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**DEVELOPMENT OF COMMERCIAL WEB PORTAL:
COURSE RECOMMENDATION SYSTEM MODULE (CRSM)
FOR XCELEARN E-LEARNING PLATFORM**

ASHRIL IDHZUAN BIN ABIDIN



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**REPORT SUBMITTED IN FULFILLMENT OF THE REQUIREMENT FOR THE
BACHELOR OF SOFTWARE ENGINEERING (EDUCATION) WITH HONORS**

**FACULTY OF ART, COMPUTING AND CREATIVE INDUSTRY
UNIVERSITI PENDIDIKAN SULTAN IDRIS**

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FACULTY OF ART, COMPUTING AND
CREATIVE INDUSTRY

CERTIFICATE OF AUTHENTICITY OF WRITING

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Project Title:	Development of Commercial Web Portal : Course Recommendation System
	Module (CRSM) for Xcelearn E-Learning Platform

I confirm that all the materials contained in this final year project report are the result of my own efforts. If there is a result of the work of another person or other party whether published or not (such as books, articles, papers, or materials in other forms such as audio and video recordings, electronic publications or the Internet) that have been used, I have already recorded recognition of their contributions through appropriate academic conventions. I also acknowledge that the material contained in this final year's project report has not yet been published or submitted for other programs or diplomas/degrees at any university.

23/2/2023

Date

Student Signature

Supervisor Certificate:

I admit that I have read this work and in my opinion this work is sufficient in terms of scope and quality for the purpose of awarding a Bachelor of Education (Information Technology / Multimedia / Computerized Design) with Honors.

23/2/2023

Date

Supervisor Signature

(Prof Ts. Dr Muhammad Modi Bin Lakulu)

APPRECIATION



In the name of Allah Most Gracious, Most Merciful.

First and foremost, I am grateful to Almighty Allah for giving me the health and opportunity to finish my thesis. Countless salutation upon holy Prophet Muhammad (peace be upon him), the most perfect and a torch of guidance and knowledge for humanity as a whole.

I would like to express my heartfelt gratitude to my family, especially my parents, for their support during my whole academic career till now, as I complete my Final Year Project 1 (FYP1). Thanks to Prof Ts. Dr. Muhammad Modi Bin Lakulu as the supervisor that guide me along the way and leads this project to success.

Through this opportunity, I would like to express my gratitude to all my lecturers and friends who are involved in my journey completing this project. Next, I also want to thank Xplode Media Company for giving me the opportunity to market their E-Learning Platform website, Xcelearn.



Last but not least, I would like to give my thanks to all people who have sent me their prayers and guidance especially my parent and my family for being involved directly or indirectly during and after my Final Year Project 1 is completed.





ABSTRAK

Kerana COVID-19, platform E-Pembelajaran mula berkembang pesat dan banyak syarikat telah membangunkan banyak aplikasi web dan mudah alih yang boleh menyokong pendidikan masa sebenar. Salah satu masalah adalah orang mula kehilangan minat dalam jenis pendidikan ini kerana mereka tidak mempunyai sebarang petunjuk kursus yang ideal untuk dipelajari. Mengesan kursus yang ideal untuk pelajar belajar agak membosankan dan kacau bagi mereka kerana mereka tidak mempunyai sebarang idea tentang di mana untuk memulakan. Oleh itu, untuk mengatasi masalah ini, sistem cadangan (RS) telah dicadangkan. Fokus kajian ini adalah untuk membangunkan sistem cadangan di portal web komersial Xcelearn untuk mengesan kursus yang ideal untuk pelajar belajar dengan menjawab soalan kaji selidik.





ABSTRACT

Due to the COVID-19, E-Learning platform started to grow rapidly and many companies have already developed many web and mobile applications that can support real-time education. One of the issues is that people start to lose interest in this kind of education because they do not have any clue what ideal courses for them to learn. Detecting ideal courses for students to learn is a bit boring and messy work for them since they do not have any idea of where to start. So, in order to mitigate this problem, a recommendation system (RS) was proposed. The focus of this research is on developing a recommendation system in Xcelearn commercial web portal for detecting ideal courses for students to learn by answering survey questions.



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LIST OF ABBREVIATIONS

CRSM	Course Recommendation System Module
SDLC	Software Development Life Cycle
ICT	Information and Communication Technologies
NPE	National Philosophy of Education
RS	Recommendation System
CF	Content Filtering
CFRS	Collaborative Filtering Recommendation System
CBRS	Collaborative Based Recommendation System
SRS	Software Requirement Specification
SDD ³²	Software Design Document
STD	Software Testing Document
VS Code	Visual Studio Code



LIST OF ATTACHMENT

A	Software Requirement Specification (SRS)
B	Software Design Document (SDD)
C	Software Testing Document (STD)





CHAPTER 1

INTRODUCTION



1.1 Introduction

At the end of 2019, Malaysia was shocked by the new COVID-19 pandemic. The pandemic has caused the learning system in Malaysia to change drastically. These changes have forced educational institutions such as schools and universities to change the learning system to online learning. Not just Malaysia, but COVID-19 has also forced educational institutions around the world to implement online learning. Malaysia is now in a state of emergency and the ministry of education Malaysia needs to find different and available ways of learning in order to replace the current learning system with online learning systems such as E-Learning and M-Learning. Although learners and educators are not unfamiliar with the concept



of online learning, this sort of circumstance is reviving the desire to explore online teaching and learning prospects.

“UNESCO confirms that universities and schools closure have several adverse consequences on students such as interrupted learning which results in students and youth being deprived of opportunities for growth and development.” (Mohammed Amin Almaiah, Ahmad Al-Khasawneh dan Ahmad Althunibat, 2020). As a response, with their simple accessibility and quick internet connections, online digital learning systems can address this issue.

In fact, during this crisis, E-Learning resources are important. E-learning

platforms may help learning providers organize, schedule, carry out, and monitor the teaching and learning process. It also intends to assist educators in facilitating student learning at times when schools and universities are closed. Additionally, the majority of these tools are free, which can support sustaining learning throughout the current Coronavirus pandemic. According to Almaiah et al. (2020), many educational institutions are finding that providing and utilizing online learning resources via the E-Learning system is their biggest issue during COVID-19 pandemic.

Over the past few years, new paradigms for higher education have emerged all over the world as a result of developments in information and communication technologies (ICT) and ongoing changes in society's structure. The adoption of ICT systems has raised the need for open, flexible, and remote

learning systems, which are commonly referred to as "E-learning." The commercialization of E-learning has made education easily accessible to people around the world, which also makes information flow easier and more affordable.

However, failures in E-Learning delivery can have a negative impact on the organization's bottom line and can even lead to its closure in the case of commercial E-Learning providers. Commercial E-Learning delivery businesses must thus not only produce excellent learning results but also produce short and long-term financial achievements because the main customers are the educators and learners.

Therefore, this circumstances provides inspiration and opportunity for developing one of Xcelearn Commercial Web Portal modules which is Recommendation System Module (RSM). The purpose of this development module is to assist learners and educators to identify best courses for their needs and learners and educators.

1.2 Background Studies

Education may have different meanings to people around the world. While some individuals view education as merely classroom teaching, others may view it as a formative experience. But in Malaysia, the National Philosophy of Education (NPE) state:

Education in Malaysia is an on-going effort towards further developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious, based on a firm belief in and devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards, and who are responsible and capable of achieving high level of personal well-being as well as being able to contribute to the harmony and betterment of the family, the society and the nation at large. (MOE, 2008)

According to universal demands, the educational landscape is continually changing. Starts from traditional learning methods to the previous learning methods that use technology. Both the needs of education and the needs of the students themselves must be taken into consideration with these changes. Open education resources can make both the education system and educators need to be highly competitive in order to execute the changes. Education can be categorized into three types which are formal, informal and non-formal education. Formal education commonly refers to basic academic knowledge that learners learn in a formal manner. Regarding informal education, it is generally referred to as knowledge that students acquire via personal experience outside of educational institutions. Non-formal education, on the other hand, refers to education that can help people develop a certain skill.

So by creating a Recommendation System (RS) that can recommend these three types of education to learners will be a greatest success for Xcelearn

Commercial Web Portal since there is no other E-Learning platform that has the same functionality as this proposed system. In trying to keep up with how education technology is evolving, this module may be able to assist students in determining the courses that are best for them to take.

1.3 Problem Statement

When discussing a commercial web portal that only promotes an E-Learning platform, there are many issues that can cause web visitors to lose interest in visiting the website. Among them are the purpose of the website is unclear, poor navigation and too many processes to get through to the main content.

In the term of websites that have unclear content, this is usually caused by the business owner of the website itself. Since the design and the information that are in the website are the requirements that have been provided by the business owner. The problem starts when the business owner is not clear about the outcomes of the website content and this may cause the website to be designed with crowded information that has no value to the website. As a result, the website's visitors will be confused and unlikely to stick around for very long.

As for poor navigation, this only happened when the designer of the website failed in managing the hierarchy of website contents. For instance, if the website's content is about monetizing an E-Learning platform, the designer describes what services the website offers in the last hierarchy of the website's

contents. As a result, visitors thus take longer than necessary to discover what they are looking for.

The last issue that may cause visitors to leave the website is too many processes to get through to the main content. For instance, users must navigate through around 5 pages of a website before learning what that website has to offer. This issue may also cause performance problems to the website if the website traffic is jammed with many visitors on the website.

In order to clear these 3 issues on the Xcelearn Commercial Web Portal, Recommendation System Module (RSM) needs to be developed. This is because the user interface (UI) for the module already explains that the purpose of this commercial web portal is for finding more users for the Xcelearn community by providing tools in order to identify ideal courses for them to learn. This particular module will be the first content that will be presented to visitors since the functionality of the module system is to recommend ideal courses to users and invite them to join the Xcelearn community. This module also prevails the problem of too many pages needing to be processed because this module system only needs one page for using the recommendation system function.

1.4 Product Objectives

The study aims to:

1. To identify suitable design for CRSM Web Application in Xcelearn Commercialize Web Portal
2. To develop a Recommendation System Module for Xcelearn Commercialize Web Portal
3. To test the functionalities of Recommendation System Module for Xcelearn Commercialize Web Portal

1.5 Product Questions

The question of the study is as follows:

1. How does the recommendation system module work on providing ideal courses for learners to learn?
2. What is the value of usability and functionality of Recommendation System Module being developed against the user?
3. Is the recommendation system module helpful in populating the number of Xcelearn users?

1.6 Product Scope

In this project, the product scope has been divided into two parts which are user scope and system scope. User scope will refer to target users that are going to use the recommendation system module which are educators, parents and students. Malaysia has been chosen as the geographical area for this system to be developed because only people in Malaysia have the access to this Xcelearn Commercial Web Portal. This particular module will be developed on the Xcelearn Commercial Web Portal using a web application platform. As for system scope, this recommendation system module will have 3 sections which are explaining about all information regarding Xcelearn website offers, explaining on how to fully use the recommendation system module and explaining about how the recommendation system module connects with other functions.

1.7 Product Significance

When discussing the E-Learning commercial website, there are many factors that may cause web visitors to leave the website. As a result, this can cause a great loss to the business owner who owns the website. Web visitors can't even understand the purpose of this website because of unclear owner judgment. If the visitors are confused with the website, they will not stick on the website for very long.

Therefore, with the development of Recommendation System Module for

Xcelearn Commercial Web Portal will make it easier for educators and students to

identify ideal courses for them to learn and educate. Furthermore, they can even go straight up register with Xcelearn Website after using the recommendation system module.



Figure 1.1: Xcelearn Website Logo

1.8 Conclusion

In conclusion, this research focuses on developing a recommendation system module for Xcelearn Commercial Web Portal that can help identify best courses for learners and educators to learn and educate on Xcelearn E-Learning platform.

When discussing a commercial web portal that only promotes an E-Learning platform, there are many issues that can cause web visitors to lose interest in visiting the website. Among them are the purpose of the website is unclear, poor navigation and too many processes to get through to the main content. In order to mitigate this kind of issue, a recommendation system module needs to be developed.