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**Merge Sort**

class MergeSort

{

void merge(int arr[], int l, int m, int r)

{

int n1 = m - l + 1;

int n2 = r - m;

/\* Create temp arrays \*/

int L[] = new int [n1];

int R[] = new int [n2];

/\*Copy data to temp arrays\*/

for (int i=0; i<n1; ++i)

L[i] = arr[l + i];

for (int j=0; j<n2; ++j)

R[j] = arr[m + 1+ j];

int i = 0, j = 0;

int k = l;

while (i < n1 && j < n2)

{

if (L[i] <= R[j])

{

arr[k] = L[i];

i++;

}

else

{

arr[k] = R[j];

j++;

}

k++;

}

while (i < n1)

{

arr[k] = L[i];

i++;

k++;

}

while (j < n2)

{

arr[k] = R[j];

j++;

k++;

}

}

void sort(int arr[], int l, int r)

{

if (l < r)

{

int m = (l+r)/2;

sort(arr, l, m);

sort(arr , m+1, r);

merge(arr, l, m, r);

}

}

static void printArray(int arr[])

{

int n = arr.length;

for (int i=0; i<n; ++i)

System.out.print(arr[i] + " ");

System.out.println();

}

// Driver method

public static void main(String args[])

{

int arr[] = {12, 11, 13, 5, 6, 7};

System.out.println("Given Array");

printArray(arr);

MergeSort ob = new MergeSort();

ob.sort(arr, 0, arr.length-1);

System.out.println("\nSorted array");

printArray(arr);

}

}

OUTPUT

Given Array

12 11 13 5 6 7

Sorted array

5 6 7 11 12 13