
Experiment 5

Write Programs in Java to sort i) List of integers ii) List of names. The objective of this assignment is to learn Arrays and Strings in Java

```
1  import java.util.Scanner;
2
3  public class SortNamesMerge {
4
5      // Merge Sort function
6      static void mergeSort(String[] names, int left, int right) {
7          if (left < right) {
8              int mid = (left + right) / 2;
9
10             mergeSort(names, left, mid);
11             mergeSort(names, mid + 1, right);
12
13             merge(names, left, mid, right);
14         }
15     }
16
17     // Merge two halves
18     static void merge(String[] names, int left, int mid, int right) {
19         int n1 = mid - left + 1;
20         int n2 = right - mid;
21
22         String[] leftArr = new String[n1];
23         String[] rightArr = new String[n2];
24
25         for (int i = 0; i < n1; i++)
26             leftArr[i] = names[left + i];
27         for (int j = 0; j < n2; j++)
28             rightArr[j] = names[mid + 1 + j];
29
30         int i = 0, j = 0, k = left;
31         while (i < n1 && j < n2) {
32             if (leftArr[i].compareToIgnoreCase(rightArr[j]) <= 0) {
33                 names[k++] = leftArr[i++];
34             } else {
35                 names[k++] = rightArr[j++];
36             }
37         }
38
39         while (i < n1)
40             names[k++] = leftArr[i++];
41         while (j < n2)
42             names[k++] = rightArr[j++];
43     }
44
45     public static void main(String[] args) {
46         Scanner sc = new Scanner(System.in);
47
48         System.out.print("How many names? ");
49         int n = sc.nextInt();
50         sc.nextLine(); // clear newline
51
52         String[] names = new String[n];
53     }
```

```
        System.out.println("Enter the names:");
        for (int i = 0; i < n; i++) {
            names[i] = sc.nextLine();
        }

        mergeSort(names, 0, n - 1);

        System.out.println("Sorted names:");
        for (String name : names) {
            System.out.println(name);
        }

        sc.close();
    }
}
```

Output:

```
Sorted names:
Abhi
Abhishek
Hemant
Vedant
```