­Merge Sort

Merge sort is used to merge two sorted lists in a single sorted list.

It compares the elements of both the lists and element having the smallest value is placed in new list.

This process is repeated until all the elements are placed in new list.

Illustration –

List1 = 28 31 37

List2 = 24 35 43 53

|  |  |
| --- | --- |
| Comparison | New list |
| List1[0] and list2[0] | 24 |
| List1[0] and list2[1] | 24 28 |
| List1[1] and list2[1] | 24 28 31 |
| List1[2] and list2[1] | 24 28 31 35 |
| List1[2] and list2[2] | 24 28 31 35 37 |
| Append rest of the elements | 24 28 31 35 37 43 53 |

Algorithm

Step 1 : Initializing

I = 1

J = 1

N1 = len(list1)

N2 = len(list2)

New = []

Step 2: repeat the step 3 while I <= n1-1 and j <= n2-1

Step 3:

If list1[i] < list2[j] then

New.append(list1[i])

I ++

Else

New.append(list2[j])

J ++

Step 4: Repeat step5 while I <= n1 -1

Step 5: new.append(list1[i])

I ++

Step 6: Repeat step 7while j <= n2 -1

Step 7: new.append(list2[j])

j ++