

CS401 Lab 2: Student Record Comparison

Overview

- This lab is to be completed individually.
- Focus: Understanding and implementing Java's *compareTo* and *compare* methods.
- Objective: Compare Student records based on Names and IDs.

Requirements

1. Student Class

Create a *Student* class with:

- Variables:
 - *ID* (integer)
 - *Name* (string)
- Methods:
 - Getters and Setters for both variables
 - *toString()* method
 - *compareTo()* method
 - Static *compare()* method

2. Comparison Logic

- Primary comparison: Based on Names (alphabetical order)
- Secondary comparison: If Names are the same, compare based on IDs

3. Implementation Details

- All methods must be implemented in a single *Student* class
- Implement *Comparable<Student>* interface for the *compareTo()* method
- Create a static *compare()* method that takes two *Student* objects as parameters

4. Code Documentation

- Include inline comments for all methods and complex code sections
- Provide a README file with:
 - Description of the program
 - Instructions on how to compile and run the program

- Explanation of the comparison logic
- Command to run the JAR file

Input and Output

Input

- The program accept Name and ID for at least two students from the user

Output

- Display the result of comparing two students
- Show multiple test cases demonstrating different comparison scenarios

Example Execution

Enter details for Student 1:

Name: John Doe

ID: 1001

Enter details for Student 2:

Name: Jane Doe

ID: 1002

Comparison Result: Student 1 comes before Student 2

Enter details for Student 3:

Name: John Doe

ID: 1003

Comparison Result: Student 1 comes before Student 3 (same name, lower ID)

Submission Requirements

1. Source Code:

- *Student.java*
- Any additional Java files (if necessary)

2. Compiled Bytecode:

- *Student.class*
- Any additional class files

3. Output:

- PDF file containing program output with multiple test cases

4. Runnable JAR file

5. README file