

BORANG PENGESAHAN STATUS TESIS

JUDUL: RANDOM E-QUESTION GENERATOR FOR MIDTERM
EXAMINATION: THE CASE STUDY FOR DATA STRUCTURE
SUBJECT (REG)

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RANDOM E-QUESTION GENERATOR
FOR
MIDTERM EXAMINATION:
THE CASE STUDY FOR DATA STRUCTURE SUBJECT
(REG)

TONG HAN CHERN

This report is submitted in partial fulfillment of the requirements for the
Bachelor of Computer Science (Software Development)

FACULTY OF INFORMATION AND COMMUNICATION
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2008

DECLARATION

I hereby declare that this project report entitled
**RANDOM E-QUESTION GENERATOR FOR
MIDTERM EXAMINATION:
THE CASE STUDY FOR DATA STRUCTURE SUBJECT
(REG)**

is written by me and is my own effort and that no part has been plagiarized
without citations.

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SUPERVISOR : Intan Date : 23/06/08
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DEDICATION

To my beloved parents, your moral support is my greatest divine inspiration. To my friends, your encouragement is the essence of my determination. To Miss Nor Haslinda Ismail, my supervisor, your recommendations has truly been my source of inspiration in the quest of completing this application. To Miss Intan Ermahani bt. A. Jalil, my previous supervisor, your dedication and effort has truly been my core of strength in the quest of completing this application.

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ABSTRACT

Random E-Question Generator for Midterm Examination: The Case Study of Data Structure Subject or in abbreviation REG is made especially for the benefit of the lecturer of data structure subject in Universiti Teknikal Malaysia Melaka, UTeM and also for the students that taking the subject. Currently, all examination question collection and processing were done on a paper based forms, lecturers have to manually analyze through each year examination's questions. As the technology is moving forward, the examination should move along with the technology. New propose method is to do a random question generator solution and using an online web based system. Therefore, REG system was proposed to Faculty of Information Communication and Technology, FTMK to make it easier for all lecturers and students of FTMK.

ABSTRAK

Random E-Question Generator for Midterm Examination: The Case Study of Data Structure Subject atau dengan ringkasnya REG, telah dibangunkan dengan tujuan utamanya adalah untuk kemudahan pensyarah-pensyarah mata pelajaran Data Struct di Universiti Teknikal Malaysia Melaka, UTeM dan juga kepada para pelajar yang mengambil mata pelajaran tersebut. Pada masa kini, semua koleksi dan proses untuk membuat soalan peperiksaan dilakukan di atas kertas; pensyarah perlu melakukan analisis terhadap setiap soalan peperiksaan secara manual. Seiring dengan teknologi yang sentiasa berkembang, peperiksaan yang diadakan juga perlu bergerak seiring dengan teknologi. Satu kaedah baru yang dicadangkan adalah dengan membina satu penjana soalan secara rawak dan menggunakan sistem web secara dalam talian. Oleh itu, sistem REG telah dicadangkan untuk Fakulti Teknologi Maklumat dan Komunikasi, FTMK untuk memberi kemudahan kepada pensyarah dan juga pelajar fakulti ini.

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LIST OF ABBREVIATIONS

API	Application Programming Interface
ASP	Microsoft Active Server Pages
CFML	ColdFusion Markup Language
CSS	Cascading Style Sheets
DBMS	Database management System
DDL	Data definition language
ER	Entity Relationship
ERD	Entity Relationship Diagram
FTMK	Fakulti Teknologi Maklumat dan Komunikasi
HTML	Hypertext Markup Language
JDK	Java Development Kits
JSP	Java Server Pages
OOADM	Object Oriented Analysis and Design Method
REG	Random E-Question Generator for Midterm Examination: The Case Study of Data Structure Subject
RNG	Random number generator
RUP	Rational Unified Process
SCM	Software configuration management
SDLC	Software Development Life Cycle
SQL	Structured Query Language
SSADM	Data Flow Diagram
TTS	Text-to-Speech
UML	Unified Modeling Language

UTeM Universiti Teknikal Malaysia, Melaka
XML Extensible Markup Language

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CHAPTER 1

INTRODUCTION

This section will explain project background, problem statements, objectives, scopes, project significance, and conclusion of the proposed system.

1.1 Project Background

This is a project for a system called Random E-Question Generator for Midterm Examination: The Case Study of Data Structure Subject or in short form REG. REG is made especially for the benefit of the lecturer of data structure subject in Universiti Teknikal Malaysia Melaka, UTeM and also for the students that taking the subject.

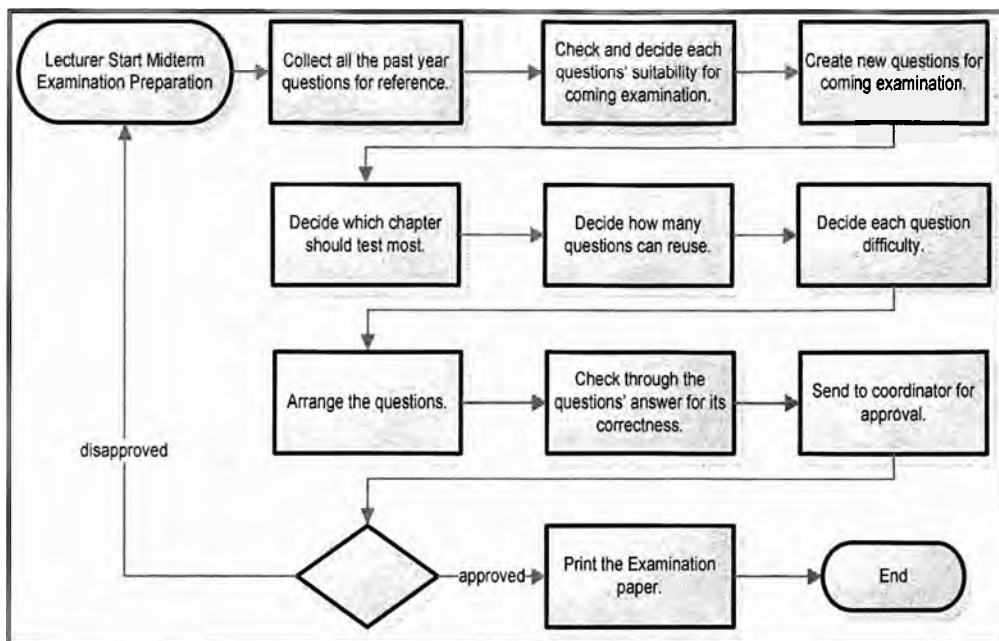


Figure 1.1: Current examination preparation procedure

Figure 1.1 above shows the current examination question preparation by a lecturer. Before lecturers start preparing the questions for the examination, they need to collect all the past year's questions for their reference. After that, they need to check which questions are suitable for next examination. Besides that, they are also requiring to create new questions for the examination. After the questions have been created, they need to combine and arrange all the questions. At the end of the procedure, a coordinator is needed to check through the questions again for its correctness. If the coordinator found an error or the questions are not suitable, the whole procedure must be repeated again. Once the questions have been approved, the set of questions is sent out to print. In the printing process, the questions may leak out and causes many problems that may require the examination to be retest and the problems always cost a lot of time and money.

The REG system is proposed in order to solve all the problems. Figure 1.2 shows how the system is functioning.

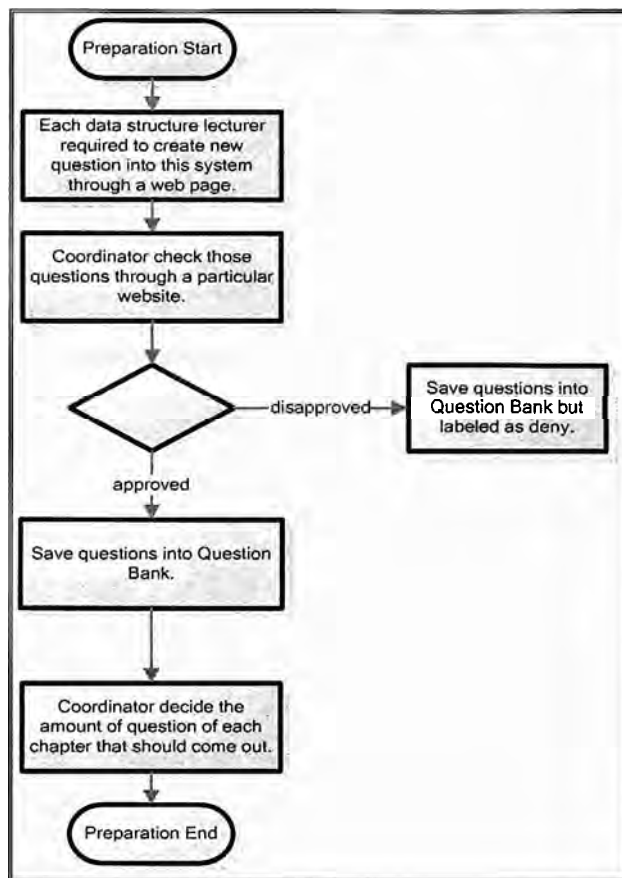


Figure 1.2: Question preparation process of REG system

The examination preparation is simple due to all the questions that already came out in previous examination will be reused. In each semester, data structure lecturer must create new questions to be kept in the Question Bank. Later than that, the coordinator will check either the questions are suitable or not. If not, the questions will still be stored in Question Bank but will be labeled as deny for future reference. After that, the coordinator will decide which chapter should be questioned most and which chapter is less. As soon as all the preparation is done, the examination can start any time. When the examination starts, each student will get different set of questions and it is according to the coordinator choice of chapters.

Besides randomizing the questions, this system also possesses time limit function and the mark calculation function. The meaning is that the online data structure examination will finish on exactly the time that has been announced. Soon after the examination end, this REG system will calculate the result and display it to the students.

Therefore, with REG it can save up more time, money and make the examination more efficiency.

1.2 Problem Statement

There are a few weaknesses identified from the current examination system. Among the main problems identified are listed as below:

➤ **Time Wasting**

The time needed to prepare examination paper is extraordinary long and exhausting. There are such time to collect past year exam paper, time to check the past year questions, time to arrange the questions, time to get approval from coordinator and also time that needed to correct the mistake made during preparation.

➤ **Examination questions may leak out**

There are many possibilities that will lead to the leakage of exam questions such as the printing company sells the exam paper or cause by student hacks into lecturer's computer to get the softcopy of exam paper.

➤ **Money Wasting**

The cost of each examination is not economical. It cost double if the leakage of exam questions happened. The examination has to be canceled and the lecturer needs to redo all the questions and print them all over again.

➤ **Difficult to set examination duration**

It is hard to decide when to end an exam if something emergency occurred such as the interruption of examination paper distribution.

➤ **Students cannot check their result on time**

Students have to wait for some time until lecturer finished marking the paper. Therefore, it is wasting time and human energy.

➤ **Exam questions is not gathered and organized**

Do not have a system to organize all the exam questions and it always needs time to read the paper one by one.

1.3 Objective

➤ **To develop a system that can generate questions randomly**

Every examinee will get different set of question, so that no discipline problem will occur during examination period.

➤ **To fix the examination time**

It is unfair to other examinee if some examinee get extra time than those manage to finish on time.

➤ **To enable student to check their result on time**

Result that announce lately will affect student planning in their study.

➤ **To manage and store all the examination questions**

Collect and check back all past year question is an exhausted task. Therefore, it is better to have a system that can provide data management.

1.4 Scope

As general this system is a web-based application that can generate question randomly by online and display the result straight after the examination ends.

➤ **Only lecturers teaching data structure subject will use this system**

This system can only access by data structure lecturer whether in create questions or organize a test and only an administrator can register each lecturer to the system.

➤ **Only students that registered can use this system**

All students that want to sit for the examination have to register first due to the result that will be announced right after examination ends.

➤ **The system will randomize the question. Therefore, that, each student will get different set of question**

Questions provided to each student must be different so that randomization objective is achieved.

➤ **Only a lecturer with coordinator titled or “*penyelaras*” in Bahasa Malaysia can set each examination requirement**

One lecturer that entitled coordinator can only set the specification for each examination.

➤ **The system will end examination when the time is up**

The duration for each examination must be set and limited. After certain duration, the examination will end and start calculating the result.

➤ **System will display the students’ particular result soon after the examination end**

The system must be able to calculate result on time soon after the time is up.

1.5 Project Significance

Random e-Question Generator for Midterm Examination is necessary due to the vulnerable of current manual system. REG possesses some important benefits:

➤ **Users**

The users that are on offer to use this system are lecturer of data structure and algorithm subject and students who are taking this subject.

➤ **Save cost and time**

By having REG system, lecturers do not need to waste their time in doing the exam paper all over again. It is quite an exhausted job in doing examination paper. Sometimes, until it consume the most of the lecturer time causes the consultation time for students being cut down. Therefore, REG is necessary to bestow more consultation time for students.

➤ **Questions management**

All the questions that are asked in the examination will be saved in the Question Bank for future review and use. Therefore, it does not need to consume a lot of time and energy in searching and analyzing the question repeatedly. Since the questions can be reused, the lecturer will just need to add new questions to the Question bank.

➤ **Reduce discipline problems during examination**

Due to the randomization of the question that REG system possesses, all examinees will get different set of question, and they will only know what the questions are soon after the examination start. Discipline problems will greatly reduce since every student's question set is different. Therefore, no cheating can be carry out by the examinee.

➤ **Reduce questions' leakage problem**

The problem like the leakage of examination question will not happen any more. Due to each examinee will get dissimilar set of question. The examination difficulties is set by the coordinator and letting the system to choose the questions for each student, hence even the lecturer that teaching the subject will not know what question will be asked in examination.

➤ **Fix the examination duration**

The examination will accurately terminate in an exact duration. There will be no extra time will be given for those examinee that come late for the examination.

➤ **Examination's result management**

The examinee will be informed for their result soon after the test terminates. Students can plan and prepare their next semester schedule earlier.

1.6 Expected Output

A web-based application that possesses random features and is able to generates examination questions for data structure midterm from the Question Bank. It sets up the examination environment by having different set of questions for each examinee and the examinee must complete it within a specific duration. The examinees' result will be released soon after the examination terminates.