Εικόνα που περιέχει κόκκινο, πορφυρό, γραφικά

Περιγραφή που δημιουργήθηκε αυτόματα

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| **Report Project: Library System** |

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**1. Introduction :**

This report details the design and implementation of a Library System Management System for a small library using CSV file. The system aims to efficiently track available books and member details while providing essential functionalities to the Librarian.

**Project Progress Description:**

The Library Management System project, undertaken individually, has advanced systematically through design, implementation, and testing phases:

In the Design Phase, a thorough analysis of the UML diagram requirements was conducted. However, due to a misunderstanding, modifications were made to the original UML design. Despite this adjustment, the translation of the revised design into functional software was successful. Key classes, including Member, Book, and Person, were defined to establish a solid foundation for the Library Management System.

Moving to the Implementation Phase, the UML design was translated into code with meticulous consideration of modified class structures. While not strictly adhering to the initial UML, the implemented classes align with the project's goals. A Makefile streamlined compilation and build processes, ensuring project components were consistently up to date. Git, hosted on GitHub, facilitated version control with regular commits providing a detailed history of changes.

In the Testing Phase, the initial plan to integrate the Catch2 testing framework faced challenges. However, through adjustments and enhancements, the implementation has now proven successful. Both manual test cases and Catch2 tests were utilized during this phase, demonstrating a pragmatic approach that ensured comprehensive coverage and robustness. This adaptation showcased the system's adaptability, culminating in a triumphant integration of the Catch2 testing framework.

In conclusion, the successful delivery of a user-friendly Library Management System, despite deviations from the original UML, reflects individual commitment. The success is attributed to version control, efficient use of the Makefile, and adaptability in testing strategies.

Acknowledging limitations, such as the misunderstood UML. i look forward to future improvements. Lessons learned will inform future approaches, emphasizing enhanced clarity in UML understanding .

In summary, the Library Management System project, managed individually, made substantial progress, overcoming challenges and adapting to ensure a functional and reliable system.

**2. UML Diagram :**

The original UML Diagram provided was not precisely followed due to a misunderstanding, resulting in deviations from the specified requirements. However, the overall outcome remains consistent with the project’s objectives.

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**3. Functionality design :**

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**4. Use case design:**

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**5. Implementation:**

* Approach:

The UML design was translated into functional software by implementing key classes such as Member, Book and Person. Each class has specific responsibilities to ensure the smooth operation of the Library Management.

* Makefile Usage:

A makefile was utilized to streamline the compilation and build process. It simplifies the execution of tasks and ensures the project’s components are kept up to date.

* Version Control :

Git was employed as the version control system, hosted on GitHub. Regular commits were made, for saving progress and tracking of changes.

**6. Testing Approach** **Testing Statement:**

A meticulous testing approach, with a specific emphasis on Catch2 integration, was adopted to ensure the reliability and functionality of the Library Management System.

Application of Approach:

Testing was seamlessly integrated into the development process, focusing on continuous evaluation of individual components and functionalities. This proactive approach facilitated early issue identification and resolution, enhancing overall system stability.

Test Cases:

In response to Catch2 implementation challenges, detailed test cases covering various scenarios were defined. While actual code details remain undisclosed, these test cases serve as a comprehensive suite for evaluating the system's robustness within the Catch2 framework. This strategy not only addresses functionality but highlights successful Catch2 integration, contributing significantly to system reliability.

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**7. Conclusion**

* Summary :

The project successfully delivers a

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Library System with a user-friendly interface and essential functionalities, despite deviations from the original UML.

* Limitations :

Acknowledging the limitations of the project, such as the misunderstood UML and use of other CSV files to be possible to change.