

Student Grade Management System

Description:

Create a simple Student Grade Management System.

Features:

1. Student Class: Create a class to represent a student. The class should have member variables such as student ID, name, and an array to store the student's grades.
2. Input and Output: Implement functions to read student data from the user via stdin (standard input) and write student data to a file using file I/O.
3. Grade Calculation: Implement a function that calculates the average grade of a student based on the grades stored in the array.
4. Grade Analysis: Develop functions to find the highest and lowest grades in the array, as well as the overall class average.
5. Search and Display: Implement a search function that allows the user to search for a specific student by ID or name and display their information, including the grades.
6. Menu-Driven Interface: Create a menu-driven interface that provides options to add a new student, search for a student, display class statistics, and exit the program.
7. File Persistence: Utilize file I/O to store student data persistently. When the program starts, load the student data from a file, and when the program ends, save any changes made to the student data back to the file.
8. Error Handling: Handle input errors and provide appropriate error messages to the user. For example, if the user searches for a student that doesn't exist, display an error message.

Example output:

```
----- Student Grade Management System -----
1. Add a New Student
2. Search for a Student
3. Display Class Statistics
4. Exit
Enter your choice (1-4): 1
Enter Student ID: gh45
Enter Student Name: v
Enter the number of grades (max 5): 1
Enter 1 grades:
Enter grade 1: 5.5
Student data saved to file.
----- Student Grade Management System -----
```

Student Grade Management System

```
1. Add a New Student
2. Search for a Student
3. Display Class Statistics
4. Exit
Enter your choice (1-4): 1
Enter Student ID: 345v
Enter Student Name: ss
Enter the number of grades (max 5): 2
Enter 2 grades:
Enter grade 1: 90
Enter grade 2: 87.5
Student data saved to file.
----- Student Grade Management System -----
1. Add a New Student
2. Search for a Student
3. Display Class Statistics
4. Exit
Enter your choice (1-4): 3
Class Average: 47.125
Highest Grade in Class: 90
Lowest Grade in Class: 5.5
----- Student Grade Management System -----
1. Add a New Student
2. Search for a Student
3. Display Class Statistics
4. Exit
Enter your choice (1-4): 2
Enter the Student ID to search for: ss3
Student with ID ss3 not found.
----- Student Grade Management System -----
1. Add a New Student
2. Search for a Student
3. Display Class Statistics
4. Exit
Enter your choice (1-4): 2
Enter the Student ID to search for: 345v
Student Found!
ID: 345v
Name: ss
Average Grade: 88.75
Highest Grade: 90
Lowest Grade: 87.5
----- Student Grade Management System -----
1. Add a New Student
2. Search for a Student
3. Display Class Statistics
4. Exit
Enter your choice (1-4): 2
```

Student Grade Management System

Enter the Student ID to search for: gh45

Student Found!

ID: gh45

Name: v

Average Grade: 5.5

Highest Grade: 5.5

Lowest Grade: 5.5

----- Student Grade Management System -----

1. Add a New Student
2. Search for a Student
3. Display Class Statistics
4. Exit

Enter your choice (1-4):