**package** mergesort;

**import** java.util.Arrays;

**public** **class** MergeSort {

**public** **class** MergeSortMain {

**public** **static** **void** main(String[] args) {

**int**[] arr = { 9, 6, 77, 1, 2, 46, 5 };

System.***out***.println("GIVEN ARRAY : " + Arrays.*toString*(arr));

**int**[] sortedArray = *mergeSort*(arr);

System.***out***.println("SORTED ARRAY : " + Arrays.*toString*(sortedArray));

}

**public** **static** **int**[] mergeSort(**int**[] array) {

**if** (array.length == 1) **return** array;

**int** midIndex = array.length/2;

**int**[] left = *mergeSort*(Arrays.*copyOfRange*(array, 0, midIndex));

**int**[] right = *mergeSort*(Arrays.*copyOfRange*(array, midIndex, array.length));

**return** *merge*(left, right);

}

**public** **static** **int**[] merge(**int**[] array1, **int**[] array2) {

**int**[] combined = **new** **int**[array1.length + array2.length];

**int** index = 0;

**int** i = 0;

**int** j = 0;

**while** (i < array1.length && j < array2.length) {

**if** (array1[i] < array2[j]) {

combined[index++] = array1[i++];

} **else** {

combined[index++] = array2[j++];

}

// dumping the remaining elements of the two arrays

**while** (i < array1.length) {

combined[index++] = array1[i++];

};

**while** (j < array2.length) {

combined[index++] = array2[j++];

};

}

**return** combined;

}

}

}

