**JOBSHEET 5**

**MERGE SORT**

**TUGAS 1**

package mergesort;

public class Tugas01 {

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

{

int n1 = m - l + 1;

int n2 = r - m;

int L[] = new int[n1];

int R[] = new int[n2];

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

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

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

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

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++;

}

}

// METHOD SORT

public static 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);

}

}

//Method printArray

public static void printArray(int arr[])

{

int n = arr.length;

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

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

System.out.println();

}

public static void main(String args[])

{

int arr[] = new int[] {42, 2, 32, 6, 10, 22, 50, 4};

System.out.println("Sebelum diurutkan");

printArray(arr);

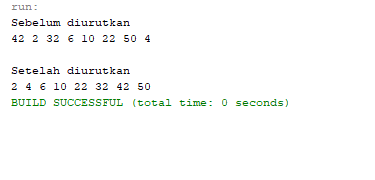
sort(arr, 0, arr.length-1);

System.out.println("\nSetelah diurutkan");

printArray(arr);

}

}



**TUGAS 2**

package mergesort;

import java.util.Scanner;

public class Tugas02 {

public static int[] data;

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

{

int n1 = m - l + 1;

int n2 = r - m;

int L[] = new int[n1];

int R[] = new int[n2];

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

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

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

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

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++;

}

}

// METHOD SORT

public static 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);

}

}

//Method printArray

public static void printArray(int arr[])

{

int n = arr.length;

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

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

System.out.println();

}

public static void main(String args[]) {

Scanner baca = new Scanner(System.in);

int [] data = new int[10];

{

System.out.println("Algoritma Mergesort");

}

System.out.println("");

for(int i = 0; i < data.length; i++){

System.out.print("Masukkan Bilangan ke-" + " " + (i+1)+ " : " );

data [i] = baca.nextInt();

}

System.out.println("");

System.out.println("Sebelum diurutkan");

printArray(data);

sort(data, 0, data.length-1);

System.out.println("");

System.out.println("\nSetelah diurutkan");

printArray(data);

}

}

