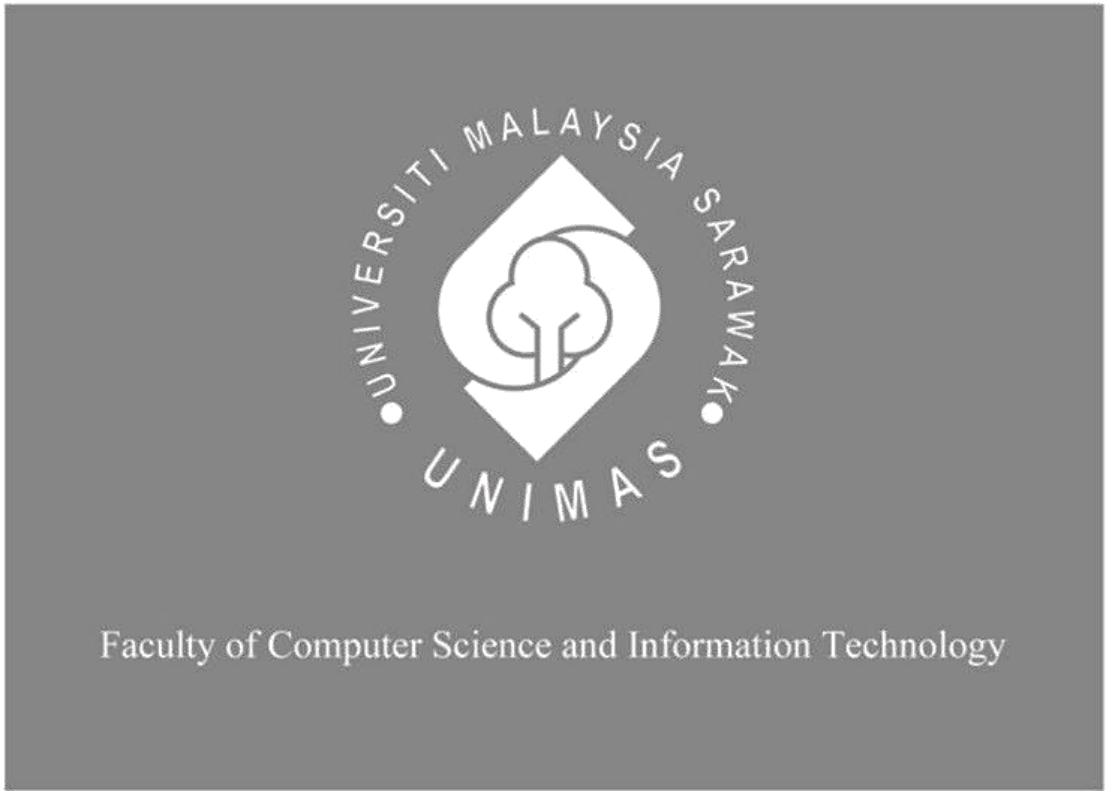

E-TENDER MANAGEMENT SYSTEM FOR TNB LABS SDN. BHD.

Nurin Mirza Binti Mohamad Fairus

Bachelor of Computer Science with Honors

(Network Computing)

2019

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Nurin Mirza Binti Mohamad Fairus

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Nurin Mirza Binti Mohamad Fairus

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Abstract

TNB Labs Sdn. Bhd. is a wholly owned subsidiary for Tenaga Nasional Berhad located at Kajang, Selangor, Malaysia. The Marketing and Commercial Unit of this company has managing their tender process in manual ways and paper-based which includes the email and telephony method for communication, using Microsoft Words and Excel for collecting data and more. Tender process is a vital activity taking parts in any business organization where a direct price competition for a specific product or services happen in order for them to identify the most suitable supplier for their certain needs. However, this difficult process is yet to be so challenging if it is continuously managed manually. Therefore, this report will discuss on ideas and proposed system for TNB Labs to improve their tender process management by integrating them through an electronic commerce platform allowing it to undertake the tender process procedures. In addition, the proposed system will be developed using a Rapid Application Development methodology. These efforts are believed to encourage TNB Labs rapid business growth and to stay competitive among other companies with the aids of the Internet and Web-based application system.

Keywords: TNB Labs Sdn. Bhd., tender process, Rapid Application Development

Abstrak

TNB Labs Sdn. Bhd. Adalah anak syarikat milik penuh untuk Tenaga Nasional Berhad yang terletak di Kajang, Selangor, Malaysia. Unit Pemasaran dan Komersial syarikat ini telah menguruskan proses tender mereka secara manual dan berasaskan kertas termasuk kaedah e-mel dan telefon untuk komunikasi, menggunakan Microsoft Words dan Excel untuk mengumpul data dan banyak lagi. Proses tender adalah aktiviti penting diambil bahagian oleh mana-mana organisasi perniagaan di mana persaingan harga langsung bagi produk atau perkhidmatan tertentu berlaku agar mereka dapat mengenal pasti pembekal yang paling sesuai untuk keperluan tertentu. Walau bagaimanapun, proses yang sukar ini pasti begitu mencabar jika ia terus dikendalikan secara manual. Oleh itu, laporan ini akan membincangkan idea-idea dan sistem yang dicadangkan bagi TNB Labs untuk meningkatkan pengurusan proses tender mereka dengan mengintegrasikannya melalui platform perdagangan elektronik yang membolehkannya melaksanakan prosedur tender. Di samping itu, sistem yang dicadangkan akan dibangunkan menggunakan kaedah Rapid Application Development. Usaha-usaha ini dipercayai untuk menggalakkan pertumbuhan perniagaan TNB Labs yang pesat dan agar mereka terus berdaya saing di antara syarikat-syarikat lain dengan bantuan sistem aplikasi Internet dan berasaskan web.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Tender is an invitation for government authorities or financial bodies to inform their interested suppliers of good and services or stakeholders about bids that available of the need for their services. The tender invitation is commonly about large and lengthy project that must be submitted on a fix timeframe (Kenton, 2019). Issuing tender document remarks the first step in tender process where it includes qualification, technical, legal, financial, contractual information that needs to be fulfilled by the potential suppliers in order to join the bidding. The benefits of tender are to increase networking and pick up other information about businesses among business companies.

Tender process' shortcomings are including insufficient number and almost similar types of bidding received by company, less acknowledgement of tender advertisement to potential suppliers also a robust procedure during selection of qualified bidders to offer contract award. Thus, a tender management system for the issuing authority is essential which aim to enhance the efficiency of this process. Moreover, it is important in order to perform tender process less complex as well as less time consuming while dealing in electronic commerce (e-commerce) platform.

E-Tender Management System is a web-based system focusing on TNB Labs Sdn. Bhd. to assist in managing the tender process electronically also to provide important and relevant information tender notices, requirements for suppliers, policies and procedures, as well as customer relationship management. This online portal also will

assist user to store information in a centralized database. Therefore, this system can enhance tender process efficiency and communication between business companies.

1.2 Problem Statement

Currently, employees at TNB Labs are using traditional method to receive and manage bulk volumes of offers by their potential clients. Microsoft Excel and Microsoft Words are widely used to store suppliers and stakeholders' information as well as to track other previous business activity while telephones and e-mail are use as platform for bidding their proposed price. This may lead in increasing of human errors in storing information and miscommunication during business activity is performed. Besides, this might also probably cause intruders or leak of suppliers' private information for example the company's registration number as it is not saved in secured place.

In addition, potential suppliers or stakeholders find some troubles to acknowledge tenders advertising as they are mainly publicized through newspapers. This caused communication gap issue then decreases the business-to-business (B2B) activities between TNB Labs and their stakeholders.

Other than that, the availability of person in charge to handle the tender process becoming the limitation for supplier application to join the bidding and to register their services prior to tender creation. Interested suppliers need to submit detailed documents and get approval whether their applications approved or else. By using manual method, potential bidder needs to wait their approval in this competitive bid for a long time as it is a very tedious process. Therefore, by having a Tender Management System, it will aid in

the automation and integrates tedious workflow while conducting the whole tender process.

1.3 Scopes

The scopes for this project are:

i. Focus on TNB Labs Sdn. Bhd.

ii. Focus on delivering tender notices to potential suppliers via online portal.

iii. This web-based application system is to aid TNB Labs on performing the tender process electronically.

iv. Store previous and potential supplier's information in a secure database.

1.4 Objectives

The objectives for this project are:

i. To design and develop an E-Tender Management System for TNB Labs where all promoting list of available tenders and up-to-date information are posted through an online portal.

ii. To create Request for Tender (RFT) which functions to allow interested suppliers to view details, download and upload tender-related forms or documents from the portal for tender creations.

iii. To collect suppliers' database for history records and future business activity in order to increase customer relationship management (CRM).

1.5 Brief Methodology

E-Tender Management System for TNB Labs will be developed using Rapid Application Development (RAD) Methodology in order to achieve the objectives of this project. This is because, RAD aimed to a rapid prototyping and application development to ensure faster product delivery to targeted client. The benefit of implementing RAD methodology is that the development of the entire process is faster and effortless yet comply client's needs.

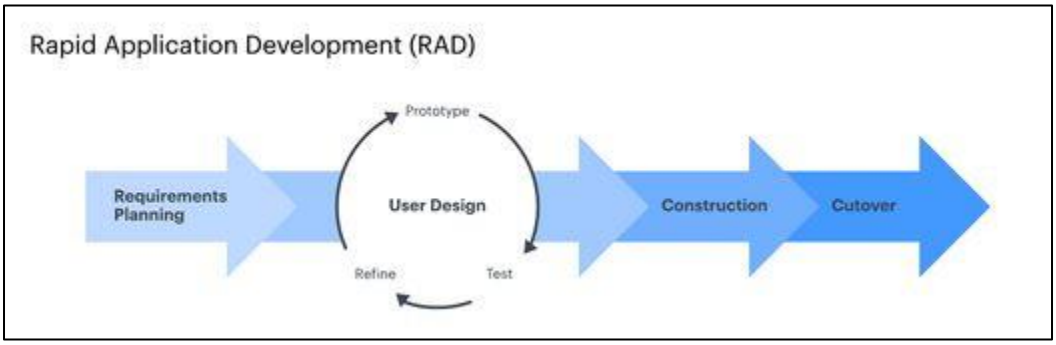


Figure 1.1: Rapid Application Development Model. Adapted from 4 Phases of Rapid Application Development Methodology, Lucidchart Content Team, 2019, Retrieved from https://www.lucidchart.com/blog/rapid-application-development-methodology. Copyright 2019 by Lucid Software Inc.

RAD methodology consists of four main phases which are the analysis and quick design, prototype cycles, testing and last but not least, the deployment phase. Brief descriptions of the four phases are as follow:

1.5.1 Requirements Planning

During this phase, students need to determine goals and the expected outcome for this project. Student will have a meeting and discussion with supervisor to identify the requirements needed in order to create the project. The breakdown of this phase including performing research of the current issues and define the project objective.

1.5.2 User Design

By the implementation of RAD methodology, after completed the first phase the next phase to be performed is to build out the user design through various prototype iterations. After the prototype is built, students are required to test and refine. In this phase, student or developer needs to work hand-in-hand with client to make sure all the requirements are met.

1.5.3 Construction

During construction phase, the prototype built from previous phased will be adapted into a real-working model. Then it will be tested for data entry using dummy data. This phase also involving testing all software functions to make sure it is working in a perfect way and fulfil all the requirements.

1.5.4 Cut Over

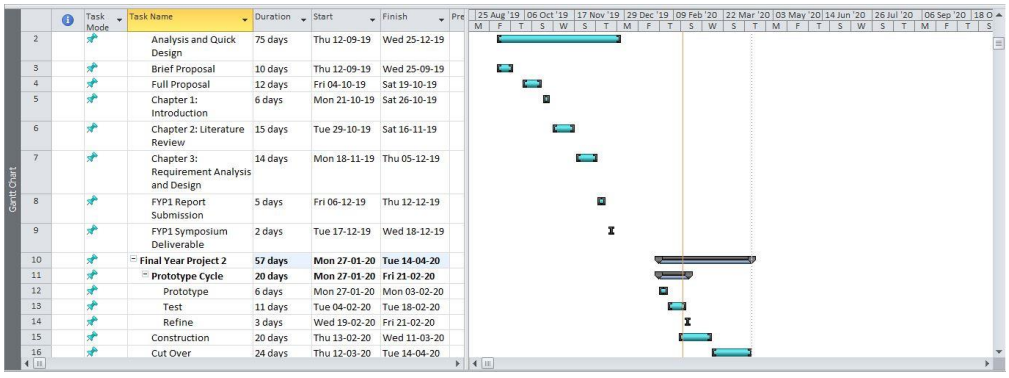
Cut Over phase is the final and most crucial phase. This is because a complete working model is expected to achieve all the objectives and requirement by client is accomplished. In this phase, final prototype will be completely built in order to be used by targeted user.

1.6 Significance of Project

E-Tender Management System for TNB Labs Sdn. Bhd. will help the organization by decreasing difficulties they are facing in the moment by enhancing the tender process flow from issuing invitations, request for tender by suppliers, evaluate qualified bidders until contract awards. This will decrease human interaction and human labor as all the processes will be performed via online at any time as long as there is available Internet connection. TNB Labs also may increase networks with other competitive company in business ventures through embedding technology.

1.7 Project Schedule

Project schedule is important for project developer to track their current status of the project and to ensure their project will be completed in a finite date. Project schedule consists of a list of task that must be performed with intended period. A project schedule for Final Year Project 1 and 2 has been created using Microsoft Project Professional 2010. Gantt chart in Appendix A represents the task involved during FYP 1 and 2 with its respective date.



	Task Mode	Task Name	Duration	Start	Finish
2		Analysis and Quick Design	75 days	Thu 12-09-19	Wed 25-12-19
3		Brief Proposal	10 days	Thu 12-09-19	Wed 25-09-19
4		Full Proposal	12 days	Fri 04-10-19	Sat 19-10-19
5		Chapter 1: Introduction	6 days	Mon 21-10-19	Sat 26-10-19
6		Chapter 2: Literature Review	15 days	Tue 29-10-19	Sat 16-11-19
7		Chapter 3: Requirement Analysis and Design	14 days	Mon 18-11-19	Thu 05-12-19
8		FYP1 Report Submission	5 days	Fri 06-12-19	Thu 12-12-19
9		FYP1 Symposium Deliverable	2 days	Tue 17-12-19	Wed 18-12-19
10		**Final Year Project 2**	**57 days**	**Mon 27-01-20**	**Tue 14-04-20**
11		**Prototype Cycle**	**20 days**	**Mon 27-01-20**	**Fri 21-02-20**
12		Prototype	6 days	Mon 27-01-20	Mon 03-02-20
13		Test	11 days	Tue 04-02-20	Tue 18-02-20
14		Refine	3 days	Wed 19-02-20	Fri 21-02-20
15		Construction	20 days	Thu 13-02-20	Wed 11-03-20
16		Cut Over	24 days	Thu 12-03-20	Tue 14-04-20

Figure 1.2: Gantt Chart of Final Year Project 1 and 2

1.8 Expected Project Outcomes

The expected outcomes from this project are:

i. E-Tender Management System for TNB Labs assisting in promoting related marketing information to suppliers has been developed.

ii. Database of suppliers detail has been collected in a proper way.

iii. Final Year Project 1 and Final Year Project 2 report have been completed.

1.9 Project Report Outline

The project report outline is structured into five chapters as follows:

Chapter 1- Introduction

In this chapter, it focuses on the problem definition and description of proposed project in order to let readers know about the detailed view of the project applications. Secondly, Chapter 1 is inclusive of the introduction, problem statement of the project, objectives, methodology used, significance of study, project schedule and the expected outcomes from this proposed project. In the problem statement section, it describes the current issues and challenges that occur to the general public nowadays. Next, objective is to describe the desired goal that needs to be achieved by the proposed project in order to solve those issues and challenges mentioned in the previous section. Methodology explains on how the chosen methodology, which is the Rapid Application Development (RAD) is used to develop the proposed application. In addition, project schedule lists out all the activities and milestones to ensure the proposed project can be accomplished

within a time period. Last but not least, the expected outcome describes the expected achievements and results of the proposed application.

Chapter 2- Literature Review

In this chapter, it will discuss about the reviews based on the existing application that already can be found in the market. In addition, Chapter 2 will focus critically about the literature reviews. The constraints that can be found I the existing application will be analyzed and briefly discuss about how the proposed application can improve the drawbacks. Furthermore, Chapter 2 also inclusive the technique, technology tools, skills that will be used to develop the proposed application. Last but not least, the overall background study will be accomplished based on the materials like article, journal, web site and conference paper.

Chapter 3- Requirement Analysis and Design

In this chapter, it will portray about the methodology used for the development of the proposed project. Besides, it also discusses about the methods of obtaining requirements from the stakeholders or targeted user of the proposed project. Chapter 3 is also concerned with presenting the design of the proposed project and justifying how it should meet the requirements. Therefore, this chapter will include Flow Chart, Use Case Diagram, Entity Relationship Diagram (ERD) and data dictionary to prompt the proposed application's database structure. Last but not least, in Chapter 3 is inclusive about the layout design of the proposed project.

Chapter 4- Implementation and Testing

In this chapter, it will focus on the detailed description and justification of proposed project's implementation. Not to mention a walk-through of proposed project will be carried out to explain its behavior and relating it to the design. Moreover, testing of the proposed project will also be done in Chapter 4 where the environment of all tests should be specified completely. Last but not least, the features and functionalities of the proposed project will also be evaluated in this chapter.

Chapter 5- Conclusion and Future Work

In this chapter, it will present the conclusion about the whole project and outlines the future work. The lessons and obstacles obtained from this project will be presented with appropriate ways in exampling them. Last but not least, Chapter 5 will also include the new ideas that can be improved in the project for future work if necessary.

1.10 Summary

In a nutshell, in this Chapter 1, it gives idea related on the proposed E-Tender Management System for TNB Labs Sdn. Bhd. for readers' detailed view. Additionally, the proposed project will come out with a web-based system which helps targeted user to perform tender process in an online platform.