Construction of an Automatic Grading System

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***Abstract*—This thesis by Pham Van Cuong focuses on the development of an automatic grading system for software projects. The system was implemented using Flutter for the mobile interface and Node.js for the backend, with MySQL as the database management system. The author successfully created a client-server system that can automatically grade student code submissions, but the system still faces some limitations such as unimplemented features and a simple user interface. The system was tested and demonstrated the ability to automate the grading process, but it requires further improvements in functionality and user experience.**

***Index Terms*—Flutter, Node.js, MySQL, Automatic Grading, Software Development, Client-Server**

I. Introduction

The thesis provides an overview of programming languages such as Dart and JavaScript, as well as frameworks like Flutter and Node.js. It also covers the basics of MySQL database management. The main objective is to build a client-server system that can automatically grade student code submissions. The author, Pham Van Cuong, aims to address the challenges of manual grading by automating the process, which can save time and reduce human error. The system is designed to handle various types of programming assignments, including coding challenges and projects [1]. Published articles on the methods and subject of this project provide context for this English summary [3]. Published books on the methods and subject of this project provide context for this English summary [4], [5], [6], [7].

II. Methods

The author used Flutter for the mobile interface and Node.js for the backend, with MySQL as the database. The system was designed using use case diagrams and class diagrams to ensure a robust and efficient architecture. The author implemented the system by first setting up the database schema, then developing the backend logic for grading, and finally creating the mobile interface. The system was tested with sample code submissions to ensure that it could accurately grade different types of programming tasks [1].

III. Results

The system was successfully implemented and tested, meeting the requirements for automatic grading. The backend logic was able to parse and evaluate code submissions, and the mobile interface allowed students to submit their work and view their grades. However, the system still has some bugs and lacks advanced features such as a testing environment. The author identified several areas for improvement, including fixing bugs and enhancing the user interface [1].

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IV. Discussion

The system demonstrated the ability to automate the grading process, but the author identified several areas for improvement, including fixing bugs and enhancing the user interface. The backend logic was able to accurately grade code submissions, but the author noted that the grading process could be more sophisticated. The mobile interface was functional, but it could be improved to provide a better user experience. The author also suggested that the system could be extended to include additional features such as real-time feedback and automated testing environments [1].

V. Conclusion

The thesis concludes that the system successfully automates the grading process, but there is room for improvement in terms of functionality and user experience. The author suggests that the system could be further developed to include more advanced features and a more user-friendly interface. The system has the potential to significantly reduce the workload of instructors and improve the efficiency of the grading process [1].

References

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