ADOPTING CBD WITH REUSE IN THE KEZB E-COMMERCE WEBSITE DEVELOPMENT BY USING WORDPRESS CMS APPLICATION

NUR MARISSA VEE BINTI SENAP

A project report submitted in partial fulfilment of the
requirements for the award of the degree of
Master of Software Engineering

Advanced Informatics School
Universiti Teknologi Malaysia

JUNE 2017

Alhamdulillah…

All praised and glory to Allah.

This is for beloved husband and family.

ACKNOWLEDGEMENT

In the name of Allah, The Most Gracious, The Most Merciful. Peace and blessing be upon our noble prophet Muhammad (SAW), upon his family and companions. My profound gratitude goes to The Almighty Allah (SWT) for all the blessing and mercy throughout this journey.

I would like to express my deepest gratitude to my Academic Mentor, Mdm. Yazriwati Yahya who I seek for advice and guidance throughout the project. I am thankful for her concern, dedication and patience all this while. She has always been there for me when I need motivation. May Allah (SWT) bless her for her kind help. Thanks also to examiners for their constructive critics and comment.

My sincere appreciation also goes to Koperasi Eliz Zain Berhad who given me an opportunity to be part of their organization for the last six (6) months. Many thank to my Industrial Mentor Ms. Siti Nurazimah Abdul Rahim, Mrs. Noradida Abdullah and the management team for their kind support and knowledge shared. Not to forget, special thanks to Mr. Azzali Zain Mohd Zakaria and Mrs. Zuliana Eliza Abdullah the most understanding and supportive Chairman and Vice Chairman, without their support this project could not be successfully conducted.

Finally, my eternally grateful goes to my greatest backbone, husband, family and friend for their sacrifice and support throughout my journey. I could not have come this far without their endless prayer and tremendous support. May Allah (SWT) reward them here and hereafter.

ABSTRACT

The development of e-Commerce website is complex and time consuming. It required specific amount of technical knowledge and very costly in order to successfully develop a complete beautiful e-Commerce website. However, these days, there is a new Software Engineering (SE) strategy introduced replacing the traditional way of developing website by automating the development process. This strategy promoted the use of reusable component to develop a complete website named Component-Based Development (CBD) design strategy. Unfortunately, still there are many organizations or business entities that keeps on invest in high cost website development. An adoption of CBD approach can actually reduce the development time and cost. The software project of KEZB e-Commerce Website development is used as case study case in this report. This project focuses on adopting a CBD design strategy by using WordPress Content Management System (CMS) to develop the e-Commerce website. On top of that, other SE practices such as standard documentation, modelling technique, and development model is used throughout the development lifecycle. The selection of these practices is according to characteristics of project and organization's nature. There are two (2) processes introduced in CBD design strategy which are design for reuse and design with reuse. In this project, the e-Commerce website will be designed and developed by adopting the design with reuse process by using selected design tools. The largely used design tool that follows the key concept of reuse is CMS. CMS is a developing tools or computer application that enables the creation and alteration of the digital content easily without the need of technical knowledge. The standard for documentation used in this project is the DoD Standard. At the end of this project Software Requirement Specification (SRS) and Software Design Document (SDD) are produced. Waterfall model is selected as a development methodology which comprises of Requirement, Analysis, Design, Implementation, Testing and Deployment phase. However, Testing phase is not conducted in this project due to time constraint. Other than that, UML modelling technique is used as a notation in developing the analysis and design model. Overall, the CBD design strategy with reuse process can rapid the development process and ensure a high quality software product; CMS application is a cost effective and helpful development tools; and software documentation and methodology can be used to manage and keep track software project effectively.

ABSTRAK

Pembangunan laman web e-Commerce adalah kompleks dan mengambil masa. Ia memerlukan pengetahuan teknikal dan adalah sangat mahal untuk membangunkan laman web e-Commerce yang lengkap dan cantik. Walau bagaimanapun, kini terdapat strategi pembangunan Kejuruteraan Perisian (SE) yang baru diperkenalkan menggantikan cara tradisional untuk membangunkan laman web dengan mengautomasikan proses pembangunan. Strategi ini menggalakkan penggunaan komponen yang boleh diguna semula untuk membangunkan laman web lengkap yang dinamakan strategi reka bentuk Pembangunan Berasaskan Komponen (CBD). Malangnya, masih terdapat banyak organisasi atau entiti perniagaan yang masih melabur dalam pembangunan laman web yang berkos tinggi. Penggunaan CBD sebenarnya boleh mengurangkan masa pembangunan dan kos. Projek pembangunan Laman Web e-Commerce KEZB digunakan sebagai kes untuk kajian kes dalam laporan ini. Projek ini memberi tumpuan kepada penggunaan strategi reka bentuk CBD dengan menggunakan Sistem Pengurusan Kandungan (CMS) WordPress untuk membangunkan laman web e-Commerce. Selain itu, amalan lain SE seperti piawai dokumentasi, teknik pemodelan, dan model pembangunan akan digunakan di sepanjang kitaran hayat pembangunan. Pemilihan amalan-amalan ini adalah berdasarkan ciri-ciri projek dan sifat organisasi. Terdapat dua (2) proses yang diperkenalkan dalam strategi reka bentuk CBD iaitu reka bentuk untuk digunakan semula dan reka bentuk dengan penggunaan semula. Dalam projek ini, laman web e-Commerce akan direka bentuk dan dibangunkan dengan menggunakan proses reka bentuk dengan penggunaan semula dengan menggunakan alat reka bentuk yang dipilih. Alat reka bentuk yang sebahagian besarnya digunakan yang mengikuti konsep penggunaan semula adalah CMS. CMS adalah alat pembangunan atau aplikasi komputer yang membolehkan penciptaan dan pengubahan kandungan digital dengan mudah tanpa memerlukan pengetahuan teknikal. Piawai untuk dokumentasi yang digunakan dalam projek ini adalah Piawai DoD. Pada akhir projek ini, Spesifikasi Keperluan Perisian (SRS) dan Dokumen Rekabentuk Perisian (SDD) dihasilkan. Model Air Terjun dipilih sebagai kaedah pembangunan yang terdiri daripada fasa Keperluan, Analisis, Rekabentuk, Pelaksanaan, Pengujian dan Penggunaan. Walau bagaimanapun, fasa Pengujian tidak dijalankan dalam projek ini kerana kekangan masa. Selain dari itu, teknik pemodelan UML digunakan sebagai notasi dalam membangunkan model analisis dan reka bentuk. Secara keseluruhan, strategi reka bentuk CBD dengan proses penggunaan semula boleh mempercepatkan proses pembangunan dan memastikan produk perisian yang berkualiti tinggi; aplikasi CMS adalah alat pembangunan yang kos efektif; dan dokumentasi perisian dan kaedah pembangunan boleh digunakan untuk mengurus dan memantau projek perisian dengan berkesan.

TABLE OF CONTENTS

CHAPTER	TITLE		PAGE
	DECLARATION		ii
	DEDICATION		iii
	ACKNOWLEDGEMENT		iv
	ABSTRACT		v
	ABSTRAK		vi
	TABLE OF CONTENTS		vii
	LIST OF TABLES		xi
	LIST OF FIGURES		xii
	LIST OF ABBREVIATIONS		xiv
	LIST OF APPENDICES		xvi
1	**PROJECT OVERVIEW**		**1**
	1.1	Introduction	1
	1.2	Company Background	2
	1.3	Background of the Problem	3
	1.4	Project Objectives	5
	1.5	Project Scope	6
	1.6	Project Importance	6
	1.7	Project Deliverables	7
	1.8	Project Schedule	7
	1.9	Chapter Summary	8

2	**LITERATURE REVIEW**		**9**
	2.1	Introduction	9
	2.2	Background Study of KEZB Commercialization	9
		2.2.1 Challenges in KEZB Commercialization	13
	2.3	Electronic Commerce (e-Commerce)	14
		2.3.1 Payment System	18
		2.3.2 Privacy Policy	23
	2.4	Existing e-Commerce Website	24
		2.4.1 Mukmin Mall	25
		2.4.2 Mehr Dates	26
		2.4.3 Qaseh Gold	27
		2.4.4 GMH Health & Beauty	28
		2.4.5 Medic Herbs	29
		2.4.6 Comparison of existing e-Commerce with KEZB e-Commerce	30
	2.5	Software Engineering Practices	32
	2.6	Software Development	35
		2.6.1 Component Based Development	36
	2.7	Web Development Technologies	40
		2.7.1 Content Management System (CMS)	40
	2.8	Software Development Methodology	49
		2.8.1 Waterfall Model	49
		2.8.2 Spiral Model	50
		2.8.3 Prototyping Model	51
		2.8.4 Extreme Programming Model	52
		2.8.5 SDM comparison	53
		2.8.6 SDM Pros and Cons	54
		2.8.7 SDM Selection	55
	2.9	Software Documentation Standard	56
	2.10	Chapter Summary	57
3	**PROJECT METHODOLOGY**		**58**
	3.1	Introduction	58
	3.2	Project Methodology	58

	3.2.1	Literature Survey	60
	3.2.2	Model Selection	61
	3.2.3	Implementation	62
		3.2.3.1 Requirement Phase	64
		3.2.3.2 Analysis Phase	64
		3.2.3.3 Design phase	65
		3.2.3.4 Construction Phase	66
		3.2.3.5 Deployment phase	67
	3.2.4	Review	67
	3.2.5	Project Development Process Summary	68
	3.2.6	Software Design Technique	69
		3.2.6.1 Unified Modelling Language (UML)	69
	3.2.7	Software Tools	70
		3.2.7.1 CMS WordPress 4.7.5	70
		3.2.7.2 Rational Rose Enterprise Edition 2003	73
		3.2.7.3 Microsoft Word 2010	73
		3.2.7.4 Microsoft Visio Professional 2013	74
		3.2.7.5 Adobe Photoshop CS6	74
	3.2.8	Software Documentation	74
	3.3	Chapter Summary	75
4	**PROJECT DISCUSSION**		**76**
	4.1	Introduction	76
	4.2	Software Engineering Practices Implemented in KEZB e-Commerce Website Development	76
	4.3	Requirement and Analysis	78
	4.3.1	Prototypes	80
	4.3.2	Use Case Diagram	86
	4.3.3	Sequence Diagram	88
	4.4	Design	95
	4.4.1	Architecture design	95
	4.4.2	User Interface Design	97
	4.5	Construction	99
	4.5.1	Plugin Setup and Installation	101

		4.5.2 Editing and Customization	103
	4.6	Deployment	118
	4.7	Chapter Summary	119
5	**CONCLUSION**		**120**
	5.1	Introduction	120
	5.2	Lesson Learnt	120
	5.3	Challenges	121
	5.4	Future work	122
	5.5	Summary	122
REFERENCES			**123**
Appendices 1-48			128-155

LIST OF TABLES

TABLE NO.	TITLE	PAGE
1.1	Project Planning	7
2.1	Comparison of conventional commerce and e-commerce	16
2.2	Pros and cons of e-Commerce	17
2.3	Online payment gateway comparison	21
2.4	Comparison of existing organization with KEZB	30
2.5	Common features of existing e-Commerce website	31
2.6	Knowledge Area Application	33
2.7	CMS comparison	42
2.8	WordPress e-Commerce plugin	47
2.9	Comparison of SDM	53
2.10	SDM Pros and Cons	54
2.11	KEZB Project Characteristics	55
2.12	Software Documentation Standard Comparison	57
3.1	Project Development Process Summary	68
3.2	UML modelling for KEZB e-Commerce Website	69
3.3	Software Documentation Description	75
4.1	Adopted SE Practices	77
4.2	Summary of KEZB Website Functionality	79
4.3	Prototypes Description	80
4.4	Requirement Classification	86
4.5	Use Case Description	87
4.6	Traceability Matrix- Functionality vs Component	98
4.7	Installed Plugins	102
4.8	User Interfaces Implementation of Website	104

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
1.1	EZK Group Organization Chart	2
1.2	KEZB’s Logo	3
2.1	KEZB's Facebook Account	10
2.2	KEZB’s Business page	11
2.3	KEZB’s Instagram account	11
2.4	KEZB’s Blogspot site	12
2.5	KEZB’s Product pamphlet	12
2.6	Internet Usage by Frequency, Malaysia, 2013 and 2015	15
2.7	Internet Usage by Activities, Malaysia, 2013 and 2015	15
2.8	Mukmin Mall shop interface	25
2.9	Mehr Dates shop interface	26
2.10	Qaseh Gold Shop interface	27
2.11	GMH Beauty & Health shop interface	28
2.12	Medic Herbs shop interface	29
2.13	SWEBOK logo	32
2.14	CBD with reuse	38
2.15	WordPress Plugin Example	44
2.16	WordPress Plugin Review & Rating Example	45
2.17	Out-dated WordPress Plugin Example	46
2.18	Waterfall model	50
2.19	Boehm’s spiral model	51
2.20	Prototyping model	52
2.21	XP release cycle	53
3.1	Project Methodology	59

3.2	Implementation Process Flow	63
3.3	WordPress Default Administrator Dashboard	71
3.4	WordPress Theme Customization	71
3.5	WordPress Plugin Editor	72
3.6	WordPress User Editor	73
4.1	Use Case Diagram for KEZB Website	87
4.2	Sequence Diagram for Register	89
4.3	Sequence Diagram for Browse Post	89
4.4	Sequence Diagram for Contact Admin	90
4.5	Sequence Diagram for Make Purchase	91
4.6	Sequence Diagram for Login (registered user)	92
4.7	Sequence Diagram for Login (Admin)	92
4.8	Sequence Diagram for Manage Post	93
4.9	Sequence Diagram for Manage Product	94
4.10	Sequence Diagram for View Transaction Report	94
4.11	KEZB e-Commerce Website's Architecture	96
4.12	Component Diagram	97
4.13	Product Photo-shooting	99
4.14	WordPress Administrator Login Panel	100
4.15	KEZB e-Commerce Website Administrator Dashboard	100
4.16	WordPress Plugins Homepage	101
4.17	Customize with Live Editor	103

LIST OF ABBREVIATIONS

API	Application Program Interface
B2B	Business To Business
B2C	Business To Consumer
CBD	Component-Based Development
CMS	Content Management System
CSS	Cascading Style Sheet
DOD	Department Of Defense
EZK	Eliz, Zain & Kadariah
FAQ	Frequently Asked Question
FPX	Financial Process Exchange
GUI	Graphical User Interface
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
ICT	Information Communication technology
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
ISO	International Standards Organization
KEZB	Koperasi Eliz Zain Berhad
MIL STD	Military Standard
PDPA	Personal Data Protection Act
PDR	Preliminary Design Review
PHP	Hypertext Preprocessor
SDD	Software Design Document
SDLC	Software Development Lifecycle

SDM	Software Development Methodology
SE	Software Enginerring
SEO	Search Engine Optimization
SQL	Structured Query Language
SRS	Software Requirement Specification
SSR	Software Specification Review
SWEBOK	Software Engineering Body of Knowledge
UML	Unified Modelling Language
XP	Extreme Programming

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
1	Stock's Form	128
2	Minimum withdrawal amount for PayPal	129
3	Sequence Diagram for Register (Username already registered)	130
4	Sequence Diagram for Register (Invalid email)	130
5	Sequence Diagram for Register (Email already registered)	131
6	Sequence Diagram for Register (Empty field)	131
7	Sequence Diagram for Register (Invalid username)	132
8	Sequence Diagram for Register (Invalid password)	132
9	Sequence Diagram for Browse Post (Home menu)	133
10	Sequence Diagram for Browse Post (About Us menu)	133
11	Sequence Diagram for Browse Post (Product menu)	134
12	Sequence Diagram for Browse Post (Gallery menu)	134
13	Sequence Diagram for Browse Post (Contact Us menu)	135
14	Sequence Diagram for Browse Post (Language switcher button)	135
15	Sequence Diagram for Browse Post (Search button)	136
16	Sequence Diagram for Browse Post (Social Media links)	136
17	Sequence Diagram for Browse Post (Shopping Cart button)	137
18	Sequence Diagram for Browse Post (Login button)	137
19	Sequence Diagram for Contact Admin (User attach file)	138
20	Sequence Diagram for Contact Admin (Incomplete required Field)	138
21	Sequence Diagram for Make Purchase (Prompt login)	139

22	Sequence Diagram for Make Purchase (Incomplete order information)	139
23	Sequence Diagram for Login (User login)	140
24	Sequence Diagram for Login (Admin login)	140
25	Sequence Diagram for Login (Invalid username)	141
26	Sequence Diagram for Login (Invalid password)	141
27	Sequence Diagram for Manage Post (Add new post)	142
28	Sequence Diagram for Manage Post (Update post)	142
29	Sequence Diagram for Manage Post (Delete post)	143
30	Sequence Diagram for Manage Post (Did not confirm changes)	143
31	Sequence Diagram for Manage Product (Add new product)	144
32	Sequence Diagram for Manage Product (Update product)	144
33	Sequence Diagram for Manage Product (Delete product)	145
34	Sequence Diagram for Manage Product (Did not confirm changes)	145
35	Sequence Diagram for View Transaction Report (View order Reports)	146
36	Sequence Diagram for View Transaction Report (View customer report)	146
37	Sequence Diagram for View Transaction Report (View stock report)	147
38	Class Diagram	147
39	State Transition Diagram of Admin Mode	148
40	State Transition Diagram of User Mode	149
41	Activity Diagram for Register	150
42	Activity Diagram for Browse Post	151
43	Activity Diagram for Contact Admin	152
44	Activity Diagram for Make Purchase	153
45	Activity Diagram for Login	153
46	Activity Diagram for Manage Post	154
47	Activity Diagram for Manage Product	155
48	Activity Diagram for View Transaction Report	155

CHAPTER 1

PROJECT OVERVIEW

1.1 Introduction

Integrating information technology and communication aspects in the business operation is a new paradigm in business industry. The use of technology in the business is crucial for business competitiveness. A websites or webpages is one of the technology elements that are widely used in business. It can be used by individual, company, or organization as one of the commercialization effort. In business normally website is used as a commercial website. The management of the commercial always deal with several activities such as marketing, supply chain, sales and reporting. These activities can be improved with the used of e-Commerce website as a medium of information dissemination and data processing.

In this project, the development of the e-commerce website called KEZB Website should be one of the commercialization efforts that can ease the managerial process of the Koperasi Eliz Zain Berhad (KEZB). The KEZB Website will be used as a data processing method to ease the administrator to manage order, stock and generate report. At the same time KEZB Website will act as a platform for KEZB to market and sell their products and services directly to consumer. Consumer can get information and buy products online.

In this chapter, the background study of the project, including project objectives, scope, importance, deliverables and plan will be discussed.

1.2 Company Background

EZK Group is a business consortium consisting mainly of a Legal Firm, Messrs. Eliz, Zain & Kadariah, and a Cooperative Society, Koperasi Eliz Zain Berhad (KEZB), with a few subsidiaries under the wings of KEZB. The Legal Firm is under the supervision of two partners, whilst KEZB is the business arms under the management of the appointed employees of the Legal Firm. Aside from the normal legal works undertaken by the Legal Firm, EZK Group envisages to expand its businesses via KEZB through the numerous subsidiaries under it and through various ventures it has currently undertaken and contemplates to undertake in the near future, domestically and abroad. The EZK Group's organizational structure is as illustrated in Figure 1.1 below.

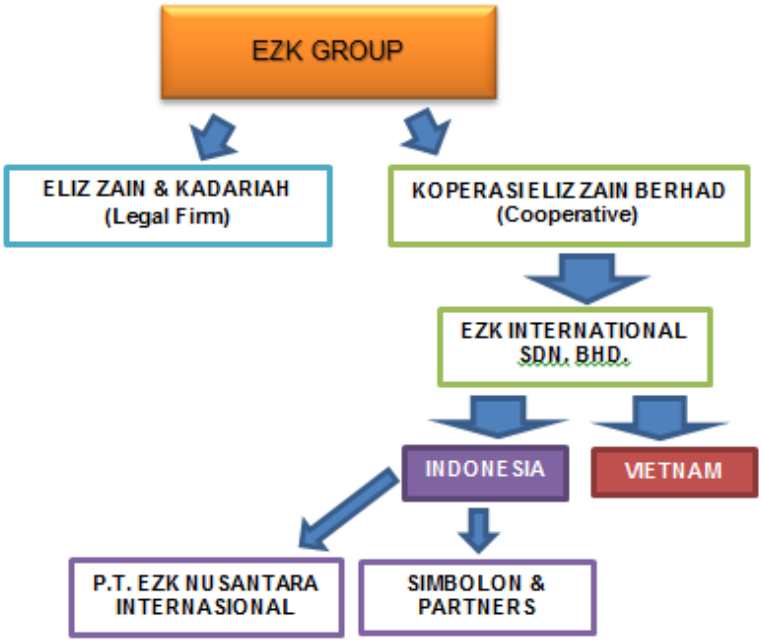

Figure 1.1 EZK Group Organization Chart

Koperasi Eliz Zain Berhad (KEZB) is a co-operative (co-op) established in 2015 and registered under the Malaysia Co-operative Commission. The members consist of the current and former employees of the Legal Firm of Eliz, Zain & Kadariah and their related family-members. The main objective in establishing KEZB is to enhance the financial standing of its members via its business activities.

Currently, KEZB is involves in retail such as selling products direct to consumers, primarily on offline basis through opening kiosk and actively joining public events. The products are either owned by KEZB or sourced from independent suppliers.

Figure 1.2 KEZB's Logo

1.3 Background of the Problem

EZK Group is a non-tech organization which does not practice any software practices in their daily business operation and there is no in-house development team. Due to that, they are lacking in term of knowledge regarding software development. Previously, EZK Group subcontracts the software project to the outside vendor without having continuous involvement and communication throughout the development process. The development process is not transparent throughout the project lifecycle.

On top of that, there is no policy in term of subcontracting software project is established within the organization and vendor. For that reason, EZK Group are having problem in managing software project. They cannot keep track and influence the project progress as there is no contractual document is being made. In result, they always ended up paying for the project that does not meet their needs and expectations. What they really want is not covered and catered at the end of the project.

At the same time, EZK Group is looking into alternatives to support and solves the problems in the current business operation of one of its subsidiary which is KEZB. The current workflow of KEZB involves sourcing products, transportation, marketing, retailing, stock checking and managing suppliers. This requires a number of man powers to manage the overall operation. Since KEZB is just established, its human resources are limited in term of number and experience. This affects the overall performance of the KEZB.

KEZB used manual data processing in their management. They manually manage and handled their data such as order, customer, supplier, and stock by using paper based system. This requires lots of effort to process the data manually. For example, there are many product available for retail and they need to keep record the stock manually. Sometimes, when receive many orders or sales; they failed to record all the transaction systematically. This situation will cause problem when KEZB want to audit their account as the total sales and stock is not telly.

The manually processed data does not only consume large amount of effort but time as well. For example, stock checking and updating requires some times to go through one by one of all the stock available in the warehouse. The stock must be updated frequently to ensure the process of supply chain is sufficient for specific time period. Failed to update stock frequently will cause the inventory shortage risk. This has led to the problem of stock shortage because KEZB cannot update their stock systematically.

Furthermore, the manually processed data is not stored in the proper database. KEZB frequently claimed that data retrieving is difficult as they need to manually search and sort the data. This is due to the data are not synchronize. On top of that, the possibility of data loss is high because they just depend on paper based record which can be misplaced or missing.

Besides that, the marketing and promotional activity to advertise the product is effort and time consuming. KEZB need to frequently design and produce

pamphlet or brochure to introduce their new product. This type of marketing tool needs an extra effort and creativity to engage consumer more effectively by presenting the product information and benefits. As the pamphlet is paper based, the information representation is limited and less attractive. On top of that, the use of social media to promote products also needs a very responsive effort. Frequent update is required to ensure effective business interaction. KEZB is having limited time and resources to entertain and manage their business interaction through their social media.

Therefore, in order to move forward, KEZB needs software documentation to manage software project effectively. By using proper documentation, KEZB can keep track the future work progress by the vendor. Apart from that, the used of web-based information system can systematically support and automate the KEZB business administration online such as retailing, stock checking, product sorting, report generating and marketing, complementing the existing conventional business operation.

1.4 Project Objectives

The objectives of the project are named below:

1. To study on the Content Management System (CMS) applications for e-Commerce website.
2. To identify the requirement needed for KEZB e-Commerce Website.
3. To design the KEZB e-Commerce Website based on the Component-Based Development (CBD) design strategy.
4. To develop the KEZB e-Commerce Website using selected CMS application.

1.5 Project Scope

The scope of the project is listed as follow:

- Propose the use of Project Requirement Document to record the preliminary business needs and expectations.
- To prepare Software Requirement Specification (SRS) during the requirement gathering phase and Software Design Document (SDD) during the design phase following the DoD-Std-2167A standard.
- To develop the KEZB e-Commerce Website using CMS application that will be used by user and administrator to facilitate and support the business operation of the cooperative.

1.6 Project Importance

This project is important because of the following:

1. Apply software engineering practices during the development of the website will educate stakeholders on the software development process.
2. Introduce software development document as a contractual document will help in managing the software project effectively.
3. The organization will have its own officially website to assist in promoting its services.
4. The e-Commerce website will give a systematic and cost efficient way of conducting business. The organization can reduce the business cost such as renting business property, advertising and labour cost.
5. The e-Commerce website will be used as a medium for information and communication.
6. The use of e-Commerce website will help the organization to widen the business market and develop market prospects because internet usage is widespread.

7. The e-Commerce website will provide opportunities for suppliers and distributors to collaborate in marketing their product and gain mutual benefit.

1.7 Project Deliverables

The deliverables of this project are as follow:

1. Literature review on Content Management System (CMS) applications.
2. Software Requirements Specification (SRS).
3. Software Design Document (SDD).
4. E-Commerce website.

1.8 Project Schedule

The planning for this project is described in Table1.1.

Table 1.1: Project Planning

Activities	Start	Finish	Duration
INITIATION			
- Ice breaking meeting - Discussion on possible project	23/01/2017	27/01/2017	4 days
REQUIREMENT			
- Requirement Elicitation	30/01/2017	03/02/2017	5 days
- Preparing Project Requirement Document (PRD)	03/02/2017 08/02/2017	08/02/2017 13/02/2017	6 days 6 days
- Review and approval			
ANALYSIS			
- Requirement Analysis	13/02/2017	24/02/2017	1 weeks+
- Prepare Software Specification Requirement (SRS)	20/02/2017 28/02/2017	27/02/2017 03/03/2017	1 weeks+ 4 days
- Review and decision making			

PROJECT 1: PROPOSAL - Write Chapter 1-5 report	06/03/2017	30/03/2017	3 weeks+
DESIGN - Preliminary design - Prepare Software Design Document (SDD) - Review and decision making	03/04/2017 11/04/2017 18/04/2017	10/04/2017 17/04/2017 19/04/2017	1 weeks+ 1 weeks 2 days
IMPLEMENTATION - Installation and setup - CMS customization - Plugins installation - Unit Testing	20/04/2017 25/04/2017 03/05/2017 15/05/2017	21/04/2017 02/05/2017 12/05/2017 17/05/2017	2 days 1 week 1 weeks+ 3 days
PROJECT 2: PROJECT REPORT - Write Chapter 1-7 report - Prepare user manual & demonstration/presentation - Handover deliverables & Project Closure	18/05/2017 08/06/2017 15/06/2017	07/06/2017 14/06/2017 16/06/2017	3 weeks 5 days 2 days

1.9 Chapter Summary

This chapter provides an overview of the developed project by outlining the background study of the organization. Then, the background of the problem is discussed following by defining the project objectives, scope, importance, deliverables and schedule. The literature review of this project is conducted and discussed in next following chapter.

REFERENCES

Aleinikov, S. (2014). Use of MODX CMS in E-Commerce. International Scientific Conference of Young Scientists And Students (p. 3). Kharkiv, Ukraine: Simon Kuznets Kharkov National University of Economics.

Anvari, R. D., & Norouzi, D. (2016). The Impact of E-commerce and R&D on Economic Development in Some Selected Countries. Procedia - Social and Behavioral Sciences, 354-362.

Ariyani, W., Hanantjo, D., & Purnama, B. E. (2015). E-Commerce Web Development in Wiga Art. International Journal of Science and Research, 4(5), 379-384.

Automattic. (2017). WooCommerce Features. Retrieved June 1, 2017, from WooCommerce: https://woocommerce.com/features/

Berkenbrock, G. R., Alves, O. C., & Medeiros, D. (2015). The need of software development process for wireless sensor network with cooperative nodes. 930-933.

Biagi, F., & Falk, M. (2017). The impact of ICT and e-commerce on employment in Europe. Journal of Policy Modeling, 1-18.

Bourque, P., & Fairley, R. E. (2014). SWEBOK V3. Hoes Lane, Piscataway, NJ. Retrieved from IEEE COmputer Society: www.swebok.org

Capretz, L. F., Capretz, M. A., & Li, D. (2001). Component-based software development. Industrial Electronics Society, 2001. IECON '01. The 27th Annual Conference of the IEEE (pp. 1834-1837 vol.3). Denver, CO, USA: IEEE.

Chandra, V. (2015). Comparison between Various Software Development Methodologies. International Journal of Computer Applications, 7-10.

Chengjion, W. (2012). The Reusable Software Component Development Based on Pattern-Oriented. 2012 Fourth International Conference on Computational Intelligence and Communication Networks (pp. 552-555). Mathura, India : IEEE.

Chief Statistician Malaysia. (2016, July 29). ICT Use and Access By Individuals and Households Survey Report, Malaysia, 2015. Retrieved March 8, 2017, from Department of Statistics Malaysia Official Portal: https://www.dosm.gov.my

Chief Statistician Malaysia. (2016, Oktober 21). Press Release ICT ' S Contribution To Economy Increased 17 . 8 Per Cent In 2015. Retrieved March 8, 2017, from Department of Statistic Malaysia Official Portal: https://www.dosm.gov.my

Choi, H. J., & Fahmi, S. A. (2008). Life Cycles for Component-Based Software Development. Computer and Information Technology Workshops, 2008. CIT Workshops 2008. IEEE 8th International Conference on (pp. 637-642). Sydney, Australia: IEEE.

Choshin, M., & Ali, G. (2017). An investigation of the impact of effective factors on the success of e-commerce in small- and medium-sized companies. Computers in Human Behavior, 67-74.

Crnkovic, I. (2003). Component-based software engineering - new challenges in software development. Proceedings of the 25th International Conference on Information Technology Interfaces, 2003. ITI 2003. (pp. 9-18). Cavtat, Croatia: IEEE.

Crnkovic, I., Larsson, S., & Chaudron, M. (2006). Component-based Development Process and Component Lifecycle. International Conference on Software Engineering Advances (p. 44). Tahiti: IEEE.

Davidov, V. (2014). E-Commerce As Part of Electronic Business. International Scientific Conference of Young Scientists And Students (p. 19). Kharkiv, Ukraine: Simon Kuznets Kharkov National University of Economics.

Despa, M. L. (2014). Comparative Study on Software Development Methodologies. Database Systems Journal, 37-56.

Dhandapani, S. (2016). Integration of User Centered Design and Software Development Process.

Dzyuba, M. (2014). Growth of Online Stores and Mobile Commerce. International Scientific Conference of Young Scientists And Students (p. 26). Kharkiv, Ukraine: Simon Kuznets Kharkov National University of Economics.

Ecwid. (2017). Ecwid pricing. Retrieved June 1, 2017, from ECWID: https://www.ecwid.com/pricing

Farooq, A., Javed, F., Hussain, M., Abbas, T., & Hussain, A. (2012). Open Source Content Management Systems : A Canvass. International Journal of Multidisciplinary Sciences and Engineering, 38-43.

Flynn, C. (2015, January 21). 14 Technologies Every Web Developer Should Be Able To Explain. Retrieved March 28, 2017, from Differential: https://differential.com/insights/14-technologies-every-web-developer-should-be-able-to-explain/

Garousi, V., Coskuncay, A., Can, A. B., & Demirors, O. (2015). A survey of software engineering practices in Turkey. Journal of Systems and Software, 148-177.

Goroshko, N. (2014). Content Management System (CMS). International Scientific Conference of Young Scientists And Students (p. 121). Kharkiv, Ukraine: Simon Kuznets Kharkov National University of Economics.

Gray, R. O., Fitzgerald, S. V., & Joseph , R. P. (2007). Patent No. US7275685 B2. United States.

Holt, J. (1997). Current Practice in Software Engineering: A survey. Computing & Control Engineering Journal, 167-172.

Horielova, K. (2014). A Website As a Marketing Tools. International Scientific Conference of Young Scientists And Students (p. 33). Kharkiv, Ukraine: Simon Kuznets Kharkov National University of Economics.

Information Management Division. (n.d.). Retrieved January 24, 2017, from Official Portal Ministry of Education Malaysia: http://www.moe.gov.my/index.php/en/korporat/jabatan-dan-bahagian/bahagian-pengurusan-maklumat

Ingenesis Limited. (2017). Shopp Features. Retrieved June 1, 2017, from Shopp: https://shopplugin.net/

iThemes Media LLC. (2017). Exchange Features. Retrieved June 1, 2017, from iThemes Exchange: https://ithemes.com/exchange/features/

Jigoshop Ltd. (2017). Jigoshop. Retrieved June 1, 2017, from Jigoshop.com: https://www.jigoshop.com/

Kiatruangkrai, P., Phusayangkul, P., Viniyakul, S., Prompoon, N., & Kanongchaiyos, P. (2010). Design and Development of Real-Time Communication Content Management System for E-Commerce. 2010 Second International Symposium on Data, Privacy and E-Commerce, (pp. 111-116).

Law Malaysia. (2010). Personal Data Protection Act (Act 709) 2010.

Lazarica, M., & Surcel, T. (2008). The software development process of ecommerce systems. Business.

Mdcppd.com.my. (2017). FPX Payment (Financial Process Exchange). Retrieved March 8, 2017, from Information on Malaysian Bank & Money Transfer: https://www.mdcppd.com.my/fpx-payment-financial-process-exchange/

Michelinakis, D. (2004). Open Source Content Management Systems: An Argumentative Approach. Coventry: The University of Warwick.

Miniwatss Marketing Group. (2016, August 8). Internet World Stats. Retrieved March 8, 2017, from http://www.internetworldstats.com/asia/my.htm

Munassar, N. M., & Govardhan, A. (2010). A Comparison Between Five Models Of Software Engineering. International Journal of Computer Science, 94-101.

Patel, S. K., Rathod, V. R., & Parikh, S. (2011). Joomla, Drupal and WordPress - a statistical comparison of open source CMS. 3rd International Conference on Trendz in Information Sciences & Computing (TISC2011) (pp. 182-187). Chennai: IEEE.

Patel, S. K., Rathod, V. R., & Prajapati, J. B. (2011). Performance Analysis of Content Management Systems- Joomla, Drupal and WordPress. International Journal of Computer Applications, 39-43.

PayPal. (2017). Minimum Withdrawal Amounts. Retrieved March 8, 2017, from PayPal: https://www.paypal.com/cy/cgi-bin/webscr?cmd=xpt/FinancialInstrument/popup/WithdrawMinimumAmount-outside

Pyne, R. A., & Mugisa, E. K. (2004). Essential Elements of a Component-Based Development Environment for the Software Supermarket. SoutheastCon, 2004. Proceedings. (pp. 173-180). Greensboro, North Carolina, USA: IEEE.

Reilly, A. D. (2016, April). Standards for software documentation. Retrieved April 3, 2017, from TCWorld: http://www.tcworld.info/e-magazine/translation-and-localization/article/standards-for-software-documentation/

Saidi, R., Front, A., Rieu, D., Fredj, M., & Mouline, S. (2009). Component-Based Development: Extension with Business Component reuse. 2009 Third International Conference on Research Challenges in Information Science (pp. 165-176). Fez, Morocco: IEEE.

senangPay. (2015). Advance Package. Retrieved March 8, 2017, from senangPay.my: http://senangpay.my/advanced-package/

Shaikh, M. S., & Fegade, V. (2012). Modeling Essentials of Content Management System (CMS) forWeb-Based MIS Application. International Journal of Engineering and Technology, 2(3), 379-383.

Shiteeva, E. (2014). Business-to-business E-Commerce. International Scientific Conference of Young Scientists And Students (p. 79). Kharkiv, Ukraine: Simon Kuznets Kharkov National University of Economics.

Simao, E. M. (1995). Comparison of Software Development Methodologies based on the SWEBOK. 15.

SiteGiant Sdn. Bhd. (2017). Malaysia Online Payment Gateways Comparison. Retrieved March 8, 2017, from SiteGiant: https://www.sitegiant.my/malaysia-payment-gateway/

Sommerville, I. (2011). Software Engineering Ninth Edition. Massachusetts: Pearson.

Spencer, J. (2017, January 10). Best Content Management System 2017. Retrieved March 9, 2017, from MakeAWebsiteHub.com: https://makeawebsitehub.com/content-management-system-cms-comparison/

Vahid Garousi, A. C. (2015). A survey of software engineering practices in Turkey. Journal of System and Software, 148-177.

WordPress. (2017). WordPress Plugins. Retrieved June 1, 2017, from WordPress.org: https://wordpress.org/plugins/

Yang, Z., Shi, Y., & Yan, H. (2015). Analysis on pure e-commerce congestion effect, productivity effect and profitability in China. Socio-Economic Planning Sciences, 35-49.