

ONLINE ORDERING BOOK SYSTEM: A CASE STUDY IN MALAYSIA HIGHER INSTITUTE

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ABSTRACT

This paper aims to present an e-service project findings conducted in one of the Malaysia Higher Education Institute. The objective of the project is to create a prototype showing the functionalities of Online Ordering Book System. The methodology used was Object Oriented approach where it involved three main phases, which are defining requirements, analyzing requirement and validating functionalities. There are several diagrams involved to show the functionalities of the system which are: use case diagram, use case specification, class diagram, sequence diagram, collaboration diagram, activity diagram and the list of requirement. This prototype provides a guideline in developing a real system of Online Ordering Book based on user's perspective, particularly in the perspective of academic staff of University Teknologi Mara, Melaka.

Keywords : Prototype, Online Ordering Book System, Object Oriented approach,

INTRODUCTION

The advancement in information technology in these recent years has led to a significant impact to the higher education institutes. The development has virtually altered the characteristics of the learning environment, paving the way of new teaching and learning experiences. Modern trends have affected the procedures of obtaining the books and other teaching materials. The procedures include selecting the publisher, ordering the books and delivery. Hence, most of the university's book stores nowadays prone to purchase books online. Through online ordering book, data can be managed properly, minimizing shipping costs dramatically, increases the profit margins and provides competitive advantage to the vendors who find ways to minimize shipping costs.

Generally, each university should have its own procedure in purchasing books for students. The common practices is where most lecturers directly order the books from vendors. After distributing the required books to the lecturers and upon received the recommendation, the vendor will then sell those books to students. All flow of processes is done manually. Some universities do not allow their lecturers to order books directly from the vendor but this task will be handled by the university's book store. However, the ordering is still done manually. This could attributes to problems mainly time consuming, and books may not be delivered to the right person or faculties due to many parties involved along the way of the ordering processes.

The Universiti Teknologi Mara (UiTM) is considered as the largest university in Malaysia in terms of size and student enrollment. It is the only public university carrying out intakes twice a year. The university has expanded nationwide with four satellite campuses, 12 branch campuses throughout the country with about 180,000 students, nine city campuses and 21 affiliated colleges. With this network and over 17,000 staff, the university offers more than 300 academic programme. Hence, to enhance the university's efficiency in delivering the learning process, it is crucial for the institute to develop an e-service system, namely the on-line ordering book. This has motivates researchers from one of the UiTM central branch that is UiTM, Melaka to develop a prototype on-line project on ordering books. Based on literature reviews and web site reviews of other universities publishers (namely University Malaya, Universiti Putra Malaysia and Ohio Press Unversity), this paper aims to present the prototype model of ordering system which offers convenience to the lecturers and students.

ORDERING BOOKS IN UITM MELAKA

Typically, in UiTM Melaka, ordering books for students for any subjects are conducted by the lecturers themselves. Normally, lecturers will make calls to vendor to order books and provide the information on the number of students that estimated by themselves based on the latest semester examination result. However, there is possible mismatch between estimated number of students and the number of actual student that will register when the new semester start. It happened because there were cases where students failed on certain subjects from previous semester, postponed the study or unable to complete the study due to personal reasons. For students who failed subjects, they have to register on the other subject. The lecturers, therefore, need to contact the vendor to update the number of books ordered. If the books are already sent to the lecturer, the balance of the book need to be returned to the vendor. If there is a need for addition number of books, the delivery may be delayed and creates inconvenience for the lecturers and students to start the class without the main text. In addition, the ordering information could lost either on the side of lecturers or vendors themselves. Hence, though the conventional way of ordering process seems to be simple, yet problems can exist at any stage of the chain, from the ordering books until the arrival, or vise versa. Some vendors offer the convenience of searching their online databases containing thousands of book titles. Such search can be done by a variety of search terms, such as book title, author, subject, ISBN and many others. Upon finding the desired book, a lecturer would have an option of ordering and do the transaction online.

Starting in 2013, lecturers at UiTM Melaka are not allowed to order books from the vendor. This task will be made by a bookstore called YesMart. This bookstore selling books are recommended by lecturers in UiTM Melaka and books listed in the syllabus for each subject. Students are encouraged to purchase books at YesMart. So hopefully this system will be used later by YesMart. Before starting the semester, using this system, lecturers will insert the information of the book recommended. So by this information, it can be used by the person in charge of YesMart to make order all books recommended from the vendors. YesMart can also make purchasing transaction by the student or any buyer through this system. Every semester both lecturers and students can find and discover book that want to buy through online.

LITERATURE REVIEW

E-service quality has turned into a quickly moving target due to the pace of competition and the ease of duplicating service features in the online world. Burt and Sparks (2003) suggest that we are witnessing the harnessing of the internet to enhance business efficiencies leading to the emergence of new formats within the sale of goods. Such innovations have increased competitive pressures on traditional bricks and mortar store retailing (Dholakia and Uusitalo, 2002). Aligned with the online ordering books context, many claims that the future of purchasing transaction lies in multi-channel retailing (Dennis et al., 2002) where, rather than competing with the internet, retailers should incorporate it as part of their retail strategy, adopting a hybrid strategy combining both online and offline activity through a bricks and clicks approach. However, even established retailers recognize the difficulty inherent in “going it alone” in the transition to an online environment. One way of overcoming this difficulty is through joining an established online portal which provides a support network through which to access this challenging environment.

Online Ordering Book System is a system that sells book directly to its customers by using secure internet commerce software (www.cup.co.uk/bookshop/fag). The main purpose of this system is to provide immediate feedback to customers. For example, after making an order, the customer may access information of their ordering status.

According to Shrewsbury-Gee(2012), the Director of Operations at Scholastic Canada said that the benefits of online ordering have already been enthusiastically greeted by a test group of teachers, who can place book club orders when it suits them in real-time, 24 hours a day, seven days a week. Within this system, no actual manual work is involved, thus, saves time and money. The online system brings very specific benefits such as:-

- i. Performance Assessment: Online feedback provides a powerful tool for focused and direct input of an individual’s and/or team’s performance.
- ii. Competency Assessment: Using a role and competency profile as a basis, a company can measure its level of skill at various levels. For example, the degree of customer service at individual, team, department and company level.
- iii. Leadership assessment and development: Through the use of leadership questionnaires, the online system produces valuable and cost effective feedback.
- iv. Change facilitation: Feedback from staff acts as barometer as a culture and the climate of the company. The short feedback loop aids in highlighting, motivating and executing changes within the organization while they are still relevant.
- v. Quick processing: The online facility enables large numbers of people’s assessments to be processed and reported quickly following completion and intervention. This allows for speedy feedback of results to individuals and the company, thus, enabling appropriate and business decisions.
- vi. Cost effective and value for money: the combination of these benefits, particularly speed and flexibility of administration and quality reporting result in significantly lowers unit costs when compared to manual and other forms of manual administration and processing.

Cooperative of University Malaya(UM) use the internet to transform book buying into the fastest, easiest and most enjoyable shopping experience possible. With the implementation of online web based ordering book, University Malaya is the place to find and discover anything we want to buy through online (www.um.edu.my/umpress).

Based on the cooperative UM online ordering book, there are some standard processes that can be used as a guideline in online ordering book system such as:-

- i. Order form: Buyer must fill in this form.
- ii. Categories: Buyers can choose the book category and the book title. It will give a detailed information or content of that book. Here buyer can click “ADD TO CART” to buy a book online.
- iii. Forthcoming title: This menu shows the listing of book category and title that would be published in the future. When we click the book title, the description of that book will appear.
- iv. Search Book: Buyer can check that books those are interested.



Figure 1: Website of Cafebook Mart

Figure 1 shows the website of Cafebook Mart. Customer can browse the listing of book available. To order that book, customer need to contact directly the vendor via e-mail or by phone. For Cafebook Mart, delivery would only be available on weekends and it will depend on when the order is placed. Mobile contact points available from 9am to 10pm daily.

The Ohio State University Press was established in 1957. We can browse the listing of book and add to cart. Besides browse books, it website can allows us to search book using a catalogue, we can check our status order, know how to return the book ordered.

Mphonline.com is one of the best online book shop in Malaysia. Their system provide a very friendly system. For the first time using their system, we need to sign up as a new customer. Then we can browse their online book shop easily.

After studying the several online book shop such as mph book shop, Cafebook Mart, cooperative of UM , there are several standard characteristic must be followed such as:-

- i. A unique number called International Standard Book Number (ISBN) must be used to identify all books. This must be included within all book descriptions to ensure the catalogue is accurate as there may be more than one book with the same title name.
- ii. All buyers must supply the following information such as name, address, telephone number, e-mail address and other required information.

SCOPE AND OBJECTIVES

The objectives of prototype of Online Ordering Book System are:

- i. To identify the functionalities of Online Ordering Book System from the perspective of lecturers, buyers and YesMart. The identification of the functionalities will be presented not only through a prototype but also through a use case diagram, activity diagram, sequence diagram, collaboration diagram, class diagram and the list of requirements.
- ii. To validate the functionalities of Online Ordering Book System where it will shows the interfaces needed in the system in order to ensure that the requirements listed here are accurate to the expectations of users.
- iii. To give an idea for UiTM Melaka having an Online Ordering Book System.

This project will involve the prototype that shows the interfaces between the YesMart and lecturers at UiTM Melaka and buyers.

METHODOLOGY

The methodology in developing this prototype consists of three phases, which are:-

- i. Define requirement
- ii. Analyze requirement
- iii. Validate functionalities

Define requirement

In this phase, two types of fact-finding method used are informal interview and background reading. From this phases, the target users were identified which are the person incharge of YesMart, lecturers and buyers.

The informal interviews were carried out with the person incharge of YesMart and lecturers in order to understand the flow of ordering book. The defined requirements will be transformed into functionalities that focus on handling the ordering system. Based on the informal interview, some problems were briefly identified where they can help in identifying the functionalities and a few solutions were suggested such as:-

- i. A person to appoint as an administrator and from time to time to engage in some form of discussion.
- ii. Processes should be included in Online Ordering System ore:-

- a. Stock management
All books arrival will be keyed in the database including the course related to the books.
- b. Ordering process
Lecturers can insert the book information that is needed. So the person in charge of YesMart will use this information to order book from the vendor. After that, lecturer can check the status of the book without asking the person in charge. This process will be benefited for parties, lecturers and YesMart.
- c. List of order report, status of ordering, report delivering
If this prototype transform into a real system, the real system will produce reports such as a listing order, order status and delivery report.
- d. Books' and lecturers' maintenance
The lecturers' records that recommend the book ordered can be maintained and all books that ordered also can be maintained.

Analyze requirement

The requirement of Online Ordering Book System will be analyzed and known as functionalities. The functionalities will be presented using UML diagram and supported documents. UML is used to model the user's requirements. It is a language for visualizing, specifying, constructing and documenting the artifacts of a system under development (Booch et al. 2005). The rational rose was used to construct all the UML diagrams below:

- i. Use case diagram
- ii. Activity diagram
- iii. Sequence diagram
- iv. Collaboration diagram
- v. Class diagram
- vi. A list of requirements

Validate functionalities

The prototype is used to validate the functionalities. The aim of validation is to identify and rectify all errors like inconsistency, omission and incorrect information. There are twenty six (26) functional requirements documented in this project.

The following diagrams and supporting textual information constitute the functionalities:-

- i. Use case diagram
The use case diagram has two actors which are the person in charge of YesMart and lecturer. There are six use cases which are Lecturer Registration, Stock management, Book Status, Make order, Status Order and Authentication Procedure. The use case diagram is shown in Figure 2.

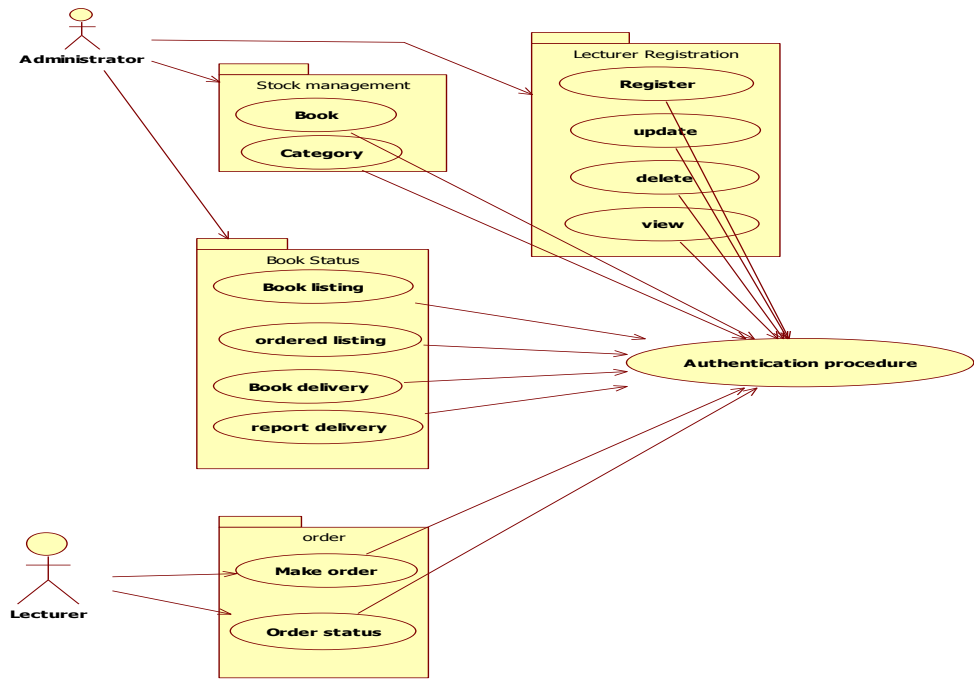


Figure 2: Use Case Diagram

- ii. Use case specification
Use case specification is the detail description on the use case diagrams. The use cases are prioritized based on their priority.
- iii. Class diagram
The class diagrams contains fourteen (14) classes. This diagram was packaged to show the boundary, controller and entity classes as shown in Figure 3.

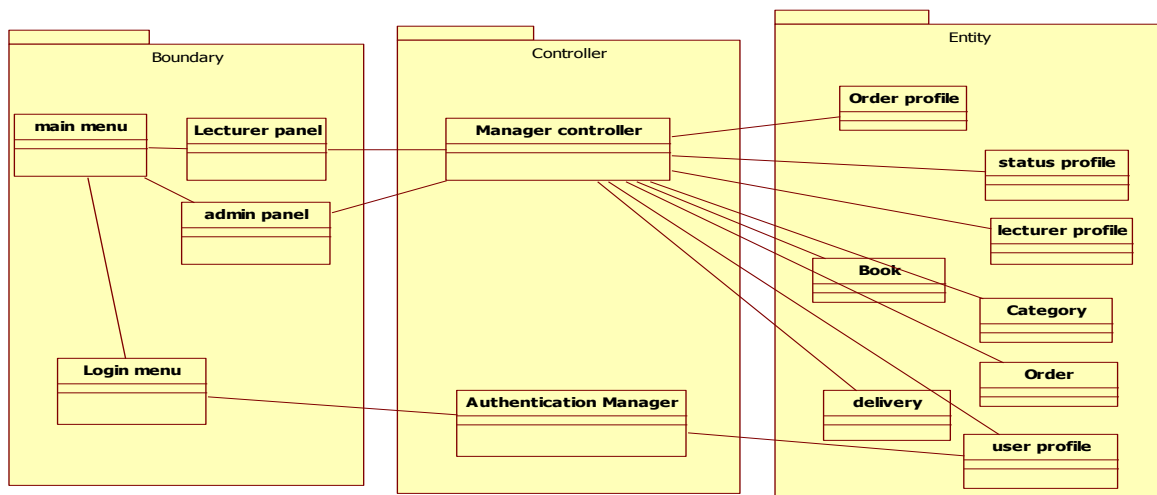


Figure 3: Class diagram

- iv. Interactive diagram
There are twenty seven (27) interaction diagrams (sequence diagram). Figure 4 shows one of the sequence diagram about the Administrator login into the system.

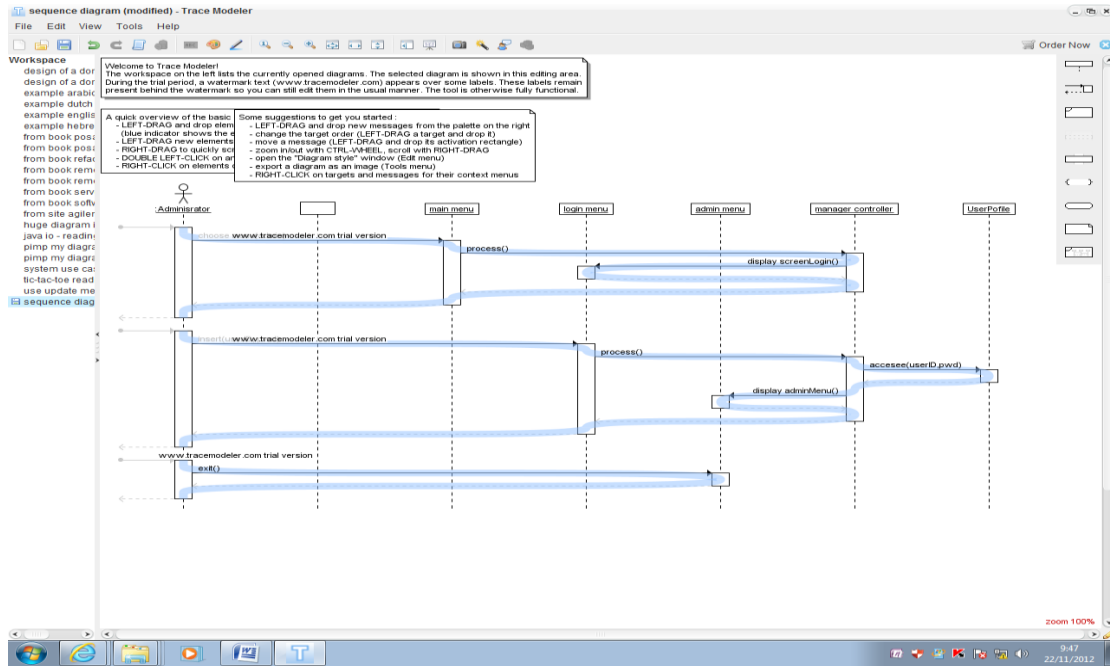


Figure 4: Sequence diagram

v. Activity diagram

Eleven (11) activity diagrams have been developed. They are lecturer view the status order, lecturer and administrator login the system, administrator register, update, delete and view lecturer’s information, administrator view book stock and category information, administrator add, update, delete the book and category. Lastly, administrator view book in stock, book ordered, book delivery and report delivered.

RESULT

A set of requirement was produced in this project as shown in Table 1. The functionalities of this project have been validated using prototype to ensure its validity, consistency, completeness, realism and verifiability. The requirements were visited and changes were made and added. The prototype has been modified based on the requirement and validation to correspond to the users’ expectation.

Table 1: The Requirement of Online Ordering Book System

No	Use case Name	Requirement Description	Requirement type
1.	Authentication procedure	To authenticate users	Functional
2.		To validate username and password	Functional
3.	Lecturer’s order	To register lecturer order	Functional
4.		To update the lecturer order record	Functional
5.		To delete the lecturer order record	Functional
6.		To view the lecturer order record	Functional

7.	Book	To register the book record	Functional
8.		To update the book record	Functional
9.		To delete the book record	Functional
10.		To view the book record	Functional
11.	Category	To register the book category	Functional
12.		To update the book category	Functional
13.		To delete the book category	Functional
14.		To view the book category	Functional
15.	Book listing	To view the book available by title	Functional
16.		To view the all book available	Functional
17.	Ordered listing	To view the book ordered by publisher	Functional
18.		To view the all book ordered by date	Functional
19.	Book delivery	To set the book ordered to deliver	Functional
20.	Report delivery	To view the book that already delivered	Functional
21.	Make order (buyers)	To order book	Functional
22.		To add quantity ordered	Functional
23.		To cancel quantity ordered	Functional
24.		To cancel all quantity ordered	Functional
25.		To order other book	Functional
25.	Status order	To view the status order	Functional

Three (3) modules have been designed based on the scopes of book's vendor such as:-

- i. Lecturer order
This module is to maintain the lecturer's order record. Here the administrator can add, update, view and delete the lecturer's order record.
- ii. Stock management
This module enables administrator to control the book stock. All the books information will be key-in into the database. Administrator can add, update, view and delete.
- iii. Status of ordering
This module enables administrator to check the status of the book available in the stock and the status of order book by the lecturers.

There are two (2) modules have been designed based on the scopes of the lecturers such as:-

- i. Placing order
Lecturer will place their order via the web browser without having any trouble. Before ordering book, lecturer can browse for any book through various means (example title, author, ISBN number and etc) and they can see in real-time how many books are available in stock. If the book is not enough, lecturer can insert the quantity number of book needed.
- ii. To see the status of the book ordered

This module enables lecturers to view the status of their order. This system will generate the report on ordering according to the lecturer ID. This module also can be used by the buyer to check their order status.

Based on the discussion with users, a few non-functional requirements have been listed such as:-

- i. This prototype must provide the real-time inventory of books.
- ii. There should be no capacity limit for the number of books to be listed in this system.

SIGNIFICANCE

There are several significance on the functionalities of Online Ordering System amongst Yesmart and lecturers. They are:-

- i. Based on the listed requirements, the framework of online ordering book system is produced in order to give some suggestions to improve the ordering book activities.
- ii. Minimize the inconsistency data related on ordering book.
- iii. Improve the integration, maintenance, time and money of operational data in the process of ordering book.
- iv. Prototype helps to decrease work in system development process and increase the quality of system development because it serve as a guideline for YesMart and lecturers to enhance the ability of ordering process.
- v. UiTM Melaka itself must support the corporate mission of UiTM which is to be a premier university seeking excellence in the advancement and dissemination of knowledge to meet the aspirations of the nation.

CONCLUSION

The objectives of this project have been achieved which is to create the prototype of Online Ordering Book system as a starting point in developing a real system where all ordering book processes would be done online and UiTM Melaka as a pioneer. It uses UML, a standard technology for modeling, therefore the requirement model can be understood and referred by other researcher. It is recommended that improvements should be made not only for books but for other items.

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