

OOP lab 13

Task:

```
package com.mycompany.ruqqialab13;
```

```
import java.util.Scanner;
```

```
import java.io.BufferedReader;
```

```
import java.io.FileReader;
```

```
import java.io.IOException;
```

```
import java.io.File;
```

```
import java.io.FileWriter;
```

```
import java.io.PrintWriter;
```

```
class Student {
```

```
    int ID;
```

```
    String name;
```

```
    String Course;
```

```
    char Grade;
```

```
    Student(int ID, String name, String Course, char Grade) {
```

```
        this.ID = ID;
```

```
        this.name = name;
```

```
        this.Course = Course;
```

```
        this.Grade = Grade;
```

```
    }
```

```
    String toLine() {
```

```
        return ID + "," + name + "," + Course + "," + Grade;
```

```
    }
```

```
}
```

```
class StudentManagement {  
    String fileName = "students.txt";  
  
    // ADD STUDENT  
    void addStudent(Scanner sc) {  
        try {  
            System.out.print("Enter ID: ");  
            int ID = Integer.parseInt(sc.nextLine());  
  
            System.out.print("Enter Name: ");  
            String name = sc.nextLine();  
  
            System.out.print("Enter Course: ");  
            String Course = sc.nextLine();  
  
            System.out.print("Enter Grade: ");  
            char Grade = sc.nextLine().charAt(0);  
  
            Student s = new Student(ID, name, Course, Grade);  
  
            PrintWriter pw = new PrintWriter(new FileWriter(fileName, true));  
            pw.println(s.toString());  
            pw.close();  
  
            System.out.println("Student added successfully!");  
        } catch (Exception e) {  
            System.out.println("Error: " + e.getMessage());  
        }  
    }  
}
```

```
}  
}
```

```
// VIEW STUDENTS
```

```
void viewStudents() {  
    try {  
        BufferedReader br = new BufferedReader(new FileReader(fileName));  
        String line;  
  
        System.out.println("\n---- All Students ----");  
        while ((line = br.readLine()) != null) {  
            System.out.println(line);  
        }  
        br.close();  
  
    } catch (Exception e) {  
        System.out.println("Error: " + e);  
    }  
}
```

```
// DELETE STUDENT
```

```
void deleteStudent(Scanner sc) {  
    try {  
        System.out.print("Enter ID to delete: ");  
        String id = sc.nextLine();  
  
        File inputFile = new File(fileName);  
        File tempFile = new File("temp.txt");
```

```
BufferedReader br = new BufferedReader(new FileReader(inputFile));
PrintWriter pw = new PrintWriter(new FileWriter(tempFile));

String line;
boolean deleted = false;

while ((line = br.readLine()) != null) {
    if (line.startsWith(id + ",")) {
        deleted = true;
        continue;
    }
    pw.println(line);
}

br.close();
pw.close();

inputFile.delete();
tempFile.renameTo(inputFile);

if (deleted)
    System.out.println("Record deleted successfully!");
else
    System.out.println("Record not found!");

} catch (Exception e) {
    System.out.println("Error: " + e);
}
}
```

```
// UPDATE STUDENT

void updateStudent(Scanner sc) {
    try {
        System.out.print("Enter ID to update: ");
        String id = sc.nextLine();

        File inputFile = new File(fileName);
        File tempFile = new File("temp.txt");

        BufferedReader br = new BufferedReader(new FileReader(inputFile));
        PrintWriter pw = new PrintWriter(new FileWriter(tempFile));

        String line;
        boolean updated = false;

        while ((line = br.readLine()) != null) {
            if (line.startsWith(id + ",")) {

                System.out.print("New Name: ");
                String name = sc.nextLine();

                System.out.print("New Course: ");
                String course = sc.nextLine();

                System.out.print("New Grade: ");
                char grade = sc.nextLine().charAt(0);

                Student s = new Student(Integer.parseInt(id), name, course, grade);
```

```

        pw.println(s.toLine());

        updated = true;

    } else {
        pw.println(line);
    }
}

br.close();
pw.close();

inputFile.delete();
tempFile.renameTo(inputFile);

if (updated)
    System.out.println("Record updated!");
else
    System.out.println("Record not found!");

} catch (Exception e) {
    System.out.println("Error: " + e);
}
}

}

public class RuqqiaLab13 {
    public static void main(String[] args) {

```

```
Scanner sc = new Scanner(System.in);
StudentManagement sm = new StudentManagement();

int choice;

do {
    System.out.println("\nStudent Management System");
    System.out.println("1. Add Student");
    System.out.println("2. View All Students");
    System.out.println("3. Update Student");
    System.out.println("4. Delete Student");
    System.out.println("5. Exit");
    System.out.print("Enter choice: ");

    choice = Integer.parseInt(sc.nextLine());

    if (choice == 1) sm.addStudent(sc);
    else if (choice == 2) sm.viewStudents();
    else if (choice == 3) sm.updateStudent(sc);
    else if (choice == 4) sm.deleteStudent(sc);

} while (choice != 5);

System.out.println("Program Ended.");
}
}
```

Output:

Student Management System

1. Add Student
2. View All Students
3. Update Student
4. Delete Student
5. Exit

Enter choice: 1

Enter ID: 2

Enter Name: Ruqqia

Enter Course: BSCS

Enter Grade: A

Student added successfully!

Student Management System

1. Add Student
2. View All Students
3. Update Student
4. Delete Student
5. Exit

Enter choice: 2

---- All Students ----

2,Ruqqia,BSCS,A

Student Management System

1. Add Student
2. View All Students
3. Update Student
4. Delete Student
5. Exit

Enter choice: 3

Enter ID to update: 2

New Name: Amal

New Course: BSSE

New Grade: B

Record updated!

Student Management System

1. Add Student
2. View All Students
3. Update Student
4. Delete Student
5. Exit

Enter choice: 4

Enter ID to delete: 2

Record deleted successfully!

Student Management System

1. Add Student
2. View All Students
3. Update Student
4. Delete Student

5. Exit

Enter choice: 5

Program Ended