**CAN THO UNIVERSITY**

**COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGY**

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**GRADUATION THESIS**

**BACHELOR OF ENGINEERING IN**

**INFORMATION TECHNOLOGY**

**(HIGH-QUALITY PROGRAM)**

**BUILDING SOFTWARE TO SUPPORT WRITING SELF-ASSESSMENT REPORT**

**Student: Huynh Tan Dat**

**Student ID: B1809683**

**Class: (K44)**

**Advisor: Dr. Tran Cong An**

**Can Tho, 12/2022**

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**DEPARTMENT OF INFORMATION TECHNOLOGY**

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When working on this topic, we also tried our best in the implementation process, but due to our limited capacity and knowledge, mistakes cannot be avoided. We are looking forward to receiving your comments and suggestions to improve the topic as best as possible as well as to draw lessons for other reports and our future work.

Finally, I would like to wish you good health, happiness and much success in work and life.

Best regards!

**ABSTRACT**

With the development of higher and higher universities, the accreditation of training quality is essential in the field of education and training today. This is a pressure, but at the same time, it is also a driving force for comprehensive change in education in the country in particular and in the world in general. In order to meet the human resource needs of the new industry and take advantage of the strengths of digital technology, Can Tho University has been developing appropriate training models from the educational philosophy and building the curriculum. training based on output standards, updating curriculum content to training skills for learners to meet industry requirements, and applying digital technology in teaching.

In the context of globalization, the requirements and challenges of quality assurance are increasing for higher education. For higher education institutions, the training work not only stops at the level of quality assurance but at the same time must confirm the quality of the training program with learners, employers, stakeholders, and society.

Understand the importance of continuous education improvement in training quality assessment according to AUN-QA standards in parallel with the development of technology platforms. Therefore, in order to achieve the above goals, we decided to build a website that can help staff and lecturers of Can Tho University store evidence documents and support writing self-assessment reports more effectively and transparently.

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**LIST OF ABBREVIATIONS**

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| **No** | **Abbreviation** | **Full text** |
| 1 | AUN-QA | ASEAN University Network - Quality Assurance |
| 2 | SAR | Self-Assessment Report |
| 3 | MVC | Model - View - Controller |
| 4 | API | Application Programming Interface |
| 5 | UX | User Experience |
| 6 | UI | User Interface |
| 7 | CTU | Can Tho University |

**CHAPTER 1: INTRODUCTION**

* 1. **Background of the study**

The SAR is an approximately 40-page comprehensive report (plus appendices) that covers all aspects of the program and allows program providers and organizers to self-assess program performance and progress. submit.

Currently, the implementation of an accreditation of teaching based on the Self-Assessment Report (SAR) standards is the first step in the evaluation of training programs at universities. This is the critical self-analysis of an evidence-based program or entity that is documented and completed by the program or entity itself prior to external peer review. Before that, a curriculum is assessed and included in the SAR through a report.

Why is self-assessment important in terms of education? The workers in an educational institution should always aim to produce, improve and improve its quality, instead of passively accepting that everything is fine. Self-assessment will provide information previously unknown to all parties and enhance the transparency and accountability of a program/unit. The self-assessment serves as a preparatory step for surveys by external experts, providing them with background information. Self-assessment plays an important role in improving curricula and learning, and contributes to ensuring the quality of student outcomes from curriculum improvement.

In order to have accurate assessments, we must have the evidence to provide a complete self-assessment report as required by the “Training Quality Framework” of the Universities. Currently, there are a number of software to support the writing of reports on education quality accreditation in educational institutions, but there are still difficulties in storing the evidence and supporting the preparation of the report. self-assessment report.

Therefore, realizing the urgency and difficulty of conducting accreditation and assessing the quality of training programs for universities in Vietnam, we decided to carry out the topic "Building software SAR writing support” has been improved in terms of supporting proof stock management.

* 1. **Related research**

The performance of accreditation of teaching quality is based on the standards of the AUN QA self-assessment report. Self-assessment plays an important role in improving faculty curriculum and student learning. Currently, domestic universities have developed self-assessment programs for the quality and output of the curriculum.

For example, Can Tho University has built a support system for writing self-assessment reports through a website with the domain name https://sar.ctu.edu.vn/, this system has helped users easily Easily manage documentation, assign work, and compile reports in an intuitive and efficient way. However, the management of evidence in a report has many limitations such as numbering the proofs in order, and difficulty to manage evidence documents on the google drive platform.

From the relevant research, I selectively absorbed the successes of the previous project and further developed my skills and expertise to design and build a “Website to support self-assessment report "

* 1. **Purpose of the study**
* Build database management system MongoDB combined with Mongo Atlas for data synchronization by cloud computing technology. From there, it will be easier to manage proof documents instead of using the Google Drive framework for storage. In addition, it is possible to solve the problem of marking the order of appearance of the supporting documents in the report to avoid duplication for easier management and retrieval purposes.
* Use ExpressJS to build RESTful APIs built on the MVC model and ReactJS framework to separate the components of the website. The processing sequence is very clear and separate, making the web development - management - operation - maintenance process more convenient, creating specialized functions and controlling the processing flow.
  1. **Object and** **scope of research**

*The main research subjects of the project include:*

* Information about the self-assessment report includes standards, evaluation criteria, and the overall structure of an inspection report according to AUN-QA standards.
* Research groups of users using the software, and learn about the necessary functions in accordance with their roles in the system in order to build a comprehensive and coherent system for management.
* Consult and research-related software previously built by Can Tho University.

*Scope of research:*

* The topic focuses on the field of education in building a website system based on the AUN-QA training program evaluation standards.
* The website is built and designed within the scope of the Can Tho university unit with improved functions in previous research.
  1. **Content of the subject**

*Theoretically:*

To perfect the software, the implementation process needs to learn and apply the following areas of knowledge:

* Front-end: ReactJS Framework
* Database: MongoDB
* Back-end: Platform NodeJS, framework ExpressJS

*Technology:*

* Use Visual Studio Code tools for programming
* Use diagram.io to draw diagrams
* Using PostMan software to test and develop APIs
* Use MongoDB Atlas to synchronize data
* Use GitLab and Github to manage the entire source code
  1. **Main contributions of the project**

In the process of implementing the project "Building software to support writing self-assessment reports", I have made the following main contributions:

* Managers can assign roles (managing SAR, compiling reports, etc.) to staff members in the system.
* The software can search for related documents and reports, and supports the storage of evidence and management of SAR books in the system with authorized users.
  1. **Dissertation layout**

Bố cục của quyển báo cáo gồm có 5 chương chính như sau:

**Chương 1: Giới thiệu, gồm các nội dung sau:**

* Đặt vấn đề
* Mục tiêu đề tài
* Đối tượng và phạm vi nghiên cứu
* Nội dung
* Những đóng góp chính của đề tài
* Bố cục

**Chương 2: Mô tả bài toán, gồm các nội dung sau:**

* Mô tả chi tiết
* Hướng tiếp cận

**Chương 3: Thiết kế và cài đặt giải pháp, gồm các nội dung sau:**

* Kiến thức tổng quát hệ thống
* Các mô hình
* Giải pháp cài đặt

**Chương 4: Kiểm thử và đánh giá, gồm các nội dung:**

* Kịch bản kiểm thử
* Kết quả kiểm thử

**Chương 5: Kết luận và hướng phát triển, gồm các nội dung:**

* Kết luận
* Hướng phát triển
  1. **Summary**

Understand the importance of continuous education improvement in the assessment of training quality according to AUN-QA standards in parallel with the development of the technology platform. Therefore, the topic focuses on building software that can help staff and lecturers of Can Tho University store supporting documents and assist in writing self-assessment reports effectively and transparently.

**CHAPTER 2: LITERATURE REVIEW**

**2.1 Mô tả chi tiết bài toán**

Với sự phát triển của nền giáo dục hiện nay, việc đánh giá chất lượng đào tạo là điều cần thiết đối với các trường Đại học. Chính bởi tầm quan trọng của nhu cầu chất lượng về lĩnh vực giáo dục, việc ra đời quyển báo cáo đánh giá cần tuân theo các nguyên tắc và quy chuẩn nghiêm ngặt từ đó việc xây dựng một hệ thống với kiến trúc hoàn chỉnh theo quy trình kiểm định là cần thiết đối với chất lượng đầu ra của một quyển báo cáo. Do đó kiến trúc của một hệ thống website sẽ hoạt động dựa trên nhóm người dùng được quản trị viên phân quyền và biên soạn báo cáo theo từng vai trò và chức năng tương thích. Mỗi người dùng sẽ đảm nhận một vai trò cụ thể trong hệ thống nhằm mục đích tăng hiệu quả chất lượng công việc và giảm thiểu thời gian biên soạn báo cáo theo cách thông thường.

Trong đề tài này, tập trung xây dựng một website với UI UX thân thiện với người dùng, hỗ trợ người dùng viết SAR theo các tiêu chí mà người quản trị đã phân công trước đó, nhằm tránh bị trùng lặp các minh chứng trong một quyển báo cáo và kiểm duyệt trước khi xuất bản báo cáo chính thức.

Cụ thể quy trình của hệ thống như sau: người quản trị hệ thống sẽ tạo kho minh chứng dùng chung để lưu trữ toàn bộ các minh chứng bao gồm: hình ảnh, PDF, văn bản. Sau đó phân công người phụ trách toàn quyền quản lý trên kho minh chứng đơn vị đã được cấp phép (thư mục) với các chức năng như xem, tải xuống, thêm mới thư mục, hình ảnh, PDF, văn bản. Tiếp theo, Người quản trị hệ thống sẽ tạo quyển SAR mới và phân công cho người quản trị SAR và với vai trò đã được phân công người quản trị SAR sẽ thêm thành viên tham gia vào quyển SAR và phân công biên soạn quyển SAR đó. Những thành viên với vai trò biên soạn SAR sẽ nhận được thông báo từ phía người quản trị SAR khi có các vấn đề liên quan tới công việc của họ, các thành viên biên soạn có thể xem nội dung quyển Sar nhưng chỉ chỉnh sửa những phần hoặc tiêu chí đã được phân công. Người dùng có vai trò là cán bộ viên chức của CTU có thể xem và tải về bất kì minh chứng nào có trong kho minh chứng dùng chung và có thể đưa ra nhận xét khi cần thiết

The system includes 5 user groups with main functions:

* Administrators:
* Manage the structure of the evidence repository
* Assigned to be in charge of anti-unit warehouse.
* Update unit proof
* Create a SAR template and assign an administrative Sar template
* Manage evidence warehouse using your own sample sar
* In charge of the unit proof warehouse:
* Update unit proof
* Administration of SAR:
* More members to edit Sar
* Compilation of SAR:
* Inventory management of Sar
* Compilation of Sar
* View/Export the content of Sar
* CTU's officers and employees:
* See proof
* Download proof
* Proof comment