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import java.io.*;

// Student class implementing Serializable
class Student implements Serializable {
    private static final long serialVersionUID = 1L;
    private int id;
    private String name;
    private double gpa;

    public Student(int id, String name, double gpa) {
        this.id = id;
        this.name = name;
        this.gpa = gpa;
    }

    @Override
    public String toString() {
        return "Student [id=" + id + ", name=" + name + ", gpa=" + gpa + "]";
    }
}

public class StudentSerializationDemo {
    public static void main(String[] args) {
        Student student = new Student(1, "John Doe", 3.8);
        String filename = "student.ser";

        // Serialization
        try {
            FileOutputStream fileOut = new FileOutputStream(filename);
            ObjectOutputStream out = new ObjectOutputStream(fileOut);
            out.writeObject(student);
            out.close();
            fileOut.close();
            System.out.println("Student object serialized and saved to " + filename);
        } catch (FileNotFoundException e) {
            System.out.println("File not found: " + e.getMessage());
        } catch (IOException e) {
            System.out.println("Error during serialization: " + e.getMessage());
        }

        // Deserialization
        try {
            FileInputStream fileIn = new FileInputStream(filename);
            ObjectInputStream in = new ObjectInputStream(fileIn);
            Student deserializedStudent = (Student) in.readObject();
            in.close();
            fileIn.close();
            System.out.println("Deserialized Student object:");
            System.out.println(deserializedStudent);
        } catch (FileNotFoundException e) {
            System.out.println("File not found: " + e.getMessage());
        } catch (IOException e) {
            System.out.println("Error during deserialization: " + e.getMessage());
        } catch (ClassNotFoundException e) {

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        System.out.println("Class not found: " + e.getMessage());
    }
}
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