EXPERIMENT – 3.1

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Branch: CSE   **Section/Group:** 608 (B)

Semester: 3rd   **Date of Performance:** 19/10/22

Subject Name: OOP using JAVA   **Subject Code:** 21CSH-218

Aim of the practical: You are given a list of student information: ID, FirstName, and CGPA. Your task is to rearrange them according to their CGPA in decreasing order. If two student have the same CGPA, then arrange them according to their first name in alphabetical order. If those two students also have the same first name, then order them according to their ID. No two students have the same ID.
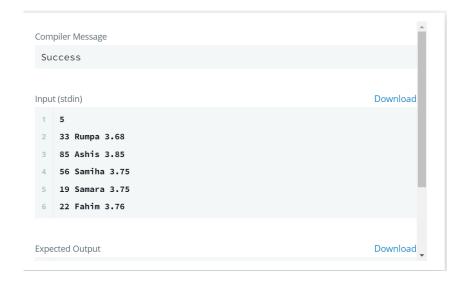
Objective: To study how to implement Comparator in java.

Program Code:

```
1    import java.io.*;
2    import java.util.*;
3
4  v class Student{
5        int ID;
6        String name;
7        double CGPA;
8
9  v     Student(int x, String s, double y){
10           this.ID = x;
11           this.name = s;
12           this.CGPA = y;
13       }
14  v    public String toString(){
15           return this.name;
16       }
17   }
18
19 v class Sorting implements Comparator<Student>{
20  v     public int compare(Student a,Student b){
21  v         if(a.CGPA==b.CGPA){
22  v             if(a.name==b.name){
23                     return a.ID - b.ID;
24                 }
25             return a.name.compareTo(b.name);
26         }
```

```
27             return (int)(b.CGPA*100.0) - (int)(a.CGPA*100.0);
28
29         }
30     }
31
32 ∨ public class Solution {
33
34 ∨     public static void main(String[] args) {
35             Scanner sc = new Scanner(System.in);
36             int n = sc.nextInt();
37
38             ArrayList<Student> arr = new ArrayList<Student>();
39
40 ∨         for(int i=0;i<n;++i){
41                 int id = sc.nextInt();
42                 String s = sc.next();
43                 double cgpa = sc.nextDouble();
44                 arr.add(new Student(id,s,cgpa));
45             }
46
47             Collections.sort(arr, new Sorting());
48
49 ∨         for(int i=0;i<n;++i){
50                 System.out.println(arr.get(i));
51             }
52         }
53     }
```

TestCase:

Compiler Message

Success

Input (stdin)   Download

```
1   5
2   33 Rumpa 3.68
3   85 Ashis 3.85
4   56 Samiha 3.75
5   19 Samara 3.75
6   22 Fahim 3.76
```

Expected Output

1	Ashis
2	Fahim
3	Samara
4	Samiha
5	Rumpa

Expected Output   Download