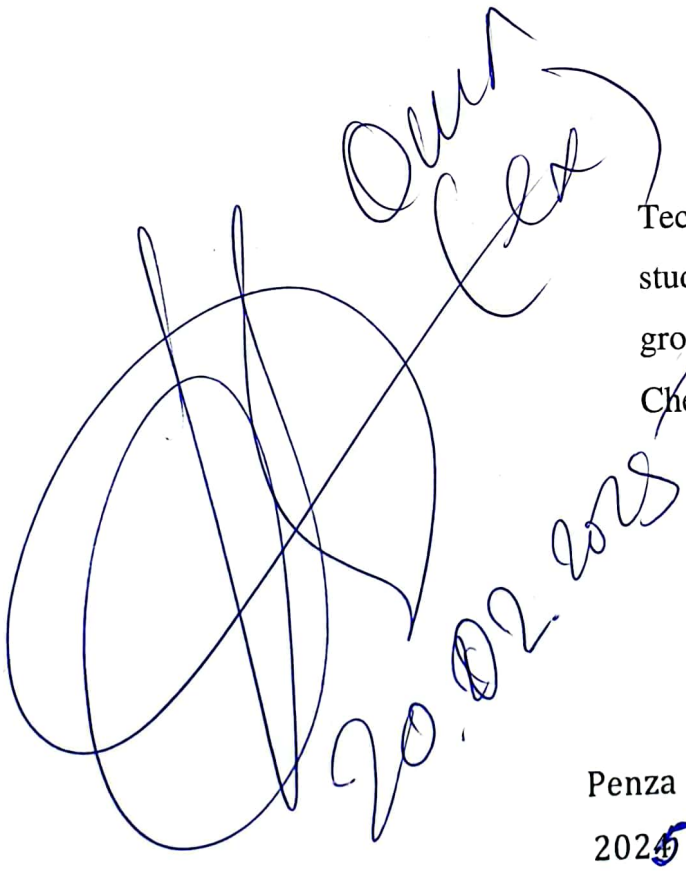
Ministry of Science and Higher Education of the Russian Federation

Penza State University

Department of Computer Engineering

REPORT on the course work

Topic «Development of a program using data structure algorithm»



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Penza

2025

APPROVED

Head Department of VT

_____ M.A. Mitrokhin

«___»_____ 2024 year

THE TASK LIST

for the course task

Logic and basic of algorithmization in engineering problems

Student Mohamed Fikri, Group 23VVia1

Project topic: Development of a program using data structure algorithm. Simple Data Base.

Initial data (technical requirements) for design Develop is data base with console or GUI interface.

Mandatory program requirements:

1. IDE Visual Studio
2. C language
4. Information input device – keyboard, mouse.
5. The user interface should be based on menus(CLI).
6. Availability of enter, calculate, save, update, delete data.
7. Operating system MS Windows.
8. DSA – Linked List, File Handling, Recursive.

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Scope of work for the course

Alghorithm part

Program development.

The grafical part

Data diagram, system resource diagram, system operation diagram, hierarchical structure of the program, program interaction diagram.

Experimental part

Debugging the program.

Project completion time by section

According to schedule.

The date of issue of the task is "December 5", 2024.

Project defense date "___"_____

Teacher Fediunin R.N._____

Received the task on Dec 5, 2024.

Student Mohamed Fikri._____

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Conclusion

The Hotel Management System program successfully demonstrates a practical implementation of a basic room management solution using the C programming language. It provides an intuitive, menu-driven interface for managing hotel room bookings, cancellations, and record persistence. Key functionalities such as displaying room statuses, booking and freeing rooms, and saving/loading data ensure that users can efficiently handle core hotel operations.

The program's use of structured programming and modular design ensures readability, maintainability, and scalability. By employing file I/O operations, the system retains data between sessions, making it suitable for real-world applications. Additionally, the incorporation of dynamic user input and robust room validation ensures that the system minimizes errors during operation.

However, the program could benefit from enhancements such as improved error handling, a more advanced user interface, and additional features like searching and editing customer details. Despite these areas for potential improvement, the system successfully meets the foundational requirements of a hotel room management application and provides a solid platform for future development and expansion.

This project exemplifies how programming concepts such as data structures, file handling, and user input validation can be applied to create a functional and efficient software solution.

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Reference

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