Development of a Work Management Software for 5 Châu Media Using Node.js and React.js

Lộc Thị Thùy Linh
Thai Nguyen University of Information and Communication Technology
Thai Nguyen University, Thai Nguyen, Vietnam
dtc18h3404060013@ictu.edu.vn

***Abstract*—This undergraduate thesis develops a work-management website for 5 Châu Media with Node.js and React.js. The implementation separates administrator and user interfaces, supports assignment and handover of work, and displays project progress. The author reports that the principal task-management functions were implemented. Updating work documents and filtering remained incomplete, and some components needed performance and security improvement. The source provides an implementation account without measured throughput, user-productivity, or security outcomes. The distinction between completed task tracking and unfinished supporting features is central to interpreting the reported outcome.**

***Index Terms*—Node.js, React.js, Visual Studio Code, SQL Server, Web Application, Work Management**

I. Introduction

The thesis introduces the development of a work management software for 5 Châu Media, utilizing Node.js and React.js. The author explains the selection of these technologies and their benefits, such as the use of Visual Studio Code for development and the advantages of SQL Server for database management. The project aims to create a user-friendly interface for both administrators and individual users, enabling efficient task management and progress tracking. The software development process involved designing and implementing a web application that meets basic functional requirements, including a user interface for administrators and individual users. The system allows for convenient and efficient management of work tasks, progress tracking, and document updates. However, some features such as document updates and filtering are not yet fully developed, and performance optimization and security are areas for future improvement [1]. Earlier ICTU student work on related designs is included here for context [7], [8], [9], [10]. These contextual works were selected for this English summary; they are not asserted to appear in the original thesis bibliography.

II. Methods

The author analyses work-management requirements for the company, designs separate administrator and user workflows, and implements a web application using Node.js and React.js. The system records tasks, assignments, handovers, and progress information. The thesis presents the interface and functional design as evidence for the implemented workflow.

Supervisor: Lương Thị Minh Huế, Thai Nguyen University of Information and Communication Technology (lmhue@ictu.edu.vn).

The summary treats document updating and filtering as incomplete because the source lists them among its limitations [1].

III. Results

The completed website displays distinct administrator and user interfaces. It lets managers allocate and hand over work and lets users follow project progress and update work status. The author's conclusion describes these basic functions as working. It also reports incomplete work-document updates and filters, slow components, and security issues needing further work. No quantitative performance or user study is provided [1].

IV. Discussion

The developed software provides a user-friendly interface for both administrators and individual users, enabling efficient task management and progress tracking. The backend was developed using Node.js, which provided a robust and scalable platform for handling server-side logic. The frontend was built with React.js, ensuring a responsive and interactive user experience. Visual Studio Code was used as the primary development environment, providing a comprehensive set of tools for coding and debugging. SQL Server was chosen for its robustness and reliability in managing the database, ensuring data integrity and security. However, the author acknowledges that some features such as document updates and filtering are not yet fully developed, and performance optimization and security are areas for future improvement. The limitations of the current implementation include the incomplete development of certain features and the need for further optimization and security measures. Future work should focus on addressing these limitations to enhance the overall functionality and usability of the software [1].

V. Conclusion

The thesis delivers a basic work-management website for 5 Châu Media. The source documents role-specific interfaces, task allocation, handover, and progress tracking. Document updates and filtering are not fully developed, and performance and security remain improvement areas. The manuscript supports a functional prototype claim without demonstrating measured organizational benefit. Further development would need to complete those features and evaluate the application with its

intended users. The source does not report such an evaluation [1].

References

[1] Lộc Thị Thùy Linh, ”Development of a Work Management Software for 5 Châu Media Using Node.js and React.js,” internal undergraduate thesis (original in Vietnamese), Thai Nguyen University of Information and Communication Technology, 2024.

[2] Trần Đình Quế, Nguyễn Mạnh Sơn (2007). Phân tích và thiết kế hệ thống thông tin, Nhà xuất bản Hà Nội, Hà Nội

[3] Tô Hữu Nguyên, Bài giảng Lập trình hướng đối tượng, Trường Đại học CNTT & TT – Đại học Thái Nguyên, Năm 2012

[4] Mike Cantelon, Marc Harter, T.J. Holowaychuk, và Nathan Rajlich: Node.js in Action xuất bản bởi Manning Publications tháng 10 năm 2013

[5] Alex Banks và Eve Porcello: Learning React. Functional Web Development with React and Redux (2017)

[6] Ethan Brown: Web Development with Node and Express. Leveraging the JavaScript Stack. O’Reilly Media. 2014

[7] Nguyễn Thị Thu Hương, ”Analysis and Design of Software for Managing IT Project Schedules and Costs at Viet Culture and Media Joint Stock Company,” internal undergraduate thesis, Thai Nguyen University of Information and Communication Technology, 2013.

[8] Đỗ Thị Hồng Nguyệt, ”BUILDING A WORK LOG MANAGEMENT SYSTEM ON THE MVC AND ASP.NET MODEL,” internal undergraduate thesis, Thai Nguyen University of Information and Communication Technology, 2021.

[9] Nguyễn Đức Duy, ”Study of Laravel, VueJS, React, Docker, GitHub and Development of an Admin Module for Shopify App EComposer – Landing Page Builder,” internal undergraduate thesis, Thai Nguyen University of Information and Communication Technology, 2023.

[10] Bùi Xuân Việt, ”Construction of Real-Time WebChat Using NodeJS,” internal undergraduate thesis, Thai Nguyen University of Information and Communication Technology, 2021.