**HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY**



**FEASIBILITY STUDY REPORT**

**Subject: Introduction to software engineering**

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I. EXECUTIVE SUMMARY

The proposed system for teachers of Hanoi University of Science and Technology. The customer is represented by Mr. Trinh Thanh Trung.

The goal of the development team is to implement a question bank management system and issue questions. The system allows teachers to manage questions by subject, chapter and difficulty level, create test questions, and distribute and mix questions and answers. In addition, the system also helps to store exam information, propose exam proposals in many formats.

Objectives after development: Shorten the lecturer's issue time, help lecturers better systematize knowledge and issue more balanced difficulty.

II. PRELIMINARY REQUIREMENTS ANALYSIS

**Part 1: Overview of the application**

**Basic functions:** Create a question bank management application, issue exam questions based on question banks with evenly distributed difficulty.

**Business goal:** Reduce teacher's time to write, increase test management ability, thereby helping to improve teacher's performance. Students no longer question that other students' problems are easy while their own is difficult because of the uneven distribution of difficulty.

**Current Business Process:** The teacher manually enters questions into the computer. When he want to make a different exam code, he has to start from scratch, which can lead to erroneous difficulty.

**User role:** User can create questions, edit questions, save questions, create exam, edit exam.

**Part 2: Function requirements**

**The system must have the following functions:**

- Manage questions by subject, chapter, difficulty.

- When creating test questions, teachers can create a mix of multiple choice and essay questions or have separate essay and multiple choice sections.

- The questions are selected by hand or randomly generated according to the chapters and difficulty pre-selected by the teacher.

- Mix the answer, question for the same exam.

- Store exam information

- Export exam questions to files (txt, doc, pdf...)

**Usability**

The interface must be convenient. File storage, editing, and archiving should be easy.

**Scope**

-The system includes input question, mix question and make exam.

-The system does not support reading files from files of other formats (png, pdf, docx ...)

III. PROCESS TO BE FOLLOWED

For this project, the team decided to follow the modified waterfall model. The team chose this method because the project was small in size and the customer requirements were quite detailed and easy to understand.

**Phase**

**- Requirements phase:** The team determines the requirements related to the project, feasibility analysis, project scope, current human resources along with costs, associated risks.

**- Design phase:** The team creates designs for the product to solve the set requirements. The team will discuss with the customer after presenting the design.

**- Implementation phase**: Based on the design agreed by both parties, the team embarked on implementation.

**- Verification phase:** The software will be deployed and tested. If the customer feels unsatisfied, the team will base on the customer's feedback to correct it.

**- Deployment phase:** Putting the software into use

**- Maintenance phase:** The team commits to maintaining the project for 12 months. During this time, the team will release patches if there are any problems with the software.

IV. SUGGESTED DELIVERABLES

1. **Periodic Status Reports**

After each month, the team will send a periodic report to present to the client about the team's work progress, risks or costs incurred if any.

1. **Periodic Presentations**

* After the design phase, the team will present its design to the client. This presentation helps the customer understand the structure of the product along with the basic features. Customers can provide expertise at this stage for the team to improve product design.
* After the validation phase, the team will present its product to the customer.

1. **Good Faith Requirements Agreement**

After the project requirements have been discussed and reviewed with the client, a requirements agreement will be presented to the client to clarify exactly what the project is intended to achieve. The agreement will clearly state the features and goals the team intends to deliver.

1. **Documentation for Use and Mechanics**

Customers will be provided with a document that explains how to use our system and describes its basic mechanics.

1. **Demonstration and Client Training**

In addition to documentation, customers require training for employees to use the system. The training will be in charge by the team member and takes place regularly in the first 1 month after handing over the software.

V. TECHNICAL FEASIBILITY

**Technical requirements:**

- Manage questions by subjects, chapters, difficulty: Based on the staff's experience and the ability to adjust the question bank easily, the team will consider an appropriate question management system.

- When creating test questions, teachers can create a mix of multiple choice and essay questions or have separate essay and multiple choice sections. Usually, if there are multiple-choice and essay questions, the first-choice part and the essay section are put at the end. Mixing essay and multiple choice may require adjusting the file format.

- The questions are selected by hand or randomly generated according to the chapters and difficulty pre-selected by the teacher.

- Mix the answer, question for the same test code

- Store exam information

- Export exam questions to files (txt, doc, pdf...)

VI. VISIBILITY

The team will contact and exchange with customers through the following forms:

Mail

Direct meeting

Presentations and reports

VII. RISK ANALYSIS

Since the course requirements state that the project must be completed within one semester, any extension is not possible. This leads to the risk that the system may not be completed with the full functionality the customer wants within a given time frame of a semester. In this case, there is also a second risk of the system being delayed if the customer chooses to wait until the system is fully operational.

**Risk management**

With the above risks, the team has prepared plans to minimize the risk in the most effective way. The plan is to develop and execute a good management strategy. Providing software design for customers will be prioritized to help the team start the project soon. Additionally, regular reporting helps the team deliver the system on time.

VIII. CONCLUSION

From the results of the feasibility study, the team found that the test management and creation system for teachers is feasible in terms of technology, team members' skills and time. With a time limit of one semester, the team believed that the scope of the project was manageable and that the client's requirements could be satisfactorily met upon completion of the system. Team members are also skilled enough to implement the system and are familiar with the hardware and software that may be used in this project. The conclusion of the feasibility report is to continue with this software development project.