Phase-1 Practice Project: Assisted Practice

7.Writing a program in java implementing the merge sort algorithm.

Source code:

```
import java.util.Arrays;
public class MergeSort {

	void merge(int array[],int p,int q,int r) {
		int n1=q-p+1;
		int n2=r-q;

		int L[]=new int[n1];
		int M[]=new int[n2];

		for(int i=0;i<n1;i++)
			L[i]=array[p+i];
		for(int j=0;j<n2;j++)
			M[j]=array[q+1+j];

	int i,j,k;
	i=0;
	j=0;
	k=p;

	while (i<n1 && j<n2) {
		if(L[i]<=M[j]) {
			array[k]=L[i];
			i++;
			}else {
				array[k]=M[j];
				j++;
			}
		k++;
	}
	while(i<n1) {
		array[k]=L[i];
		i++;
		k++;
	}
	while(j<n2)
	{
		array[k]=M[j];
		j++;
		k++;
	}
	}
	void mergeSort(int array[],int left,int right) {
		if(left<right) {
			int mid=(left+right)/2;
			mergeSort(array,left,mid);
```

```
                mergeSort(array,mid+1,right);
                merge(array,left,mid,right);
            }
        }
        public static void main(String[] args) {
            int[] array= {32,8,6,54};
            MergeSort ob=new MergeSort();
            ob.mergeSort(array,0,array.length-1);

            System.out.println("Sorted array:");
            System.out.println(Arrays.toString(array));
        }
}
```

Output: