0 and arr[j-1]>arr[j]:
            arr[j-1],arr[j]=arr[j],arr[j-1]
            j-=1
    return arr
list1=[]
n=int(input("Number of elements to be present in list : "))
for i in range (n):
    list1.append(int(input("enter the element at index %d: "%(i))))
print("Sorted array is :"+str(insertion_sort(list1)))
```

```
Number of elements to be present in list : 5
enter the element at index 0: 30
enter the element at index 1: 40
enter the element at index 2: 20
enter the element at index 3: 25
enter the element at index 4: 50
Sorted array is :[20, 25, 30, 40, 50]
```

In [7]:

```
# Sorting the numbers using merge sort
def merge_sort(arr):
    if len(arr)>1:
        left_arr=arr[:len(arr)//2]
        right_arr=arr[len(arr)//2:]
        merge_sort(left_arr)
        merge_sort(right_arr)
        i=0
        j=0
        k=0
        while i<len(left_arr) and j<len(right_arr):
            if left_arr[i]<right_arr[j]:
                arr[k]=left_arr[i]
                i+=1
            else:
                arr[k]=right_arr[j]
                j+=1
            k+=1
        while i<len(left_arr):
            arr[k]=left_arr[i]
            i+=1
            k+=1
        while j<len(right_arr):
            arr[k]=right_arr[j]
            j+=1
            k+=1
    return arr
arr=[]
n=int(input("Number of elements to be present in list : "))
for i in range (n):
    arr.append(int(input("enter the element at index %d: "%(i))))
print("Sorted array is :"+str(merge_sort(arr)))
```

```
Number of elements to be present in list : 5
enter the element at index 0: 0
enter the element at index 1: 3
enter the element at index 2: 2
enter the element at index 3: 1
enter the element at index 4: 4
Sorted array is :[0, 1, 2, 3, 4]
```

In [13]:

```
# Printing the numbers upto given range
def is_prime(num):
    if num<= 2:
        return True
    for i in range(2,num):
        if num % i == 0:
            return False
    else:
        return True
limit = int(input("Enter the limit:"))
print("Prime numbers up to",limit,"are:")
primes_up_tolimit = []
for num in range(2, limit + 1):
    if is_prime(num):
        primes_up_tolimit.append(num)
print(*primes_up_tolimit)
```

```
Enter the limit:100
Prime numbers up to 100 are:
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97
```

In [ ]:

```

```