2025

PROJECT PROPOSAL

Student Grade Management System

Presented to:

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Proposal by: Group 14

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Project Overview

The Student Grade Management System is tasked to provide an efficient, user-friendly platform for managing student grades. The system will allow instructors to enter, update, and view students' grades while maintaining data integrity. The main outcome is to enhance record-keeping, simplify grade calculations, and provide statistical analysis for academic performance.

The system will make use of file handling for storing and retrieving student data, dynamic memory allocation for effective memory management, and data structures like linked lists to manage student information

Key Features & Functionality

- ·**Student Record Managment:** Instructors can add, Update and View student records including name, student ID, and courses.
- ·**View Student Grades:** Students can view their grades by providing their student ID.
- ·**File Handling:** The system will store and retrieve student data from a file, ensuring persistence of data.
- ·**Grade Entry and Modification**: Instructors can input grades for different courses and modify them when needed.
- ·**Recursion:** Recursive functions will be used to efficiently search and display student records.
- ·**Statistical Analysis**: Provide insights such as highest/lowest scores, averages, and grade distribution.

Challenges & Potential Issues

- ·**Memory Management:** Using dynamic memory allocation to prevent memory leaks might be difficult. We'll get around this by controlling memory deallocation and using Valgrind to look for memory leaks.
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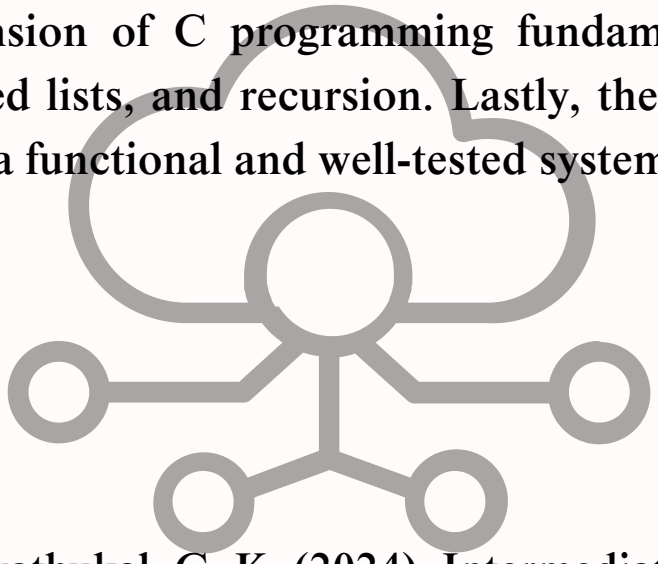
- ·**File handling:** It may be difficult to keep track of a lot of student data while making sure that reading and writing files are done quickly. To maximize data retrieval, we shall employ organized file I/O operations.
- ·**User Interface:** It can be difficult to guarantee usability and intuitive navigation even though the interface will be command-line based. To enhance the user experience, we will incorporate unambiguous prompts and error notifications.
- ·**Recursion Implementation:** Using recursion correctly to seek and display records without resulting in inefficiency or stack overflow.

Week	Planned Task	
Week 9	Finalize project proposal submission and designing system architecture	
Week 10	Implement core functionalities such as adding, updating, and viewing student records.	
Week 11	Combine dynamic memory allocation, recursion, and file management. Start with Valgrind testing and ensure the group is on track.	
Week 12	Finalize the project by ensuring all functionalities work smoothly. Perform unit testing.	
Week 13	Submit the final project and prepare for the presentation.	

Conclusion

The Student Grade Management System aims to simplify the process of managing student grades while ensuring data accuracy. It will provide reliable record-keeping and simple access to academic material through the effective use of data structures, recursion, memory management, and file handling. Additionally, the project will improve our comprehension of C programming fundamentals such as dynamic memory allocation, linked lists, and recursion. Lastly, the project timeline ensures steady progress towards a functional and well-tested system.



References

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- **·Kernighan, B. W., & Ritchie, D. M. - The C Programming Language**
- **·Stack Overflow - - - https://stackoverflow.com/**
- **·Valgrind Documentation: https://valgrind.org/docs/manual/manual.html**