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

class Student {
    int studentId;
    String name, rollNo, className;
    int marks;
    String address;

    public Student(int studentId, String name, String rollNo, String
className, int marks, String address)
{
    this.studentId = studentId;
    this.name = name;
    this.rollNo = rollNo;
    this.className = className;
    this.marks = marks;
    this.address = address;
}

@Override
public String toString() {
    return studentId + "," + name + "," + rollNo + "," + className +
"," + marks + "," + address;
}
}

class StudentDatabase {
    private static final String FILE_NAME = "students.txt";

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int choice;

        do {
            System.out.println("1. Create Database");
            System.out.println("2. Display Database");
            System.out.println("3. Delete Record");
            System.out.println("4. Update Record");
            System.out.println("5. Exit");
            System.out.print("Choose an option: ");
            choice = scanner.nextInt();
            scanner.nextLine(); // Consume newline

            switch (choice) {
                case 1: createDatabase(scanner); break;
                case 2: displayDatabase(); break;
                case 3: deleteRecord(scanner); break;
                case 4: updateRecord(scanner); break;
                case 5: System.out.println("Exiting..."); break;
                default: System.out.println("Invalid option!");
            }
        } while (choice != 5);
    }
}

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private static void createDatabase(Scanner scanner) {
    System.out.print("Enter student ID: ");
    int studentId = scanner.nextInt();
    scanner.nextLine(); // Consume newline
    System.out.print("Enter name: ");
    String name = scanner.nextLine();
    System.out.print("Enter roll number: ");
    String rollNo = scanner.nextLine();
    System.out.print("Enter class: ");
    String className = scanner.nextLine();
    System.out.print("Enter marks: ");
    int marks = scanner.nextInt();
    scanner.nextLine(); // Consume newline
    System.out.print("Enter address: ");
    String address = scanner.nextLine();

    try (BufferedWriter writer = new BufferedWriter(new
FileWriter(FILE_NAME, true))) {
        writer.write(new Student(studentId, name, rollNo, className,
marks, address).toString());
        writer.newLine();
        System.out.println("Student record created.");
    } catch (IOException e) {
        System.out.println("Error creating record: " +
e.getMessage());
    }
}

private static void displayDatabase() {
    try (BufferedReader reader = new BufferedReader(new
FileReader(FILE_NAME))) {
        String line;
        System.out.println("Student Records:");
        while ((line = reader.readLine()) != null) {
            String[] data = line.split(",");
            System.out.printf("ID: %s, Name: %s, Roll No: %s, Class:
%s, Marks: %s, Address: %s\n",
                                data[0], data[1], data[2], data[3],
data[4], data[5]);
        }
    } catch (IOException e) {
        System.out.println("Error displaying records: " +
e.getMessage());
    }
}

private static void deleteRecord(Scanner scanner) {
    System.out.print("Enter student ID to delete: ");
    int studentIdToDelete = scanner.nextInt();
    File inputFile = new File(FILE_NAME);
    File tempFile = new File("temp.txt");

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        try (BufferedReader reader = new BufferedReader(new
FileReader(inputFile));
            BufferedWriter writer = new BufferedWriter(new
FileWriter(tempFile))) {
            String line;
            boolean found = false;
            while ((line = reader.readLine()) != null) {
                if (!line.startsWith(studentIdToDelete + ",")) {
                    writer.write(line);
                    writer.newLine();
                } else {
                    found = true;
                }
            }
            if (found) {
                System.out.println("Record deleted.");
            } else {
                System.out.println("Student ID not found.");
            }
        } catch (IOException e) {
            System.out.println("Error deleting record: " +
e.getMessage());
        }

        if (inputFile.delete()) {
            tempFile.renameTo(inputFile);
        } else {
            System.out.println("Could not delete original file.");
        }
    }
}

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private static void updateRecord(Scanner scanner) {
    System.out.print("Enter student ID to update: ");
    int studentIdToUpdate = scanner.nextInt();
    File inputFile = new File(FILE_NAME);
    File tempFile = new File("temp.txt");

    try (BufferedReader reader = new BufferedReader(new
FileReader(inputFile));
        BufferedWriter writer = new BufferedWriter(new
FileWriter(tempFile))) {
        String line;
        boolean found = false;
        while ((line = reader.readLine()) != null) {
            if (line.startsWith(studentIdToUpdate + ",")) {
                System.out.print("Enter new name: ");
                scanner.nextLine(); // Consume newline
                String name = scanner.nextLine();
                System.out.print("Enter new roll number: ");
                String rollNo = scanner.nextLine();
                System.out.print("Enter new class: ");
                String className = scanner.nextLine();
                System.out.print("Enter new marks: ");
                int marks = scanner.nextInt();
            }
        }
    }
}

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        scanner.nextLine(); // Consume newline
        System.out.print("Enter new address: ");
        String address = scanner.nextLine();

        writer.write(new Student(studentIdToUpdate, name,
rollNo, className, marks,
address).toString());
        found = true;
    } else {
        writer.write(line);
    }
    writer.newLine();
}
if (found) {
    System.out.println("Record updated.");
} else {
    System.out.println("Student ID not found.");
}
} catch (IOException e) {
    System.out.println("Error updating record: " +
e.getMessage());
}

    if (inputFile.delete()) {
        tempFile.renameTo(inputFile);
    } else {
        System.out.println("Could not delete original file.");
    }
}
}

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