COAL PROJECT

STUDENT MANAGEMENT RECORD SYSTEM

ABDUL WAHAB 24K-803

ABDULLAH SHABBIR 24K-0619

ASHHAD IQBAL 24K-655

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Introduction

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Executive Summary

The Student Management and Record System (SMRS) aids the administration in incorporating student records. It not only facilitates the addition of personal information but also organizes the records according to students' Grade Point Average (GPA). The system includes functionalities such as generating a merit list, identifying the rector's list, dean's list, and warning list. Furthermore, it allows for the resetting of all student records. The results are presented in a structured manner.

Introduction

The primary accomplishment of the project is the professional organization of student records. It enables the extraction of these records in any desired format. Additionally, the project assists institutions in managing the records efficiently. The project presents an advanced record management system that has been developed using assembly language. The objectives include creating a user-friendly system for data entry and implementing and developing features for GPA calculation and rapid record retrieval.

Project Description

The scope of the project encompasses the addition of new students, the viewing of records, searching by roll number, and the generation of an academic list based on GPA. Furthermore, the database can be reset for upcoming sessions. The system is designed to concentrate solely on the core concepts of assembly language, deliberately avoiding any additional graphical interface.

The project was implemented using Microsoft Visual Studio, employing the Irvine32 library for x86 assembly programming. Essential tools such as debugging and file operations were utilized through the Windows API via the Irvine library.

Methodology

The foundation of the project commenced with the implementation of the main menu, accompanied by the incorporation of essential functions. The team exerted considerable effort in meticulously programming each function with precision and integrity to align with the project's central concept. Responsibilities were evenly distributed among the team members. Abdullah Shabbir was responsible for planning and testing, alongside the main menu. Abdul Wahab undertook the implementation of functions, and Ashhad Iqbal managed the file operations.

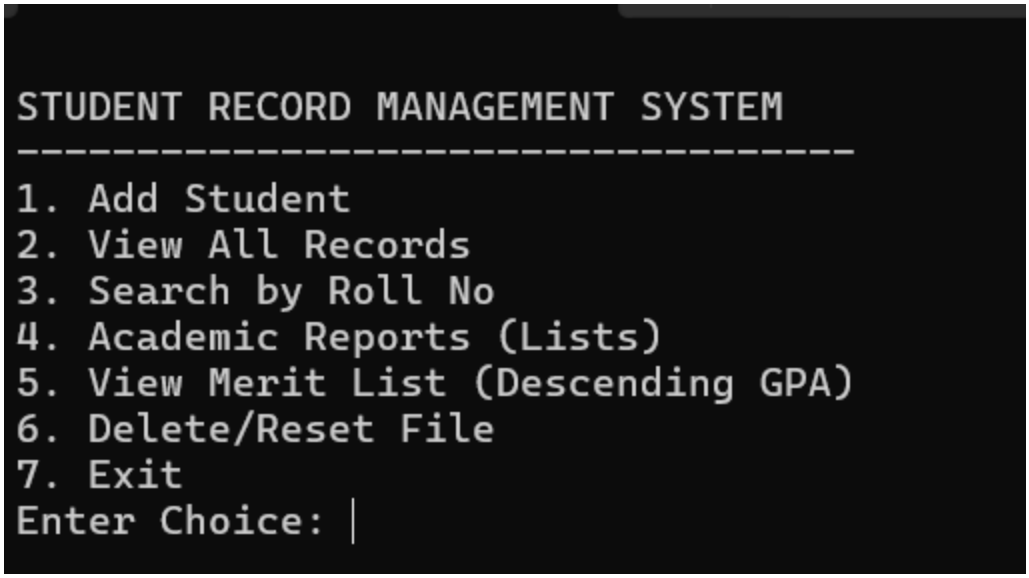
Project Implementation

The system is architected in a manner that presents a main menu, which subsequently leads to a sub-menu. The interface is designed to allow access to all available functions in an organized and efficient manner. Furthermore, effective sorting algorithms are employed to categorize items according to GPA, facilitating the addition of each GPA to the appropriate academic list.

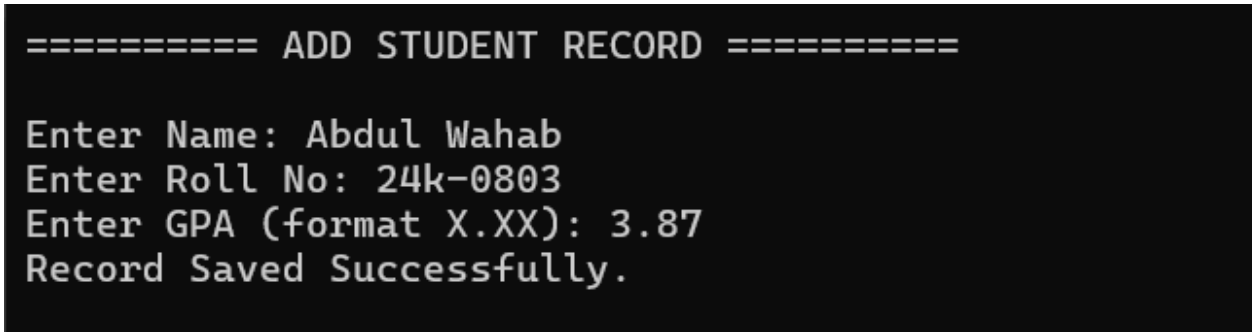
Results

The final system perfectly meets all the project objectives by offering complete student record management. All the functionalities work as anticipated, with the right persistence of data and accurate categorization on academic grounds. The sorting algorithm works well, sorting the students according to their GPA in descending order.

1. Main menu interface



2. Adding student records



3. Viewing all records

```
Name: ali
Roll: 0900
GPA:  3.20
-----------------------------------
Name: akbar
Roll: 0333
GPA:  1.33
-----------------------------------
Name: musab
Roll: 3000
GPA:  3.00
-----------------------------------
Name: ali
Roll: 23k-1222
GPA:  1.90
-----------------------------------
Name: Abdul Wahab
Roll: 24k-0803
GPA:  3.87
```

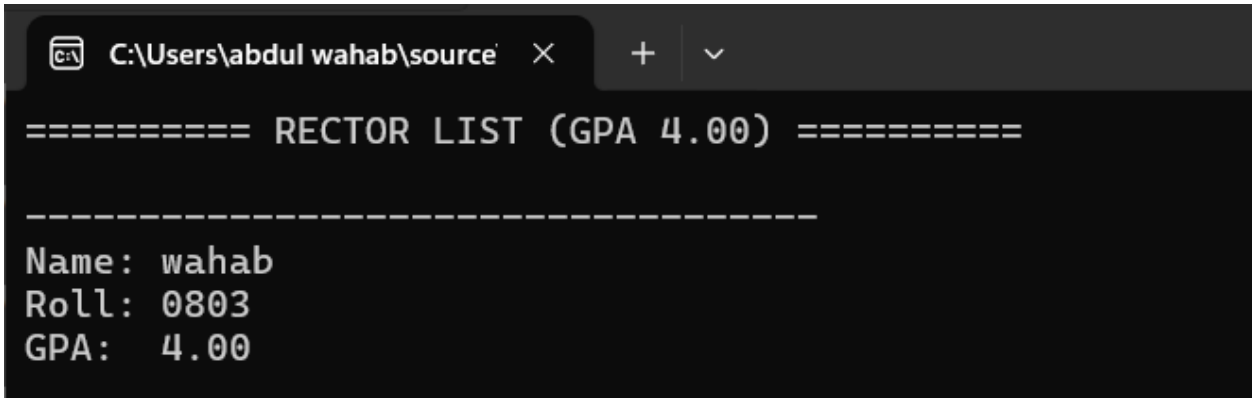
4. Academic lists generation

```
C:\Users\abdul wahab\source
========== RECTOR LIST (GPA 4.00) ==========

-----------------------------------
Name: wahab
Roll: 0803
GPA:  4.00
```

```
========== WARNING LIST (GPA < 2.00) ==========

-----------------------------------
Name: akbar
Roll: 0333
GPA:  1.33
-----------------------------------
Name: ali
Roll: 23k-1222
GPA:  1.90
-----------------------------------
Name: wahab
Roll: 0803
GPA:  4.00
-----------------------------------
Name: Abdul Wahab
Roll: 24k-0803
GPA:  3.87
```



5. Sorted merit list display

```
========== MERIT LIST (HIGHEST GPA FIRST) ==========

Generating Merit List...
----------------------------------
Name: wahab
Roll: 0803
GPA:  4.00
----------------------------------
Name: Abdul Wahab
Roll: 24k-0803
GPA:  3.87
----------------------------------
Name: ali
Roll: 23k-0903
GPA:  3.23
----------------------------------
Name: ali
Roll: 0900
GPA:  3.20
----------------------------------
Name: musab
Roll: 3000
GPA:  3.00
----------------------------------
Name: ali
Roll: 23k-1222
GPA:  1.90
----------------------------------
Name: akbar
Roll: 0333
GPA:  1.33
```

The testing involved the validation of all functions comprehensively. In addition, the testing of record addition was done with different formats of input, search functionality with existing and non-existing roll numbers, and sorting accuracy was confirmed through multiple test cases with different combinations of GPA. File operations were tested for reliability across multiple application sessions.

Conclusion

This project effectively synthesizes all the concepts covered during the semester, with the added focus on file operations. The achievements of the project encompass efficient file-based data storage, academic performance assessment, implementation of sorting algorithms, and an interface developed in pure assembly language. The system possesses significant potential for scalability, with the prospect of evolving into a high-value, industry-level project.