Sorting Example

Sorting Example

```java
import java.io.*;
import java.util.*;

public class ClassList {

    public static void main(String args[]) {
        String names[];
        int grades[];
        int numStudents;
        Scanner s = new Scanner(System.in);
        System.out.print("Enter the number of students: ");
        numStudents = s.nextInt(); s.nextLine();
        names = new String[numStudents];
        grades = new int[numStudents];
        getStudentInfo(s, names, grades);
        sortByName(names, grades);
        System.out.printf("\n\n%25s\n", "Sorted by Name");
        printStudents(names, grades);
        sortByGrade(names, grades);
        System.out.printf("\n\n%25s\n", "Sorted by Grade");
        printStudents(names, grades);

    }
```

Sorting Example

```java
public static void getStudentInfo(Scanner s, String names[], int grades[]) {
    int i;
    int numStudents = names.length;
    System.out.println("Enter the student information (name grade) ");
    i = 0;
    while (i < numStudents) {
        System.out.print("> ");
        names[i] = s.next();
        grades[i] = s.nextInt();
        s.nextLine(); //consume the newline
        i = i+1;
    }
}
```

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```java
public static void sortByName(String names[], int grades[]) {
    int p;
    int s;
    int j;
    int numStudents = names.length;
    p = 0;
    while (p < numStudents-1) {
        s = p;
        j = p+1;
        while (j < numStudents) {
            if (compareByName(names[j], names[s])) {
                s = j;
            }
            j = j+1;
        }
        swap(names, grades, p, s);
        p = p+1;
    }
}
```

Sorting Example

```java
public static boolean compareByName(String s1, String s2) {
    return s1.compareTo(s2) < 0;
}

public static void swap(String names[], int grades[], int i, int j) {
    String sTemp;
    int iTemp;
    sTemp = names[i];
    iTemp = grades[i];
    names[i] = names[j];
    grades[i] = grades[j];
    names[j] = sTemp;
    grades[j] = iTemp;
}
```

Sorting Example

```java
public static boolean compareByGrade(int g1, int g2, String s1, String s2) {
    return (g1 > g2) || (g1 == g2 && s1.compareTo(s2) < 0);
}

public static void sortByGrade(String names[], int grades[]) {
    int p;
    int s;
    int j;
    int numStudents = names.length;
    p = 0;
    while (p < numStudents-1) {
        s = p;
        j = p+1;
        while (j < numStudents) {
            if (compareByGrade(grades[j], grades[s], names[j], names[s])) {
                s = j;
            }
            j = j+1;
        }
        swap(names, grades, p, s);
        p = p+1;
    }
}
```

Sorting Example

```java
public static void printStudents(String names[], int grades[]) {
    int i;
    int numStudents = names.length;
    Scanner s = new Scanner(System.in);
    System.out.printf("%15s%10s\n", "Name","Grade");
    i = 0;
    while (i < numStudents) {
        System.out.printf("%15s%10d\n", names[i],grades[i]);
        i = i+1;
    }
}
```