Table of Contents

Chapter 1 4

1.1 Introduction 4

1.2 Why Peter made the Facebook page 4

1.3 Why is online website necessary? 5

1.4 System's scope 5

1.5 Aims & Objectives 6

1.6 Summary 6

Chapter 2 8

2.1 Literature Review 8

2.1.1 Interviews 8

2.1.2 Similar Websites 9

2.2 Methods 15

2.3 Database 19

2.4 Language 22

2.5 Guideline 25

2.6 Development Techniques 28

2.7 Summary 31

Chapter 3 33

3.1 Planning 33

Chapter 4 40

4 Development/ Implementation 40

4.1Time box 1 40

4.2 Time box 2a 50
4.3 Time box 2b 72
4.4 Time box 3 93
Chapter 5 105
5 Review/ Evaluation 105
5.1 Steps that are done 105
5.2 Requirements met 106
5.3 Future Amendments 108
5.4 Lessons Learnt 109
5.5 References 110
Appendix 115
Project Proposal 115
Initial References 120

Chapter 1

Chapter 1

1.1 Introduction

Nowadays, as Myanmar is developing gradually, many companies build online websites to expand their business. Since more companies start investing, there are more competitors. Bookworm bookstore plans to build an online website for many purposes.

Bookworm bookstore has been founded by Peter Evans, who works as an English teacher and disciplinary master at ILBC.There are two bookstores and the first one was opened in Pansodan Township on July 2014.In 2015, he opened another bookstore in Pearl Condo, Bahan Township. The bookstores have total 5 staff managing regularly.Stock room of the books is situated in Tamwe Township. The books from the stockroom are usually collected by a small truck to the bookstores. The books are packed in plastic boxes while delivery to prevent moisture.

Currently, Peter put 3000 books at Pansodan with discount price. At Pearl Condo, 2000 books are displayed. The bookstores mainly sells English books for young readers to improve their English skills. According to Gomyanmartours, Bookworm is the best bookstore in Myanmar because it is always filled with latest books.

(Pwint, 2017)(GoMyanmarTours, 2018)

1.2 Why Peter made the Facebook page

While selling books from the stores, Peter noticed that less people are reading books as years went by. He guessed that it might be because there are more competitor bookstores in Yangon. What's worse is he also found out that people are selling copies on Pansodan streets, with cheaper prices. Therefore, in order to solve the conflict,Peter opened Facebook page. From the page, people across Myanmar can view the latest books and can order. The ordered books are then delivered throughout Myanmar with highway expresses. Within Yangon, home deliveries are transported by car. Moreover, customers can recommend books they want on the page too. In order to get

recommended books, Peter goes to UK twice a year and buy books that are in the list and ship to Myanmar. Since Bookworm already have a good image, the sales went back to normal after opening Facebook page.\

1.3 Why is online website necessary?

Bookworm is one of the best bookstore in Myanmar. However, compared to other competitors, it does not have online website. It only have a Facebook page where customers can send messages to ask about book prices, and latest arrivals. They can also order on Messenger for the books they want. However, Peter wanted to make sure his customers have access to all the books available in the bookstore, on Facebook page. Therefore, he wanted to produce an official website for customer to be able to view all books online.

1.4 System's scope

Online Bookstore system will include functions where customers can view all the books, and buy books online. Before this, they will have to register and login to reach the homepage. In the homepage, customers can click 'Detail' button to view more detail about the book. Then they can write quantity of book and proceed to shopping cart. In the shopping cart form, they can view ordered books. After clicking Continue, customer will reach final stage: Checkout. There, they will have to fill in delivery form for personal details such as Address and Phone Number so that staff can contact them to confirm their order. Then, address is required to send the ordered books to correct address. After clicking 'Checkout' button, ordered data will be sent to admin. Then, admin can view the ordered books with customer name. Moreover, they should also be to print out reports such as sales report and order report at the end of the month.

1.5 Aim & Objectives

The main aim of the website is to make customers can view all the books online. The customers should also be able to add more than 1 book to shopping cart and can return anytime. Moreover, the customers should also be able to send messages to admin from the website when they want to request books or inform their issues. They can also write message if they want to return books which are in bad condition after delivery. Additionally, from admin perspective, they should be able to see customers' data and ordered books. They should also be able to input books, update book, and delete book data. To allow customers to order books, shopping cart function will be included.

When building the system, the system needs to work effectively, and have good interface design. If the website has bad interface design, customers will have difficulty using the website. They can get confused if the design is complex.

1.6 Summary

In this chapter, background information of Bookworm website was written. Secondly, the reasons why Bookworms created Face book page was explained with issues. Then, reasons why Bookworm owner, Mr. Peter Evans wanted to make an online website was discussed. After that, functions to be included in the system are expressed. Then, the aims of making website with objectives are discussed.

Chapter 2

Chapter 2

2.1 Literature Review

When making an online bookstore system, first of all, planning is required. Requirements need to be gathered so that functions that need to be included in the system are known early. Also, without plan, the system cannot finish within fixed time. If the system is made with planning, Bookworms will be able to prevent extra money and time being spent. So, method needs to be chosen to follow throughout the system. Additionally, language, database and tools should also be chosen to apply. Furthermore, guidelines and design principles should also be applied to have a good interface design. Without good interface design, customers will not be able to interact well with the website.

2.1.1 Interviews

In order to collect information for the online system, Bookworm owner, Mr. Peter Evans is interviewed.

Questions and Answers

1. Q: How many staff are there in total? Do you have to manage the staff?
A: There are 5 in total. 2 staff are placed at Pearl Condo and 1 in Pansodan. They all work 5 days per week and we rotate the staff. I make sure they always have two days off. Actually, my staffs are great. They can take care of things. I trust them 100%.

2. Q: I've read that there is a stock room to store books. How do you get the books from there to the 2 bookstores?
A: We have a stockroom for the two book shops. If there are many books, we take them in small truck. If it is just a few bags, my staff get them. While delivering, we pack them in plastic boxes so no moisture can get in.

3. Q: Does your bookstores also offer home delivery service?

A: Yes, we do. And we deliver to other cities too. Within Yangon, we would like to use motorbikes but they aren't allowed, so we use a car. When delivering to other cities, we use highway buses.

4. Q: What functions do you want to include in the website?

A: I want to have links to different kinds of books for people to browse. For example, picture books, young adult, general fiction etc?

5. Q: Currently, do you use computers to record?

A: We use a computer to store the book titles and authors. Each book has a code so when we sell books, we can track which books are selling well.

2.1.2 Similar Websites

In order to create the online website with best functions,several similar websites are compared.The homepages of the three websites are compared. Amazon website and Better World are good websites. Myanmar Book Shop website is an example of bad website.

Amazon website: Books

https://www.amazon.com/exec/obidos/tg/browse/-/283155?linkCode=w61&imprToken=f8hBoO5qNUq0z3-Q.YQdHw&slotNum=0
(Accessed on 7 February 2019)

Better World Books

https://www.betterworldbooks.com/

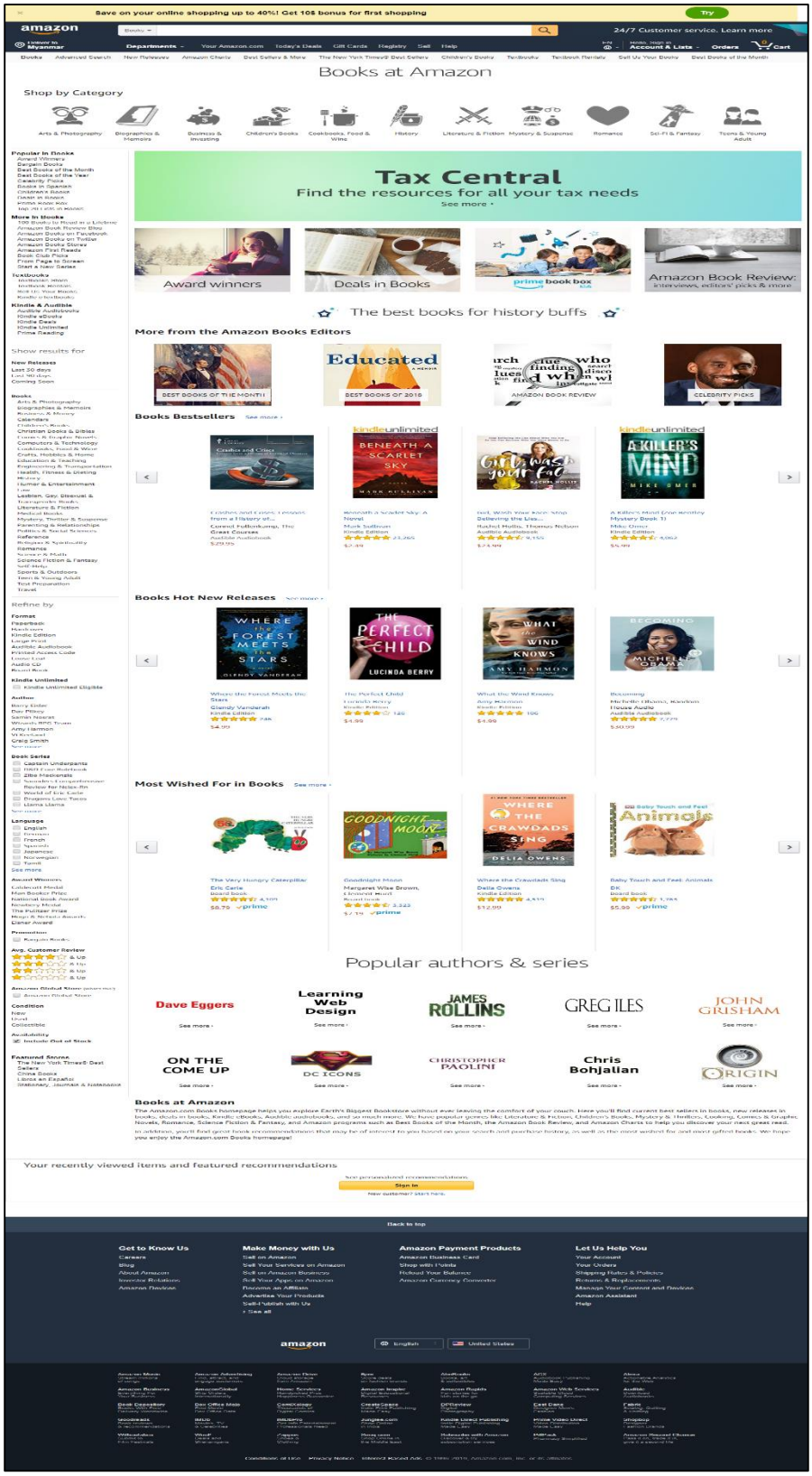
(Accessed on 7 February 2019)

Myanmar Book Shop

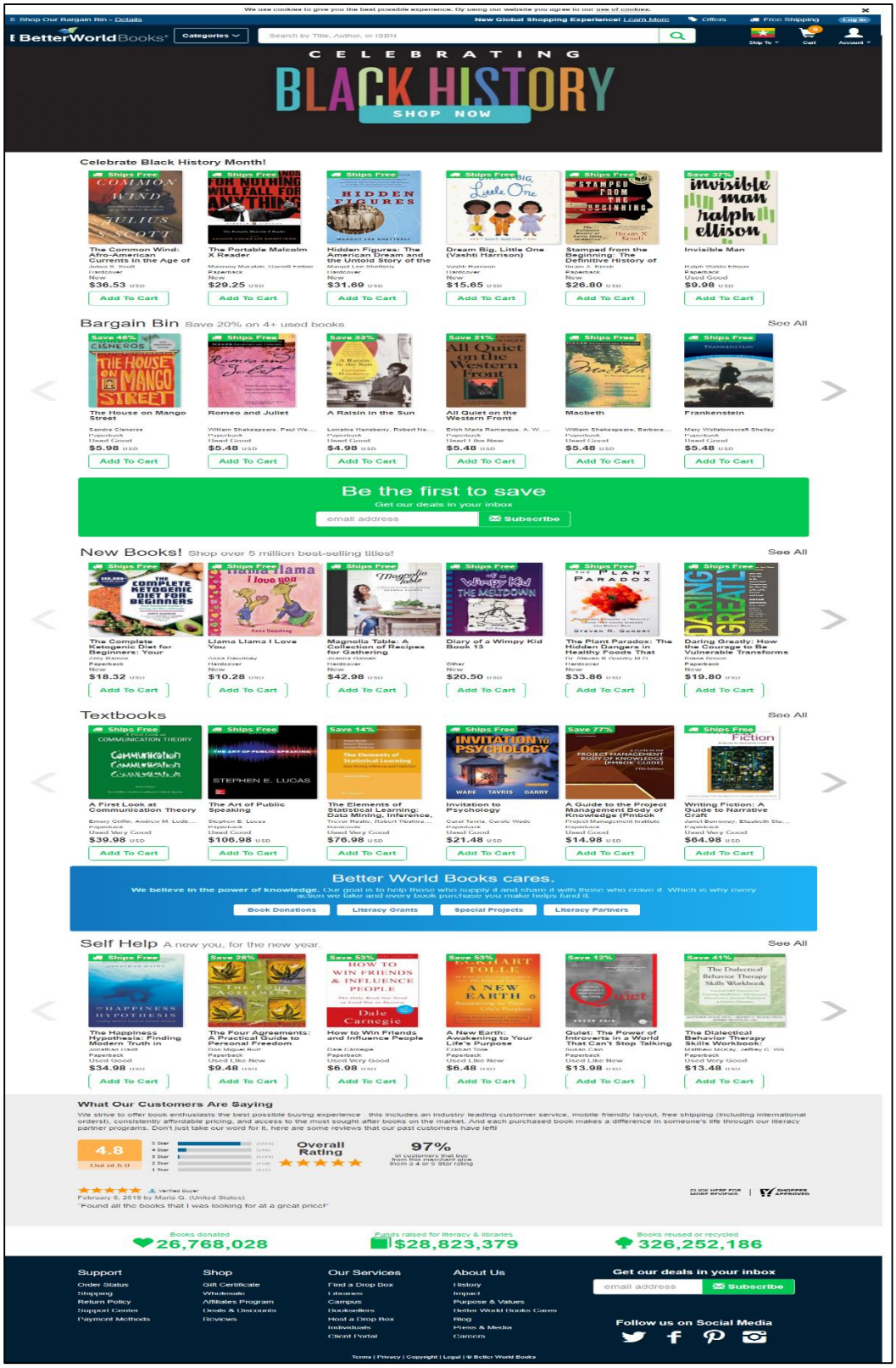
http://www.myanmarbookshop.com/Default/Home/all

(Accessed on 7 February 2019)

Amazon


Books at Amazon
Tax Central
Find the resources for all your tax needs
Award winners
Deals in Books
Amazon Book Review:
The best books for history buffs
More from the Amazon Books Editors
Books Bestsellers
Books Hot New Releases
Most Wished For in Books
Popular authors & series
Books at Amazon
Your recently viewed items and featured recommendations

Better World



Myanmar Book Shop

Features	Better World Books	Amazon	Myanmar Bookshop
Need to make an account.	Yes	Yes	Yes
Advertisements	No	No	Yes
Languages	Many	Just English	Just Myanmar
Search Engine Optimization (SEO)	Yes	Yes	Yes
Book categories table	No	Yes	Yes
Delivery	Free shipping	Allow delivery	Allow delivery
Shopping cart	Yes	Yes	Yes
Feedback from customers	Yes	No	No
Ratings	Yes	Yes	No
Promotions	No	Yes	No

Summary

After comparing 3 websites, it is found that 3 websites have good features that could be included in the Bookworm website. For example, in all 3 websites, the customers need to create an account. This is a feature to give security. So, this function would be included in Bookworm website. Advertisements will not be included in the website, because having advertisements makes the customers annoy because it gives the website look messy.Next, language written on the website will be in English because the owner of Bookworm is foreigner. Search engine will be a critical feature because main aim of making the website is to allow customers to search all the books. Book categories will also be shown at the Homepage, so that customers can choose the category that they enjoy easily. Moreover, delivery will be included and the data of the customers' address with orders will be recorded. Shopping cart function will be also included so that books that the customers chose to order can be collected. Feedback

and ratings might be included if there is time to add more functions. Promotions for books might also be given later.

2.2 Methods

When making a system, there are many methods to make it develop in a good way. Therefore, some of the common methods such as SSADM, and DSDM are observed and compared.

Structured Systems Analysis and Design Method (SSADM)

Structured Systems Analysis & Design Method (SSADM) is a method which has a good structure. It mainly focus on the Waterfall Model, which is a part of systems development lifecycle. SSADM is mostly used for government computing projects since it can produce information systems accurately. By using SSADM, system can be developed in stages because it focuses on Waterfall Model. When the system is made in steps, it can be in good quality. It also provide the system with tools. For example, it uses diagrams for design.

(SQA, 2007)(Gould, 2016)

Advantages of SSADM

SSADM examines the system deeply and thoroughly. So, at the initial stage, information can be clearly understood. When there is no error since the start, system can be developed with good quality. Secondly, SSADM is a common method used by many people, so training will be easy. Therefore, Bookworm can save both money and time. In addition, SSADM controls the system so it can prevent system delay. When the system is produced on time, quality can be better and productivity can be improved

The developers have to produce a documentation when using SSADM. Within the documentation, issues and objectives are to be written. Therefore, Bookworm can figure out changes in the business environment.

(Cohen, 2017)(Anon., n.d.)

Disadvantages of SSADM

SSADM has a control over the system which makes it difficult for developers. When it has a firm control, it does not allow iteration at all. Since developers can also make mistakes or can change their minds while doing the system, they cannot go back and fix the functions. In addition, SSADM is quite expensive. Besides being expensive, it takes a long time. Therefore, Bookworm will not be able to finish the system as expected.

(Cohen, 2017)

Dynamic Systems Development Method (DSDM)

DSDM is a framework used for software development. It makes the system to be more efficient. DSDM uses MoSCoW prioritization (must, should, could, and won't) to make sure that the system finish within the limited time.Moreover, it also allow iteration, so the developers can add more requirements or change if they want. Along with MoSCoW, DSDM have other techniques such as prototyping, facilitated workshop, and time box. Time box arranges schedules for system development. Parts of the system have to be finished within the time boxes so it allows the whole system to be finished in the fixed time.

(Slegten, 2016)

Advantages of DSDM

To make a system using DSDM, there need to be user involvement. The users have to participate in the facilitated workshop and express the requirements for the system. This is a benefit for developers because when the users accept the system design since the start, developers do not need to fix the requirements again and again. Additionally, developers and users can communicate well using DSDM so the developers can figure out user's expectations. They then collect the information as High Level Requirement (HLR). Thus, it is likely that the system will be the right product for the users.

Furthermore, good quality system can be produced by using DSDM. During the testing, testing specialists are to be hired. Therefore, these specialists uses a good software to test. Thus, good result can be achieved. In addition, time box provide a fixed time for development. This prevents system delay which means budget will not be spend more than necessary. Iteration is also an advantage of using DSDM. Since developers can go through iteration, they can find errors earlier. This means that when they find many errors, they can stop making the system. If there is no iteration, they would only be able to view errors after producing the system. This could lead to waste of money and time.

(Koch, 2011)

Disadvantages of DSDM

Besides being useful, DSDM also have disadvantages. Since DSDM have time boxes to give a restricted frame for developers, it makes it difficult to use. The developers do not have enough time to fix or make documentation. Moreover, senior manager is the only person who have power to make decisions. Therefore, if the manager make a bad decision, it can influence on system's result. In addition, since users are involved in system development, there can also be an issue. Users' requirements are changed into high level requirements for the system. Therefore, when

the users do not know what they want for the final outcome, it can difficult for developers.

DSDM cannot be used in small companies. Furthermore, it is a newer method compared to other traditional models. Thus, staff will need training to learn how to use it. Additionally, DSDM have eight principles which makes it stricter than other approaches.

(vethics, n.d.)(Sunday, 2016)

Comparison between SSADM and DSDM

SSADM	**DSDM**
1. It is quite expensive.	It is cheap.
2. It takes a long time.	It have time boxes which gives a fixed time to finish the system so it does not take a long time.
3. It does not include workshop.	It have facilitated workshop which allows developers and users to work together.
4. It is a common method use in the business industry so staff can use easily. Thus, less time and money is spent on training.	It is difficult to use. So, it requires training for users and developers.
5.It is traditional method.	It is agile method.

Summary

After comparing SSADM and DSDM, DSDM has more advantages. SSADM is expensive but DSDM is cheap. Therefore, Bookworm can use a cheaper method. DSDM also includes facilitated workshop, soBookworm and users can work together to make the system. User involvement can prevent extra budget and time because their requirements are already figured out at the start of system development. Additionally, DSDM have time box so the developers can prevent delay. So Bookworm will not have to spend unnecessary money. Therefore, DSDM is to be used for the system.

2.3 Database

MySQL

MySQL is sometimes called My Sequel. It is a relational database management system which is based on code called Structured Query Language (SQL). This system is written with software such asC, C++. It also works with PHP. These software can be run on operating systems such as Linux, and Windows.

However, this is not free for the developers who want to put it in their software. They have toget the General Public License (GPL). Also,companies need to get a commercial license from Oracle.MySQL is often used for web databases to store data.

(Rouse, 2018)

Advantages of MySQL

As stated previously, MySQL are included in the software such as C and C++. Therefore, MySQL is easy to use since these software can be easily installed. This also means that it can work with many operating systems. MySQL is an open source, which makes it easier to be helped by many developers when there is an issue. Additionally, compared to other databases, MySQL is way cheaper. Sometimes, it can also be free. For many years, it has been the most used database system.

(Mack, 2014)

Disadvantages of MySQL

Even though MySQL includes SQL features, it is lacking many features. When it is missing SQL features, some of the features are limited to use, such as data warehousing. Therefore, developers will find it difficult to use the partly-featured database system. In addition, it does not support large database size. It is also difficult to maintain. Details of disadvantages of MySQL can be seen at https://www.datarealm.com/blog/five-advantages-disadvantages-of-mysql/ [Accessed on 1 Feb 2019].

Oracle

Oracle is created by the organization called Oracle Corporation. It supports programming languages such as Java and SQL. There are four editions of the Oracle database: Enterprise Edition, Standard Edition, Express Edition, and Oracle Lite. It is also a relational database management system. It is like a table structure (with rows and columns) and connect elements from different tables. Basically, it is designed to check the database transactions.

(Craig Stedman, 2017)

Advantages of Oracle

By using Oracle, it is easy to change the database of the system. Since Oracle are backward compatible, the databases can be updated easily. Therefore, Bookworm will not need to spend money of software updates. Moreover, new versions of Oracle come out frequently. Therefore, Bookworm can use new features along with previous features in the new version. Speed of Oracle is very fast. Even though it is fast, it is very reliable. It can control many databases due to having a protocol, which has two phase. Oracle can also run on many devices, and also allow backup.

(Reddy, n.d.)

Disadvantages of Oracle

One of the main problem with using Oracle is that when the staff do not have technical skill, it will be difficult to use Oracle. Moreover, it is not a good database to use for small organizations. Disadvantages of Oracle can be viewed in detail at https://www.reference.com/technology/advantages-disadvantages-oracle-database-dbec0904f3b40425 [Accessed on 2 Feb 2019].

Additionally, installing Oracle is quite complex. Only qualified database administrators have skills to run the database system. This can also make Bookworm to pay high salary for to hire the experts. In addition, Oracle is very expensive to use. It is also hard to maintain.

(Rinus, 2016)

Comparison between MySQL and Oracle

MySQL	**Oracle**
1.Business needs to get license to use MySQL.	Oracle does not need to get license.
2. It is open source.	It is not open source.
3. It is easy to use.	It needs experts to use.
4. It is cheap. Sometimes, it is free.	It is very expensive.
5. It is used for smaller projects.	It is used more for larger organizations.
6. It is use more often than Oracle. It is the most used database system.	It is used lesser than Oracle.

Summary

When comparing MySQL and Oracle, MySQL has more advantages than Oracle. MySQL is open source whereas Oracle needs to be paid. In addition, Bookworm will have to get license to use MySQL, but Oracle do not need license. Afterwards, MySQL is cheap whereas Oracle is very expensive. Thus, Bookworm can save money by using MySQL. Moreover, Oracle is not suitable for small organizations. Therefore, in conclusion MySQL will be used to build the system.

2.4 Language

Hypertext Preprocessor (PHP)

PHP stands for PHP Hypertext Preprocessor. It is an open-source scripting language. PHP has been used for web development design. It can be written inside HTML because it is a scripting language. PHP code are within the close brackets such as <?php?>. Before it runs on the browser, php is executed on the server. It can run on many operating systems such as Windows, and Linux. It also works with servers such as Apache. In addition, it can be used to design applications.

(CoderCruise, 2019)

Advantages of PHP

Using PHP is easy for both developers and new users. It also have a high performance and is very fast. Since it is executed on the server, it works even if the client does not have the appropriate software installed. Moreover, PHP has been used for many years. Therefore, many bugs have been discovered by the developers. This makes the language to be stable with fewer errors than other languages. In addition, it can work in many platforms so there is no issue with not working with different operating systems.It is also cheap.

(Anon., 2017)

Disadvantage of PHP

The PHP codes cannot be run for big applications because it is hard to maintain large data. Moreover, the server can become slower when executing large data. In addition, there is no debugging tool for PHP so it is hard for developers. Developers can find it difficult to find errors. In addition, since PHP is open source, security is not good for users. Hackers can use the code easily to get users' information.

(Anon., 2017)(Paul, 2018)

Asp.Net

ASP.Net is a framework for web development. It was created by Microsoft. Developers usually use ASP.Net to build web sites, applications and web services. It is made on the Common Language Runtime (CLR). By using ASP.Net, developers can write clean code. It is also open-source.

(Techopedia, 2019)

Advantages of Asp.Net

There are many reasons to use Asp.Net. It is indeed fast and reliable. It is also supported by many languages. It is also popular so developers can find it easily. In addition, Asp.Net is easy to learn. It is simple because the task are easy to perform. Moreover, since it is built-in Windows, the apps created by it can be secure.

(W, 2018)(Oamkumar, 2018)

Disadvantages of Asp.Net

Asp.Net is really expensive. The software itself is expensive as well as the maintenance cost. Since Asp.Net need to use more web servers than other, cost will also have to be spent on the web servers. In addition, it does not work with new versions. Moreover, Asp.Net usually combine with HTML script code. Therefore, it is very long, which makes users difficult to read. Furthermore, it does not have many debugging tools.

(Oamkumar, 2018)(Thumati, 2009)

Comparison between PHP and Asp.Net

PHP	**Asp.Net**
1. It is cheap.	It is expensive.
2. It uses less web server resources than PHP.	It uses more web server resources than PHP.
3. It takes fewer lines of code than Asp.Net.	It takes more lines of code than PHP
4. It can run on any platform.	It can only run on Windows platform.
5. It has few errors than other languages.	It has errors when it combines with HTML code, because it is very long.
1. It is open source, so security is not good for users.	It is also open source, but since it is built in Windows, it is secure.

Summary

When comparing PHP and Asp.Net, PHP has more advantages than Asp.Net. PHP is cheap so developers can afford buying it. Moreover, it is uses less server resources so maintenance cost of the servers can be reduced. In addition, it does not take many lines of code so less errors occur while executing. It can run on any platform, so it is really efficient to use it. Therefore, PHP is the best choice to use for the online system.

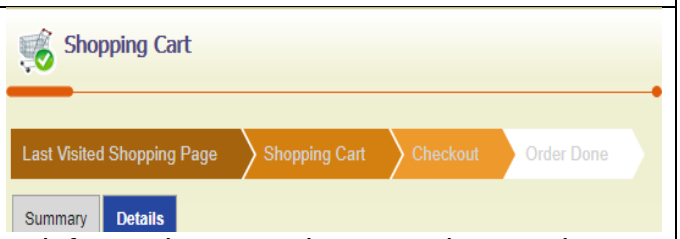
2.5 Guideline

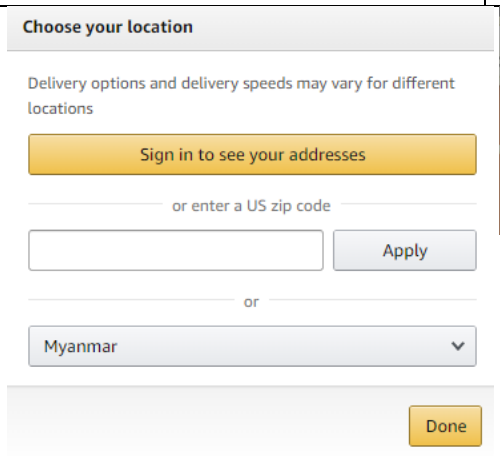
In order to create a website with good interface design, design principles and guidelines should be applied. If the website does not have good interface design, a customer will not return the website twice. If the website does not have good interaction, it will make user confusing and complex.

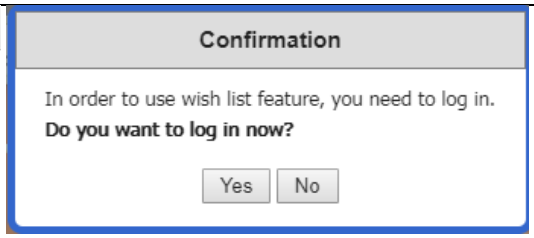
When choosing guidelines, there are guidelines such as W3C, Nielsen, Norman, and Shneiderman used in the IT industry. Among them, Nielsen guidelines will be applied for Bookworm website. The guidelines will be shown with the 2 bookstore websites that are mentioned earlier.

Nielsen guideline

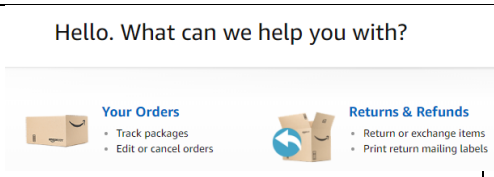
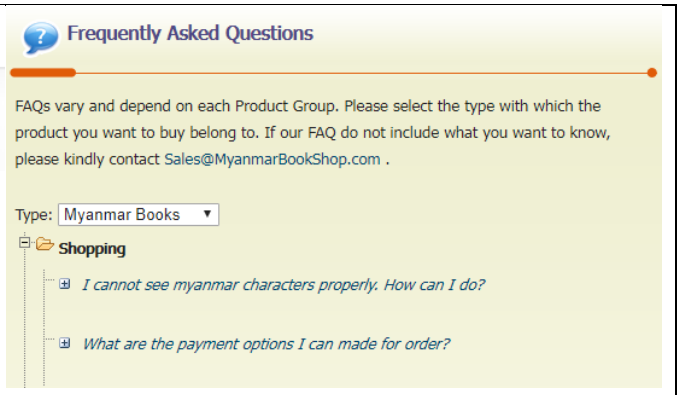
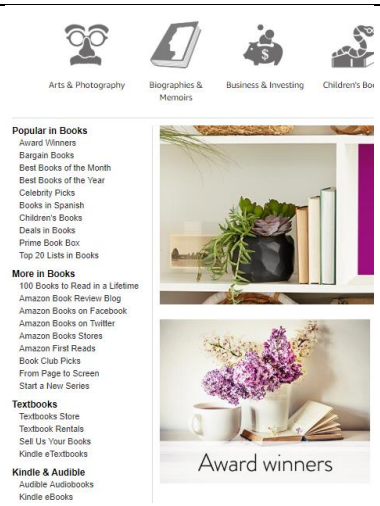
<table>
<tr><th>Guideline</th><th>Amazon</th><th>Myanmar Bookshop</th></tr>
<tr><td>Visibility of system status- Users are informed about the actions.</td><td>

Users can know how many books are in the shopping cart.</td><td> 

It informs the users the stage they are in.</td></tr>
<tr><td>User control and freedom- users can choose to leave unwanted situations.</td><td> 

Users have freedom to do any actions, to choose location.</td><td> 

Users will be shown messages so that they confirm actions. These users have freedom to accept or cancel actions.</td></tr>
</table>

Help and documentation -help is provided so that users can find what they are searching for.	 Help is available for users so that they can solve issues.	 By clicking 'FAQ', users can see frequently asked questions by customers.
Consistency and standards- The website's pages have same style to prevent confusion.	 Menu bar at the top of the website remains the same in every page. Therefore, users do not get confused with the interface design.	 The menu bars, categories, and search button remain in the same place, on every page.
Aesthetic and minimalist design-Not many information should be shown. Many information can make a bad interaction design.	 Amazon website is clean with white color. Categories are shown at the top, and poular	 In the homepage, too many information are

	books are shown as category. The design does not have many information, so users can find information easily.	included, along with advertisements. Therefore, it makes the users dizzy at first glance. The website have bad interface because information are shown a lot.

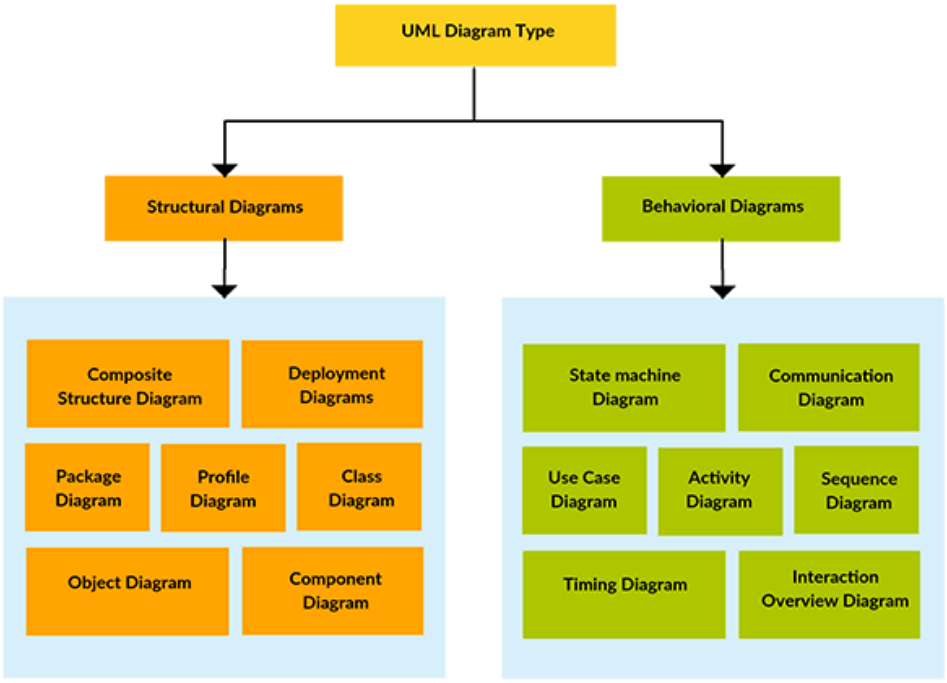
(Oo, 2019)(Amazon, 2019) (Nielsen, 1994)

Summary

Among Nielsen guidelines, I will apply 5 guidelines that are necessary for interface design. Visibility of system status is an important guideline to follow. When users are provided with feedback on their actions, they can know what stages they are in and can make interaction easier. Next, user control and freedom will be applied in Bookworm website so that users can have freedom to do whatever they want. Thirdly, help and documentation guideline will be applied. To provide help to customers, Frequently Asked Questions (FQA) will be written in Help page so that the customers can find what they are looking for. If their issue cannot be solved by reading FQA, they will be able to send message to admin from Contact page. For consistency and standards, Bookworm website will have a template that is the same in every pages. The menu bars, search box, and the footer will be in the same place. In this way, users will not get confused with the website design, and have a good interaction. This guideline will also apply for the admin pages. Last, but not least, to apply aesthetic and minimalist design, Bookworm website will not have information overload. Too many information can give bad design, so if there are too many information, contents will be created and neatly.

2.6 Development Techniques

There are many tools that can be used while developing a system. For instance, UML diagrams such as use case diagram, sequence diagram, class diagram, and deployment diagrams are commonly used in the IT industry. There are 14 types of UML diagrams in total.



UML stands for Unified Modeling Language. UML diagrams are useful when gathering information requirements for the system. It is stated on Tallyfy website that UML is the “most popular business modeling techniques”.

Advantages of using UML

UML is used a lot because UML diagrams basically represent things with pictures. So, people can understand more clearly when defining system processes. It is also used because of its flexibility with technologies. UML such as use case diagram shows business processes in order. Thus, developers can see detailed information on the processes. It is stated in Creately website that "you need to know just 20% of the UML language to explain 80% of your modeling needs." So, if the developer knows 20% of UML, they can require their needs, which is really efficient. Moreover, UML diagrams have different type of tools available, for free and expensive types. The tools include creating diagrams, producing code from designs, etc. Since it have various useful tools for software engineering, UML is used a lot.

Comparing techniques

In order to find out which will be the most effective tool to use for the system, most frequently used diagrams will be compared and analyzed.

1. Deployment diagram

Deployment diagram used to show connection between hardware and software. It is basically a model to show how software components connect with hardware components. The link is node. There is also a link between user and database, which is called artifact.

2. Class Diagram

Class diagram consist of classes with attributes. It is used frequently because Object Oriented Programming (OOP) is still used up to this day. OOP works with classes so class diagram is used a lot in documentation. In the diagram, classes are linked together in relations.

3. Use case Diagrams

Use case are useful for finding high level requirements. The functional requirements are shown as use cases in the diagram. Use case diagram includes system boundary, actors, relations, and use cases. The name of the use case should be verb and noun. Actors are people who interacts with the system. Relationships are showed with straight lines between use cases and actors, to show that the actor does the process in the system.

4. Sequence Diagram

Sequence diagrams are useful when making business applications. It is also used a lot in computer science. In the diagram, messages are shown in sequence. The messages are exchanged between actors and objects. The sequence diagram usually is shown in vertical structure.

Techniques to be used

Among the techniques discussed above, 2 diagrams, use case diagram and class diagram will be selected as tools for the bookstore system. Use case diagrams are easy to use and understand. Since it shows interactions between actors and use cases, user requirements can be seen clearly. Additionally, it is used a lot in IT industry, since it is effective. Therefore, use case diagram will be drawn for the system.

Class diagram consists of objects and classes. The relationships are shown by lines between them. Classes also include attributes, so it is easy to know what should be saved in the database beforehand. (For e.g. attributes under Book class are ISBN, Book Name, etc.). Thus, class diagram will also be drawn.

(Creately, 2017) (CETA, 2018)

2.7 Summary

In this chapter, methods, language, database, and techniques are compared and discussed. Then, better ones are selected to be applied for system. When choosing better ones, Bookworm website is considered so that methods, language, and database that are to be used work well with the website. Thus, reasons why they are selected are also discussed. Comparisons are shown with tables to be more effective.

Chapter 3

Chapter 3

3.1 Planning

Functional Requirements

Within the system, staff will be able to add, update or delete products. Customers will be able to view products with prices, and can order. Payment will be by cash-on-delivery (COD). The website will be able to view from different devices and by different browsers.

MUST	
Customer	**Staff**
Search Book	Register Book
	Record Book
	Categorize Book
	Report Book

SHOULD	
Customer	**Staff**
Customer Register	Staff Register
Customer Login	Staff Login
Order Book	Check Order
	Manage Stock Level
	View Sales
	Report Order

COULD	
Customer	**Staff**
Return Book	Record Delivery
	Produce Receipt
	Report Delivery

WOULD	
Customer	**Staff**
Give Feedback	Show best sellers
Modify information	
Cancel Order	

MUST

Register Book

Reason: Without books input into the system, customers cannot search and order books. Staff cannot also record books.

Search Book

Reason: Since the main aim of building the online website is to make sure that customers can view all the books available, search box is critical part of the system. When typing the keywords, customers should be able to find the books they were looking for.

Record Book

Reason: Books' data have to be input in the system so that there are books available for customers to order.Data are also to be recorded in the system.They can also update or delete data easily. Retrieving data must be also possible.

Categorize Book

Reason: In the homepage, the customers must be able to view the book category so that they can easily find the type of book they like. They can just click on the book types in the categories to view more books of the type.

Report Book

Reason: The books that are sold online must have a report so that Bookworm can see which books are sold the most, and which books are sold the least.

Should

Customer Register

Reason: Users have to register before viewing the website. Members are only allowed to view the website. This can give good security for the website.

Customer Login

Reason: Customers should login so that they don't have to register the next time they visit the website. They will just need to fill in user name and password.

Order Book

Reason: Customers need to order books to make the system efficient. They should be able to view the books' details such as Author name and price. They can order more than one book when ordering. Their ordered books will be collected in the shopping cart.

Staff Register

Reason: Staff also need to register because they are managing in back-end. They need to have an account to manage the system.

Staff Login

Reason: Staff will also need to login to make the website secure. They have to login with own account to view the customers' orders.

Check Order

Reason: Staff must be able to view the ordered books. By viewing the orders, they will then have to contact the customers to confirm their orders. The staff should then deliver the orders to correct addresses.

Manage Stock Level

Reason: Stock to record is different from stock from the bookstores. It will be the stock for books available on the website, because if the stock of the bookstores are recorded in the system, it will make it complex. So, there will be a limit in number of books available from website. For example, each book will have maximum 10 books available when buying from website. Stock level need to be viewed so that Bookworm can check whether there are more books in the stock room for the particular book.

View Sales

Reason: Sale from online need to be managed daily. Data could be total sales, average sale, name and address of customers. The order data can be used to find out the revenue.

Report Order

Reason: The order report should be made in the system. It must be viewed daily. The report should include customer name, orders they made, order date, and amount.

Could

Return Book

Reason: When the books are delivered to the customers, sometimes, there can be damage to the books. There can also be wrong book delivered to the customers. Therefore, in order to allow customers to return books, this function could be included in the system.

Manage Delivery

Reason: Delivery could be prepared. Then, books should be delivered to correct address. When delivering, staff will have to collect money. When customers want to return books, they can return to staff. After delivery, data of customers should be deleted to protect customers' data.

Produce Receipt

Reason: When books are delivered to customers, receipt can be shown to customers. In this way, Bookworm can have trust from customers.

Report Delivery

Reason: There have to be a report to see the delivered orders. Delivery date should also be included. Person who sent the delivery could also be included.

Would

Give feedback

Reason: The customers who have already bought the books from online would be able provide feedback for Bookworms website.

Modify Information

Reason: The customers might be able to change their information such as name after they have account.

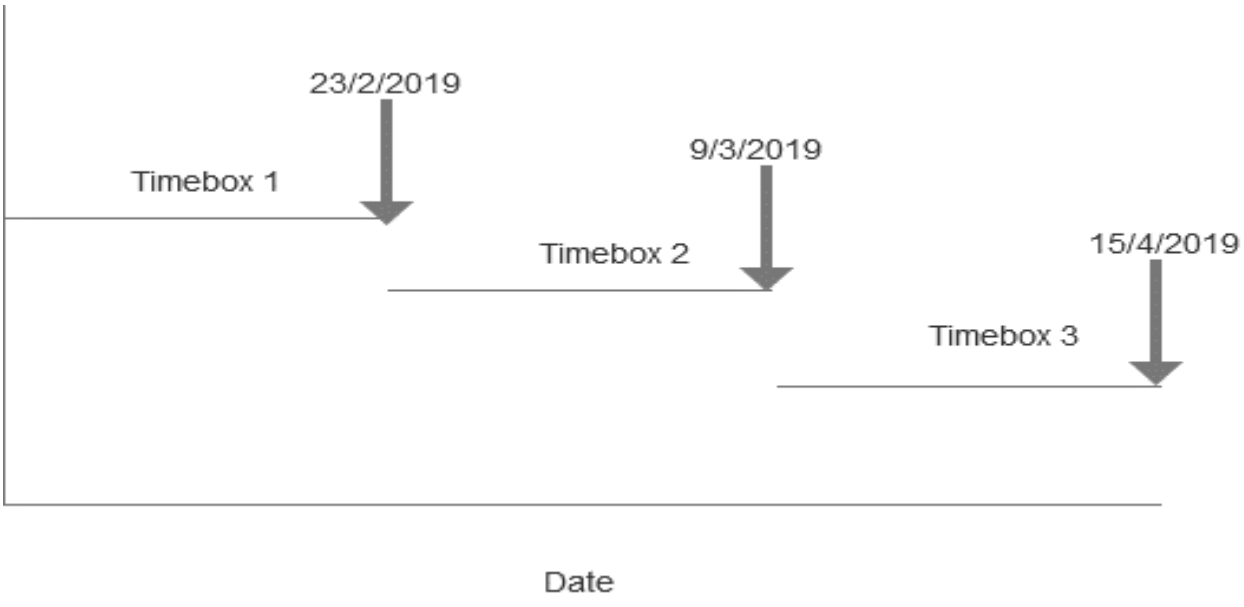
Cancel Order

Reason: If the customers want to cancel order, they might be able to do it instead of staff.

Show Best Sellers

Reason: In order to provide the customers with best seller books, the homepage might display the best seller books.

Gantt chart



Chapter 4

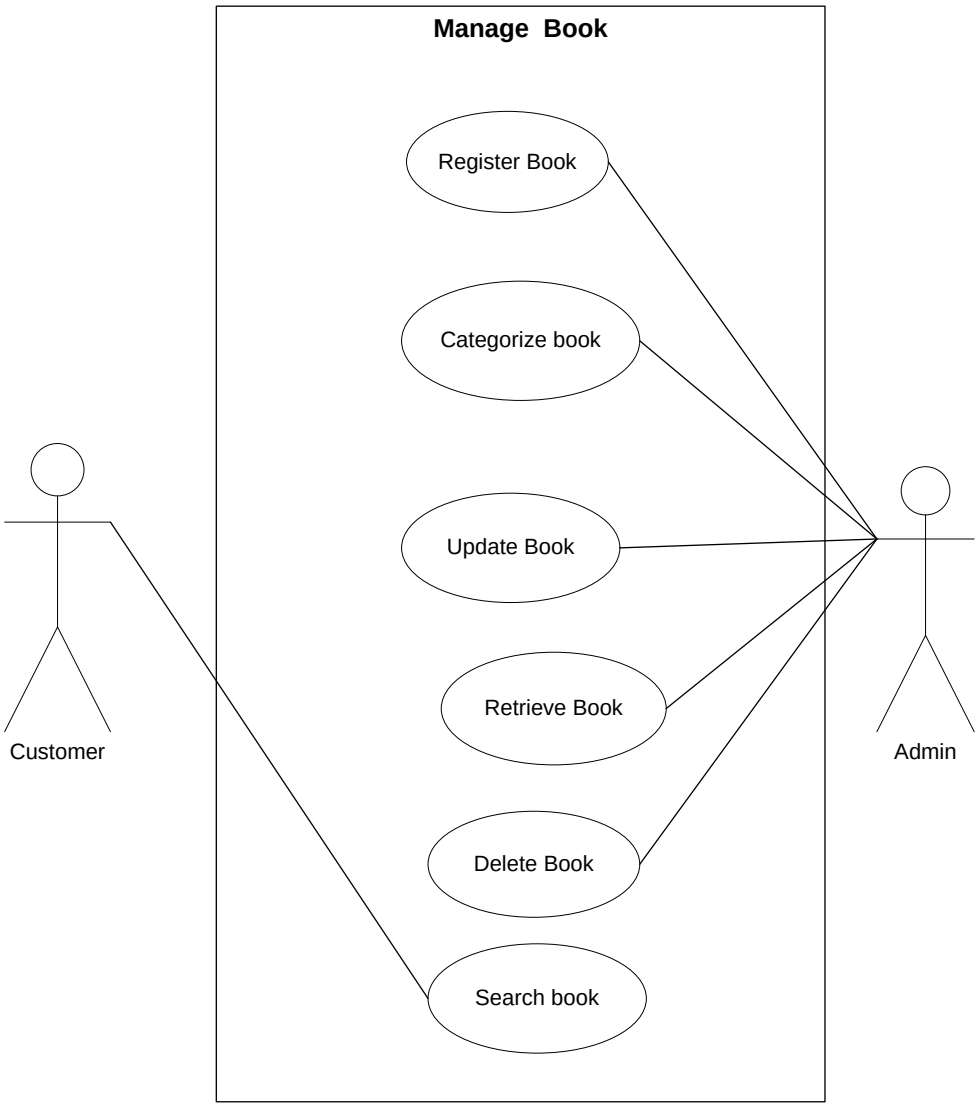
Chapter 4

4 Development/Implementation

For each time boxes, they will include use case diagram, low-level prototype, class diagrams, high level prototype and testing.

4.1 Time box 1

1. Use Case Diagram



Use case descriptions

Use case Name- Register Book

Actor-Admin

Pre-condition- Staff Login

Description-log in

- register book data

Alternative-If the book exist in the database, book register is not necessary.

Use case Name- Categorize Book

Actor-Admin

Pre-condition- Register Book

Description-Input book

-divide them into categories

Alternative-none

Use case Name- Update Book

Actor-Admin

Pre-condition- Register book

Description-Click edit beside one book

- edit data

-click Update

Alternative-If book data does not need to change, this is not required.

Use case Name- Retrieve Book

Actor-Admin

Pre-condition- Register book

Description-Look at book list

Alternative-If the book doesn’t exist, retrieve is not possible.

Use case Name- Delete Book

Actor-Admin

Pre-condition- Book Register

Description-look at Book List

- Click ‘Delete’ in one row.

Alternative-If the book doesn’t exist, delete is not possible.

Use case Name- Search Book

Actor-Customer

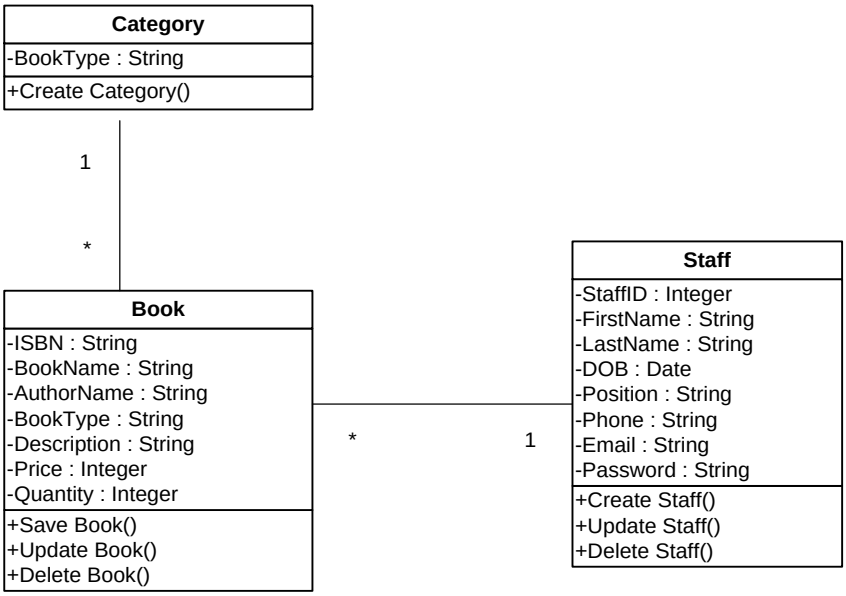
Pre-condition- Log in

Description- Fill in email and password

- Search book in the search books.

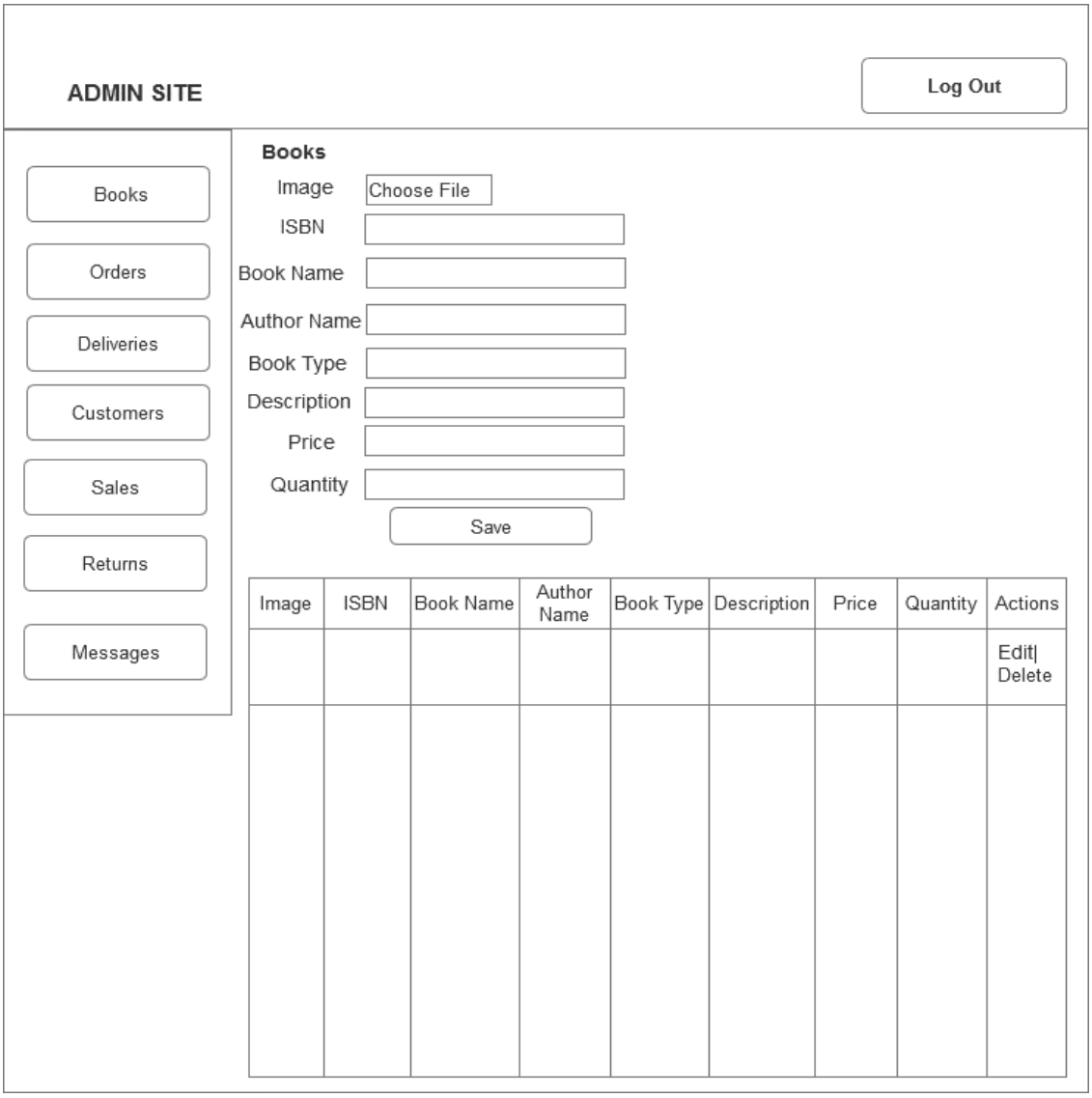
Alternative-If the book doesn’t exist, search will not show book.

2. Class Diagram



3. Low-level-prototype (LLP)

Register Book, Update Book, Delete Book



4. High level prototype (HLP)

Register Book, Update Book, Delete Book

5. Testing

Purpose	Register book
Data	Image-the_great_gatsby.jpg ISBN-P-22884455 Book Name-The Great Gatsby Author Name- Paul Book Type-Romance Description- An intriguing book about the Gatsby character. Price-34000 Quantity-5
Procedure	Click Choose File to choose image. Fill in the text boxes. Click Save.
Expected Result	Data saved.
Actual Result	Message appears and book data shown in Book List table.

Register book

Before Testing

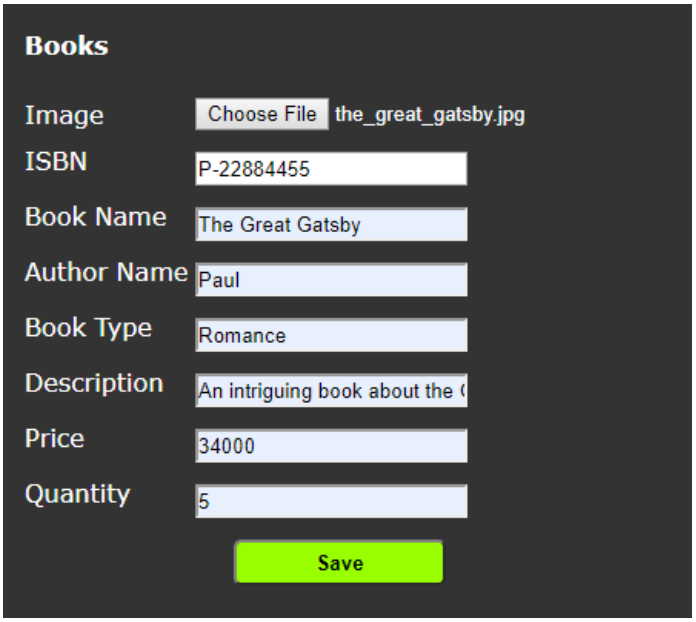


Fig. 1.1

After Testing

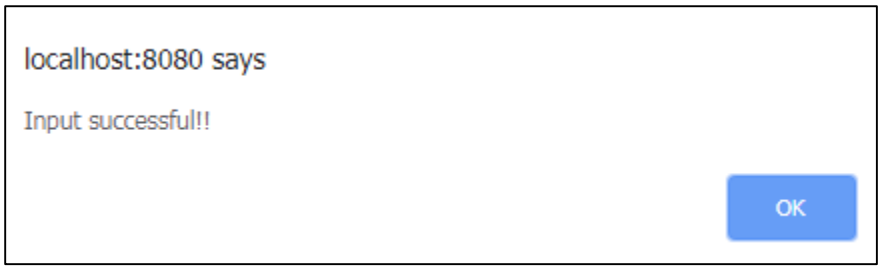


Fig. 1.2

Fig. 1.3

Purpose	Update Book
Data	Author Name-Scott Fitzgerald.
Procedure	Change author name from Paul to Scott Fitzgerald.
Expected Result	Data updated.
Actual Result	Message appears and author name changed.

Update Book

Before Testing

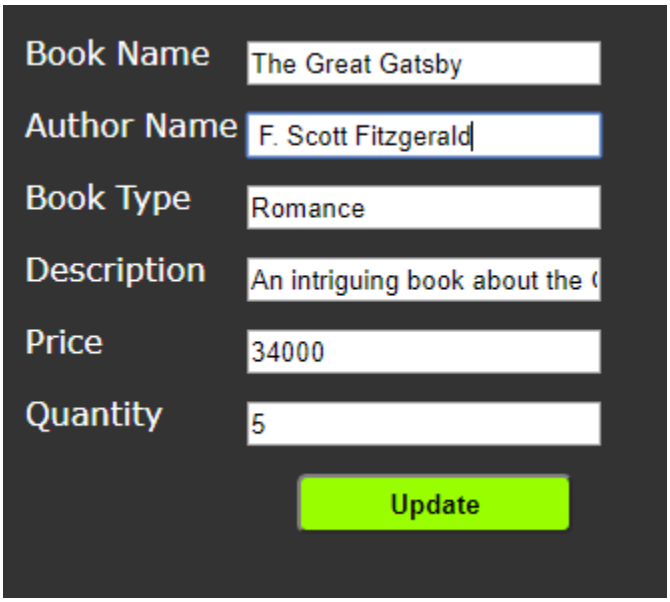


Fig. 2.1

After Testing

Fig. 2.2

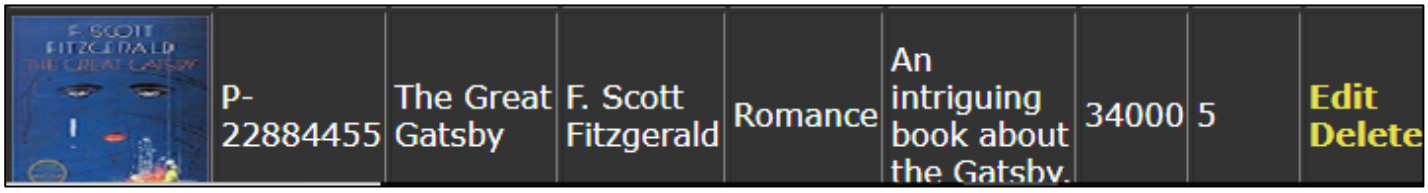


Fig 2.3

Purpose	Delete Book
Data	Delete
Procedure	Click ‘Delete’ button beside book data.
Expected Result	Book row deleted from table.
Actual Result	Message appears and book data deleted..

Delete Book

Before Testing

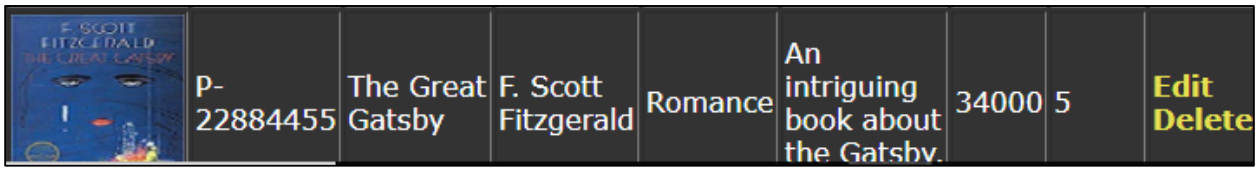


Fig 3.1

After Testing

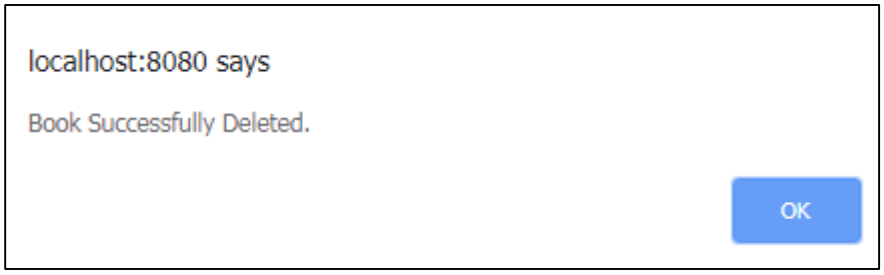
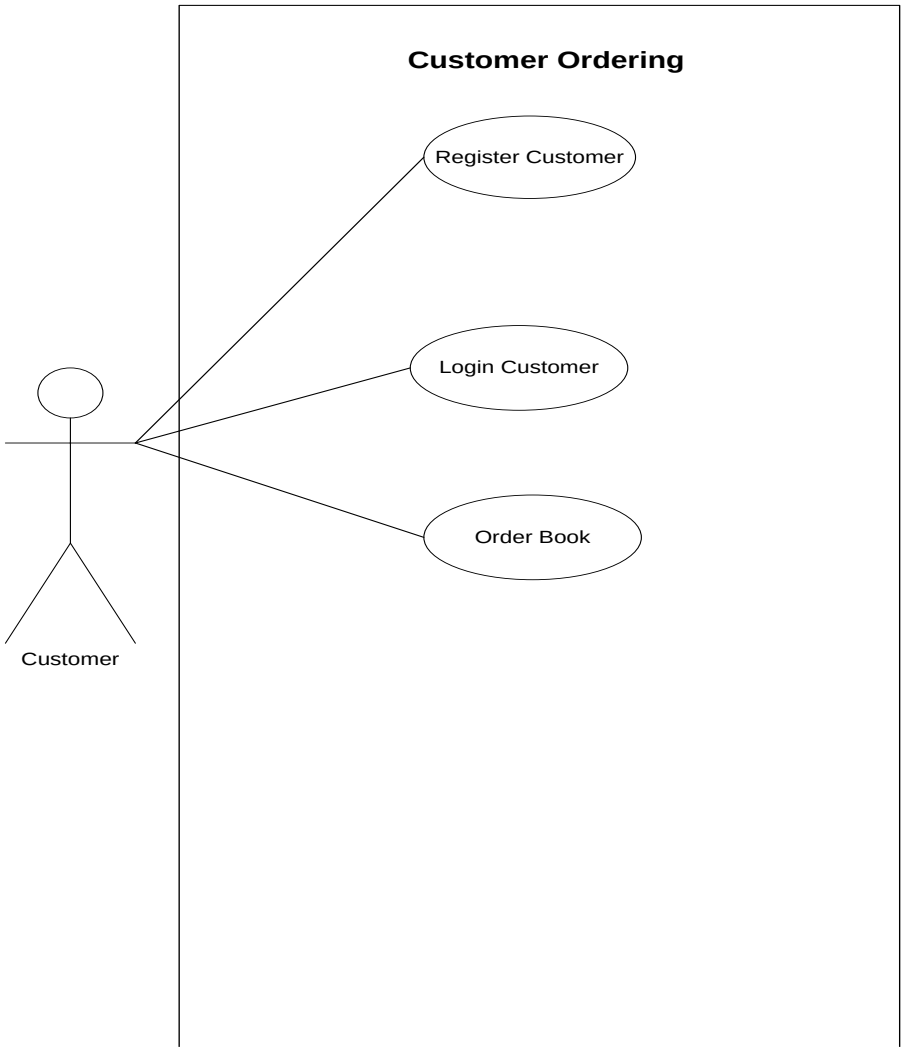


Fig 3.2

4.2 Time box 2a

1. Use case diagram



Use case Name- Register Customer

Actor-Customer

Pre-condition- none

Description- Fill in the form

- Click ‘Register’.

Alternative-If the customer have already registered, register page won’t work.

Use case Name- Login Customer

Actor-Customer

Pre-condition- Register Customer

Description- Type in Email and Password.

- Click ‘Login’

Alternative-If the customer do not have account, they will have to go to register page.

Use case Name- Order Book

Actor-Customer

Pre-condition- Login Customer

Description- Type in Email and Password.

- Click ‘Detail’ beside a book.

- Type in quantity.

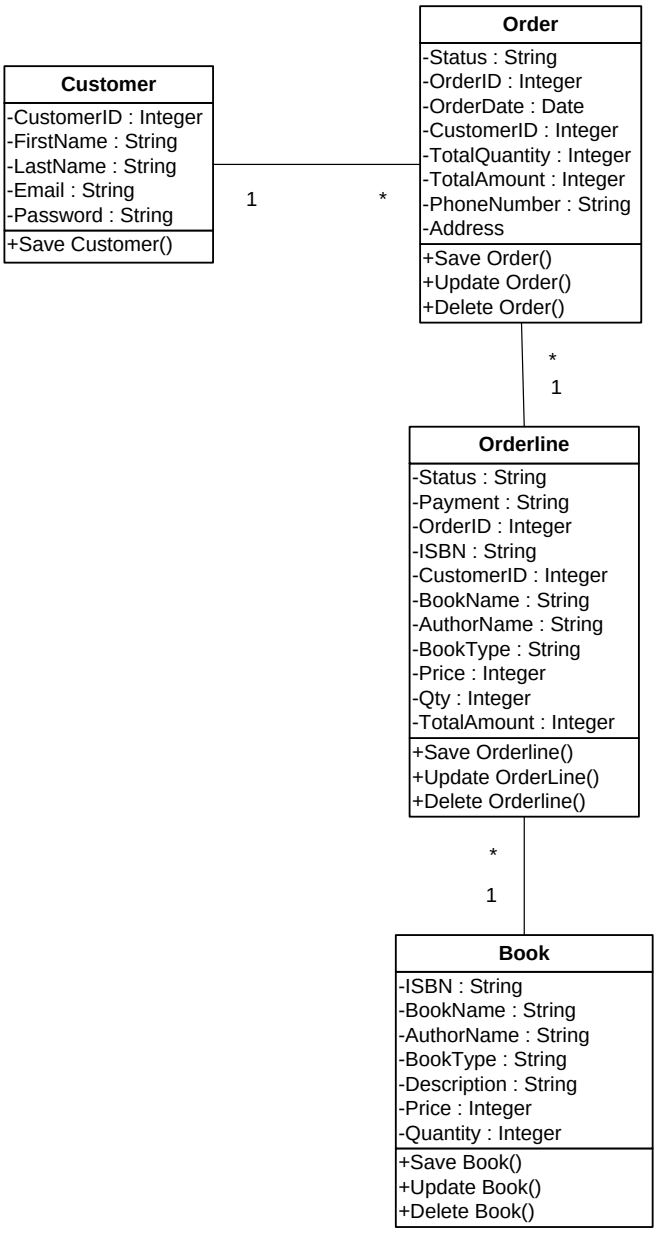
-View shopping cart.

-Click ‘Continue’.

-Fill in form and click ‘Checkout’. .

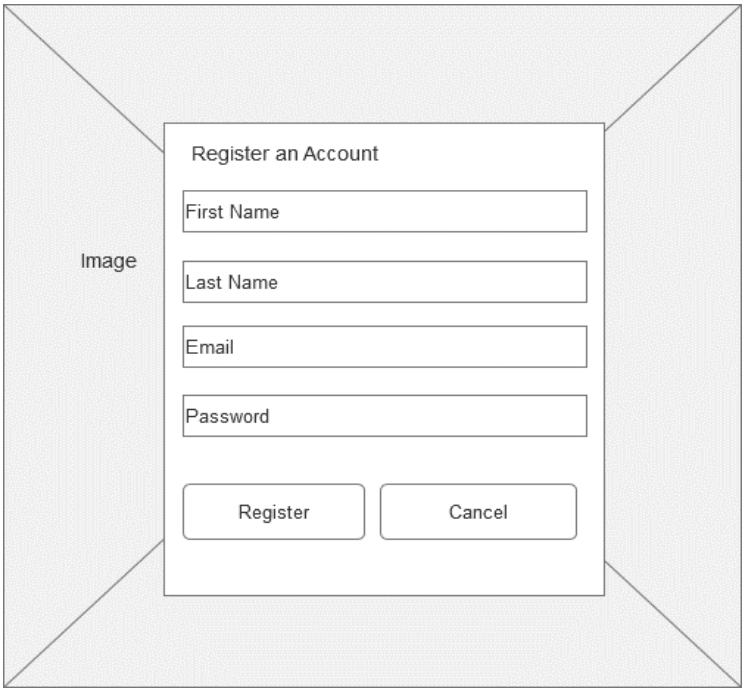
Alternative-If the customer cannot login, they will have to create account to order book.

2. Class Diagram

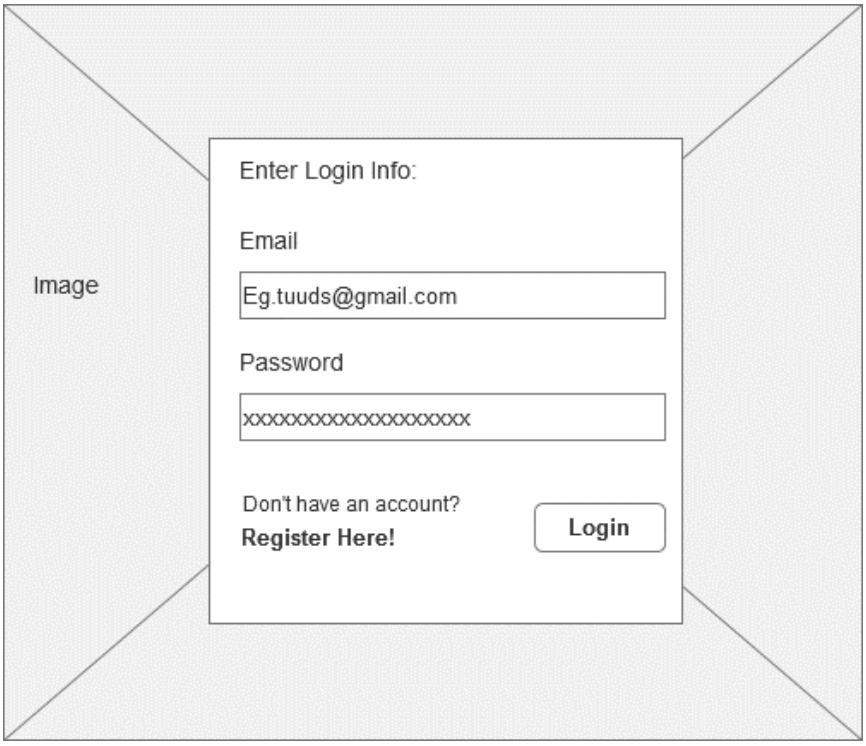


3. Low-level-prototype (LLP)

Register Customer

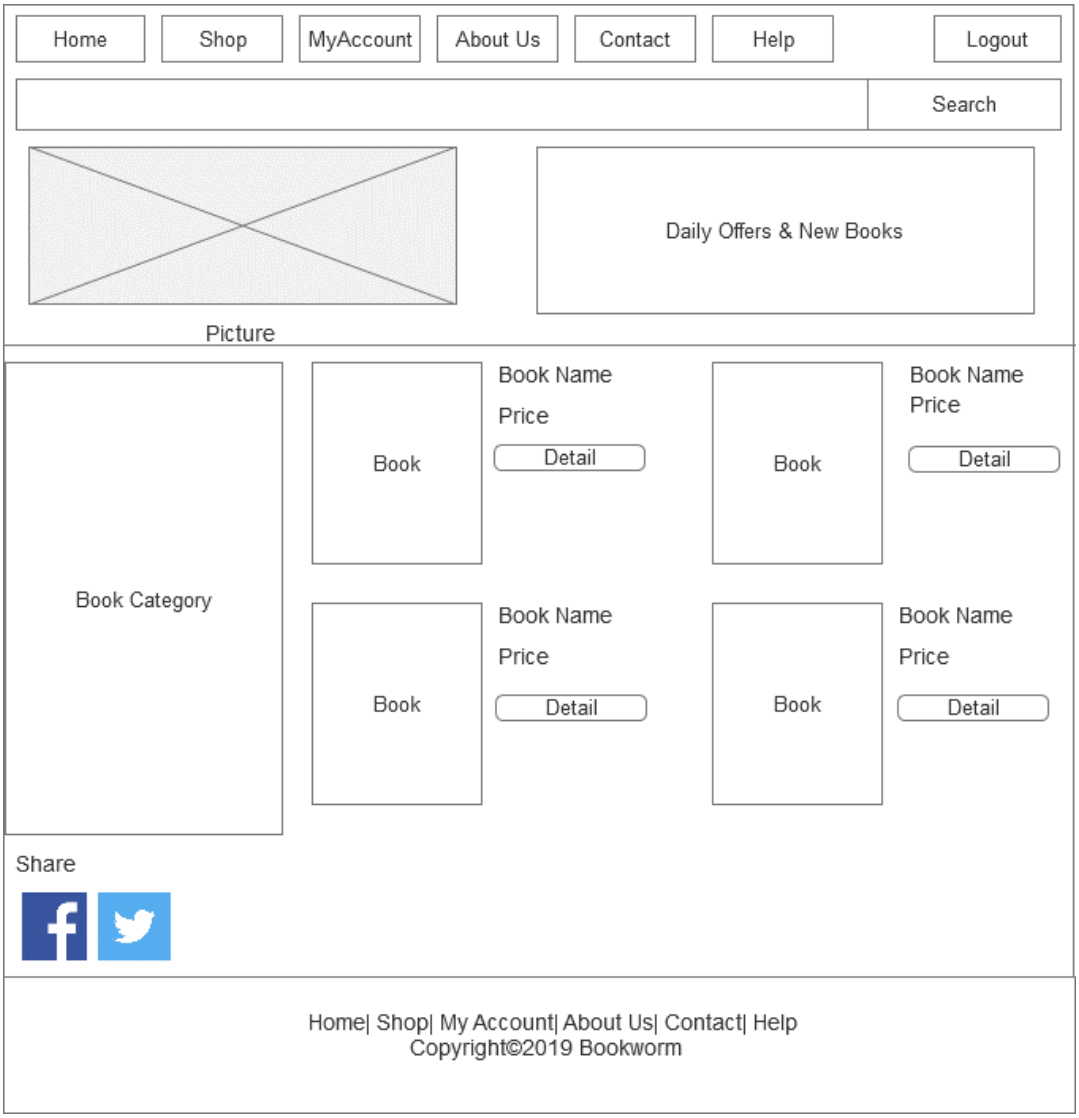


Customer Login

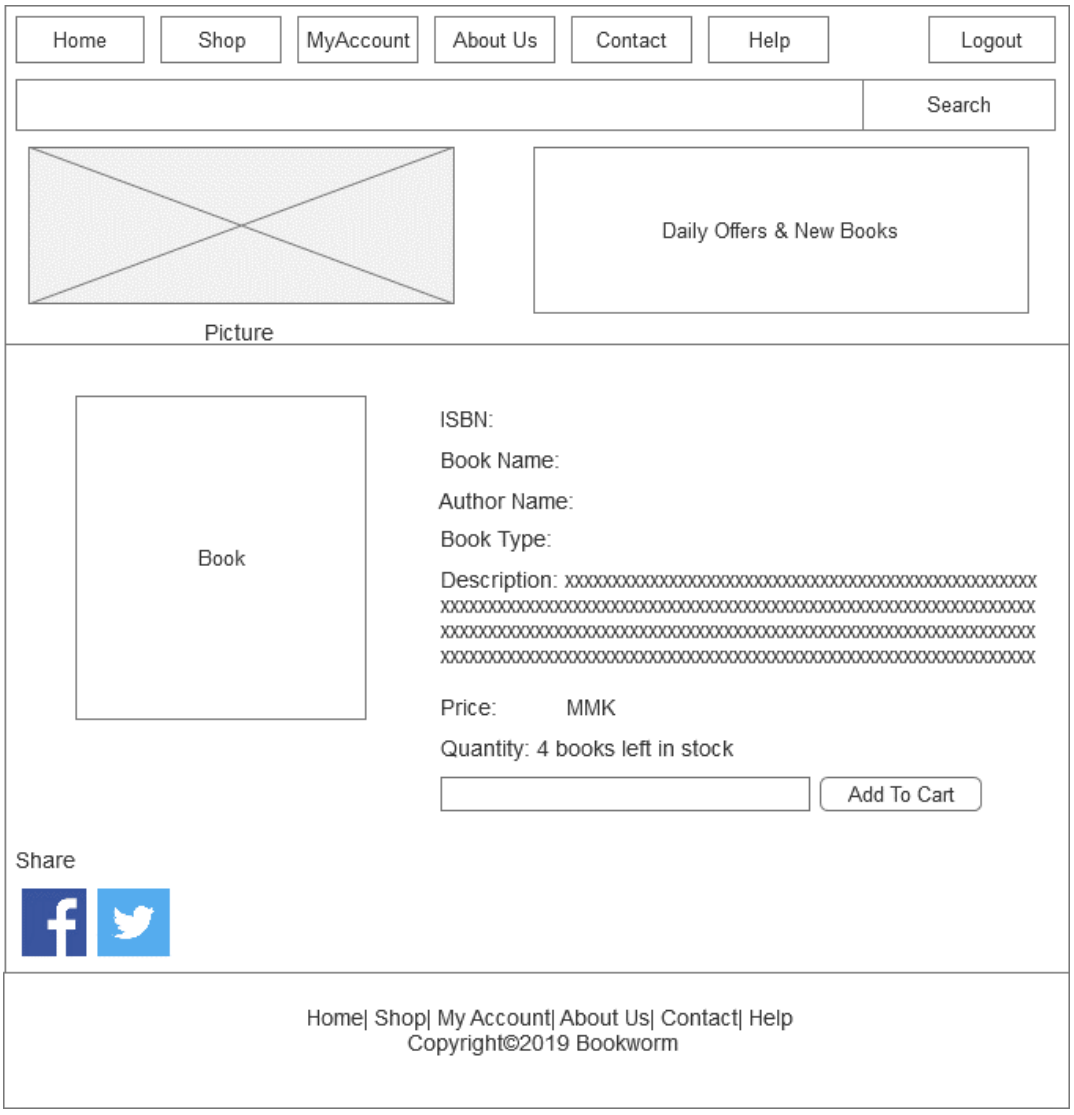


Order Books

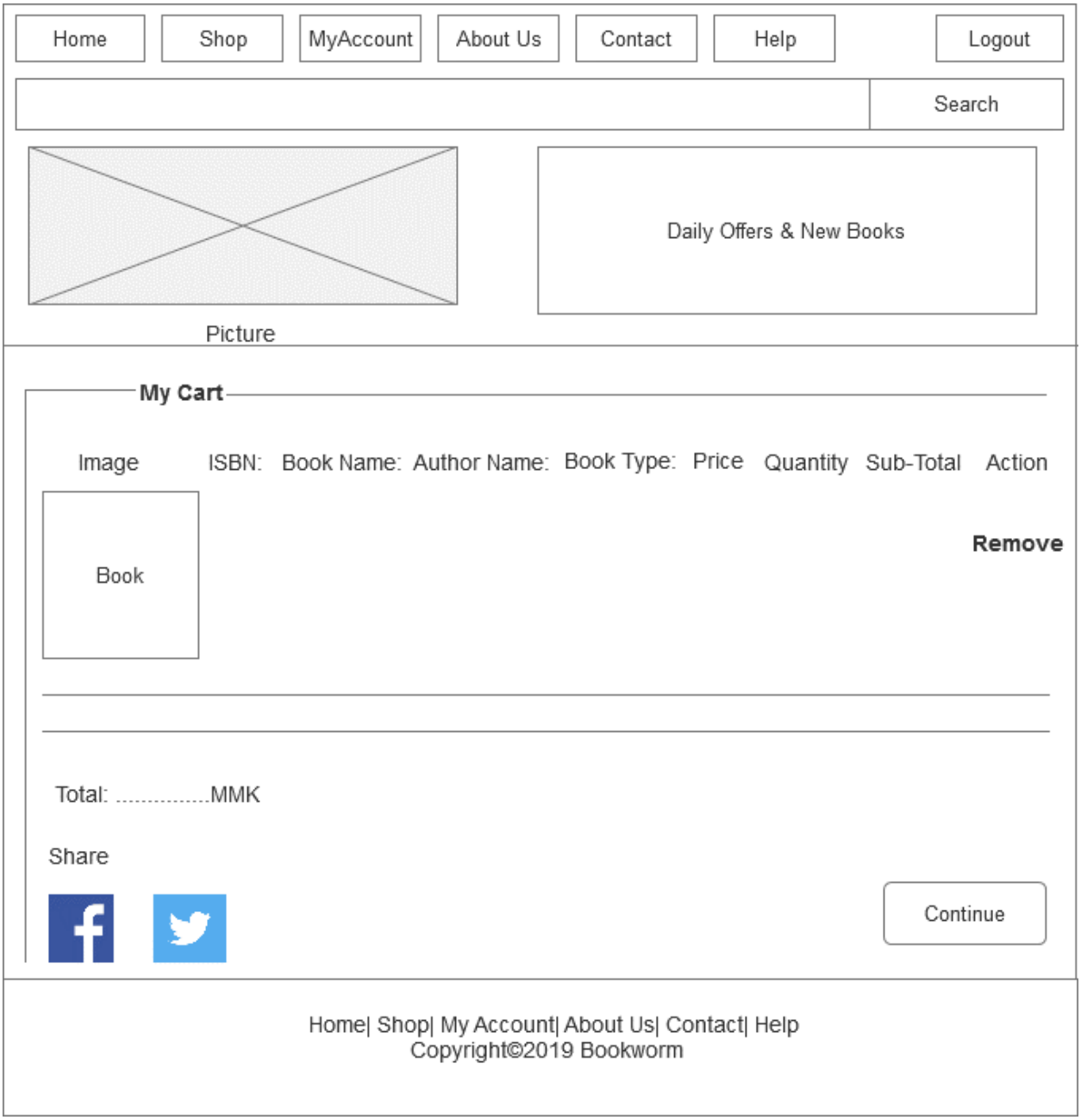
1. Homepage



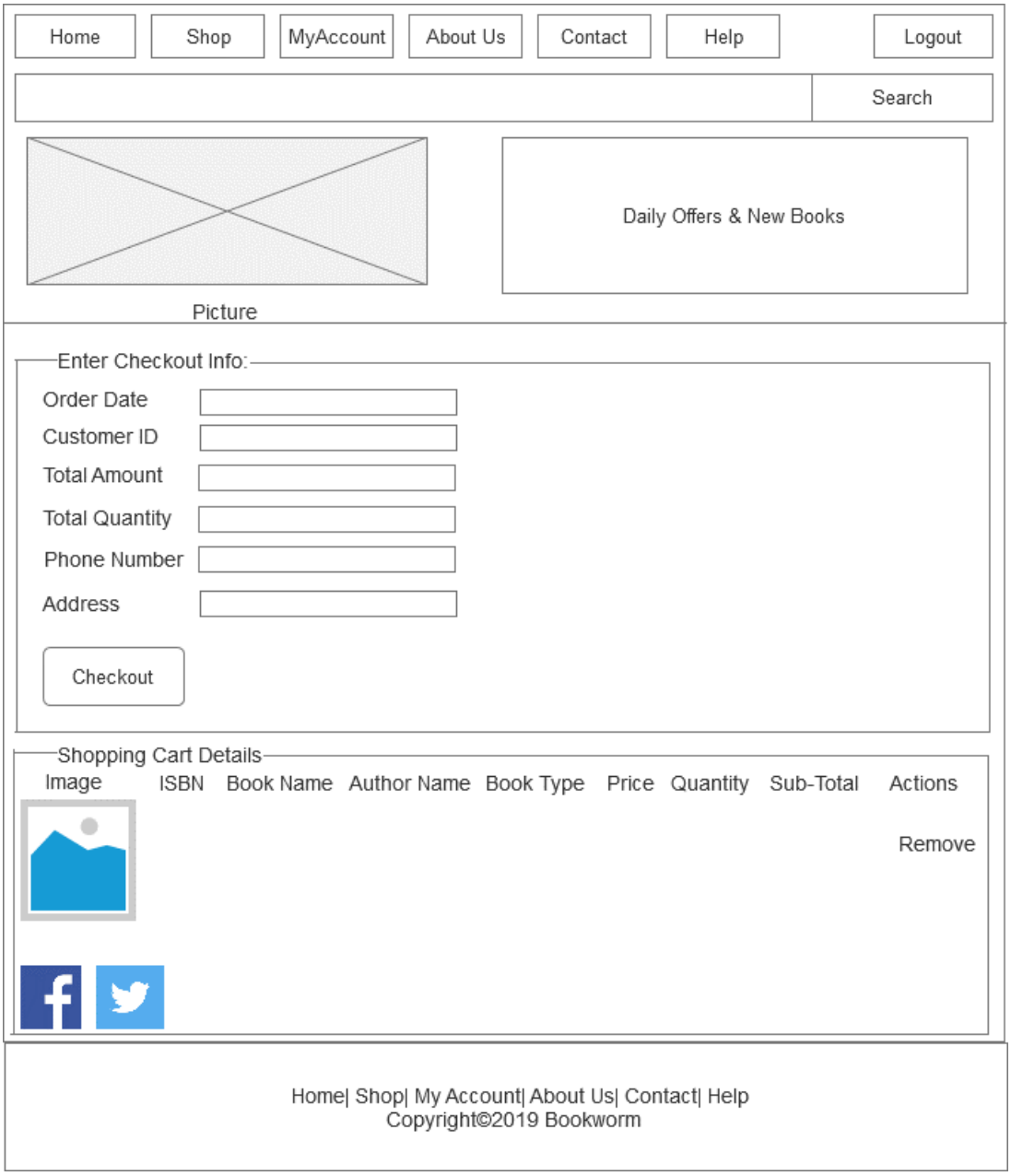
2. Book Detail Page


Home
Shop
MyAccount
About Us
Contact
Help
Logout
Search
Daily Offers & New Books
Picture
Book
ISBN:
Book Name:
Author Name:
Book Type:
Description: xxxx

3. Shopping Cart



4. Checkout

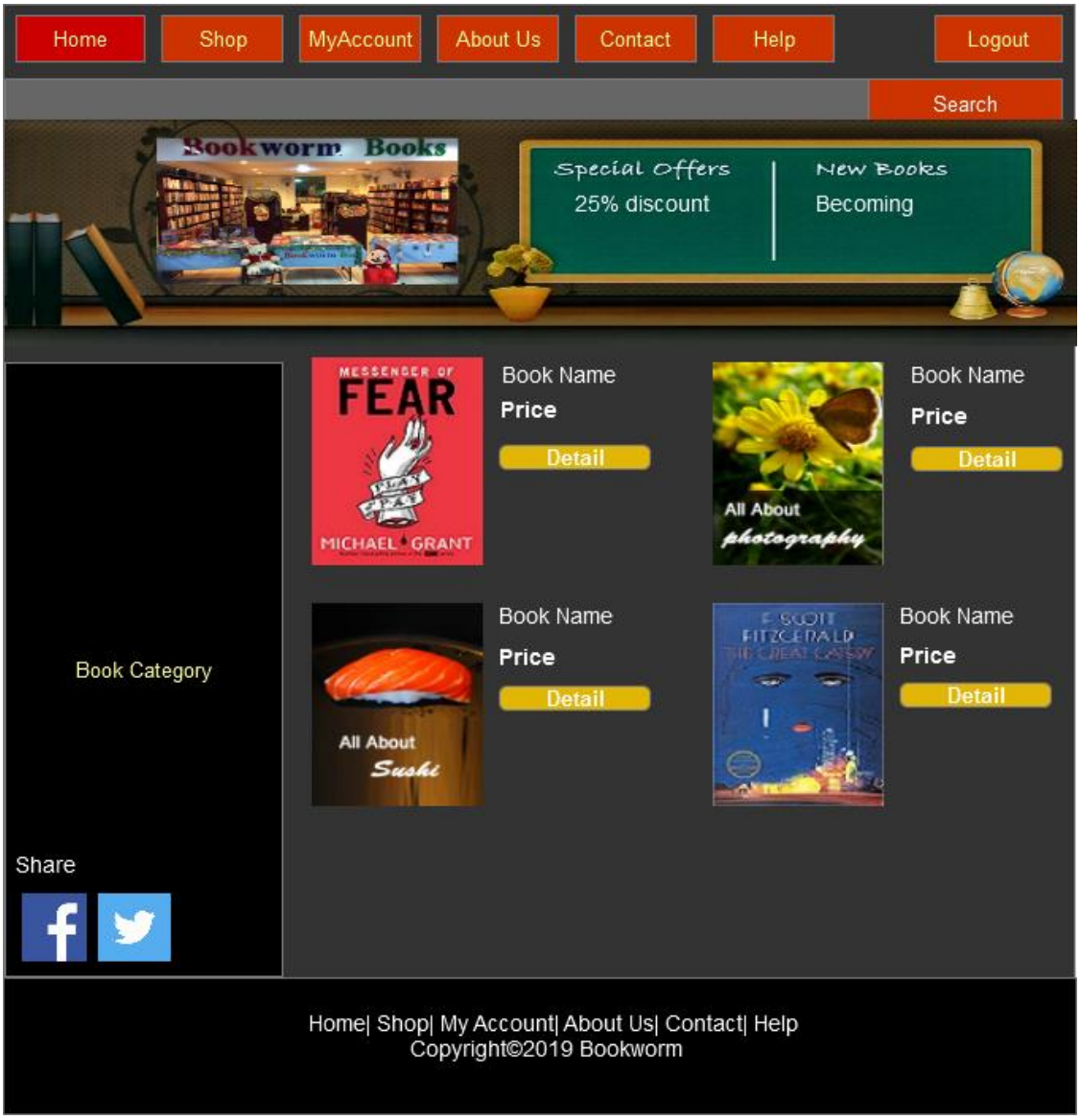

Home
Shop
MyAccount
About Us
Contact
Help
Logout
Search
Picture
Daily Offers & New Books
Enter Checkout Info:
Order Date
Customer ID
Total Amount
Total Quantity
Phone Number
Address
Checkout
Shopping Cart Details
Image
ISBN
Book Name
Author Name
Book Type
Price
Quantity
Sub-Total
Actions
Remove
Home| Shop| My Account| About Us| Contact| Help
Copyright©2019 Bookworm

4. High level prototype (HLP)

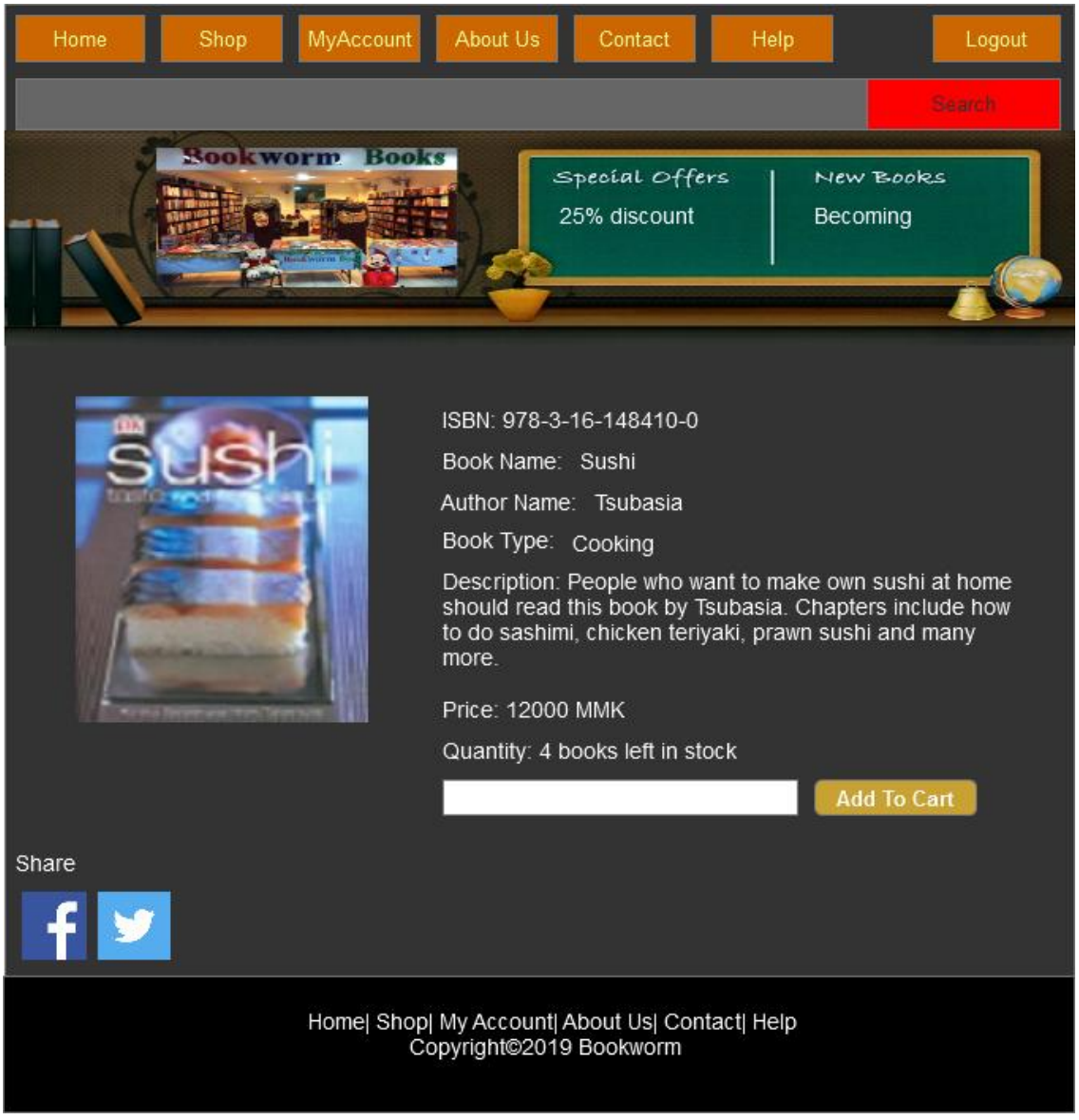
Register Customer

Customer Login

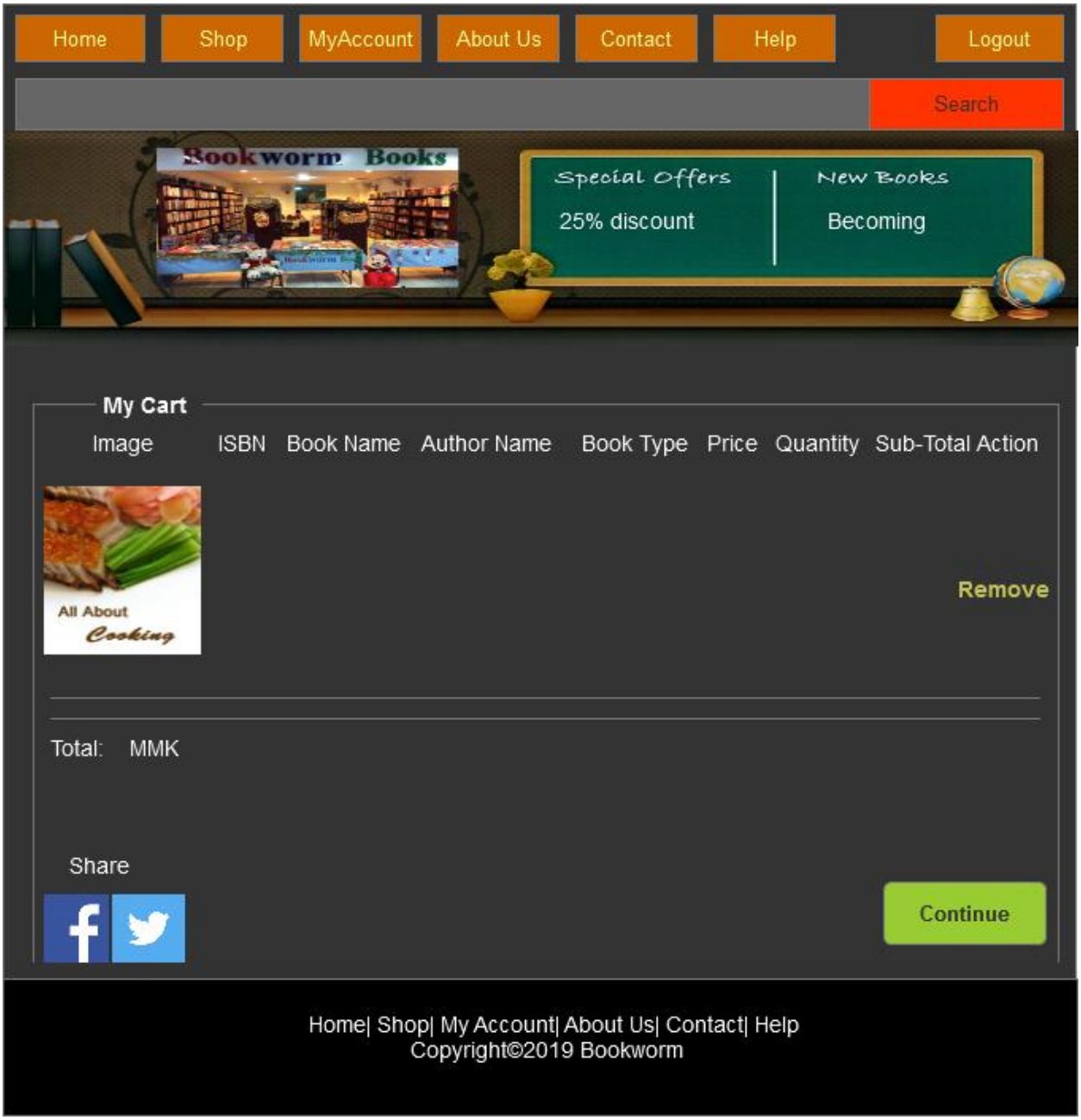
Homepage


Home
Shop
MyAccount
About Us
Contact
Help
Logout
Search
Bookworm Books
Special Offers
25% discount
New Books
Becoming
Book Category
Share
Book Name
Price
Detail
Book Name
Price
Detail
Book Name
Price
Detail
Book Name
Price
Detail
Home| Shop| My Account| About Us| Contact| Help
Copyright©2019 Bookworm

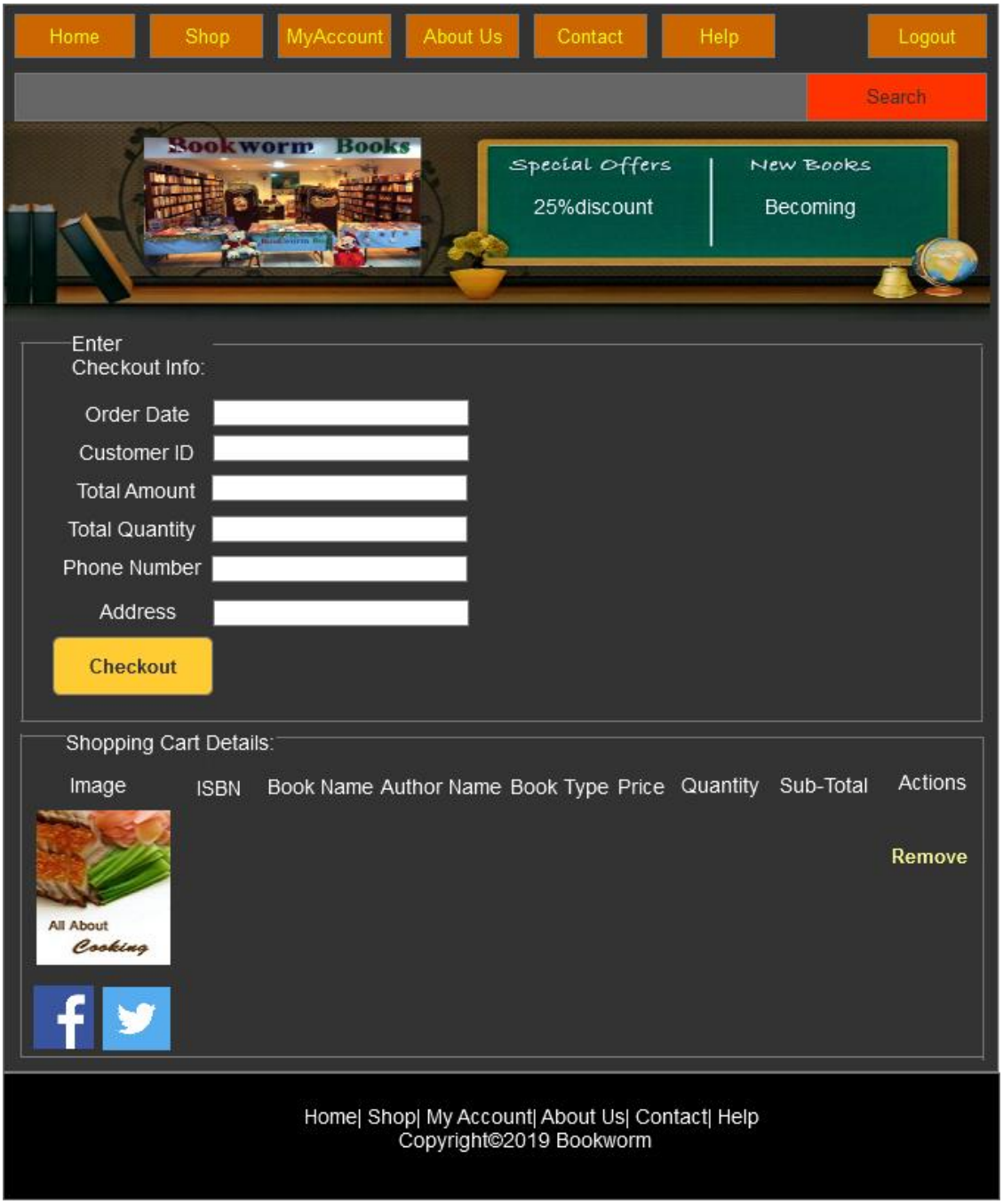
Book Detail Page



Shopping Cart



Checkout


Home
Shop
MyAccount
About Us
Contact
Help
Logout
Search
Bookworm Books
Special Offers
25%discount
New Books
Becoming
Enter
Checkout Info:
Order Date
Customer ID
Total Amount
Total Quantity
Phone Number
Address
Checkout
Shopping Cart Details:
Image
ISBN
Book Name
Author Name
Book Type
Price
Quantity
Sub-Total
Actions
Remove
All About
Cooking
Home| Shop| My Account| About Us| Contact| Help
Copyright©2019 Bookworm

5. Testing

Purpose	Register Customer
Data	First Name-Mandy Last Name-Butterworth Email-butter@gmail.com Password-jambutter
Procedure	Fill in text boxes beside First Name, Last Name, Email, and Password. Click 'Register' button.
Expected Result	Message appears Click 'OK'. Customer will be directed to login page.
Actual Result	Message appears. Login page appears.

Register customer

Before Testing

Fig. 4.1

After Testing

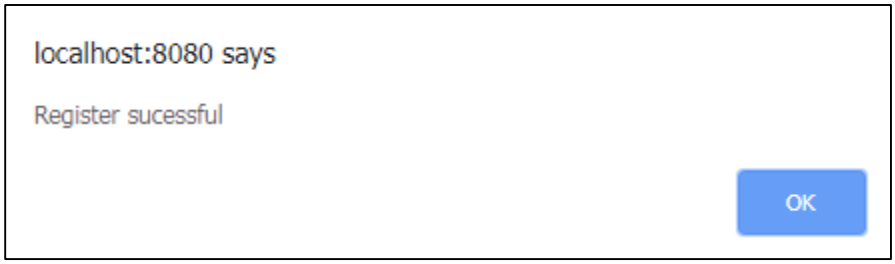


Fig 4.2

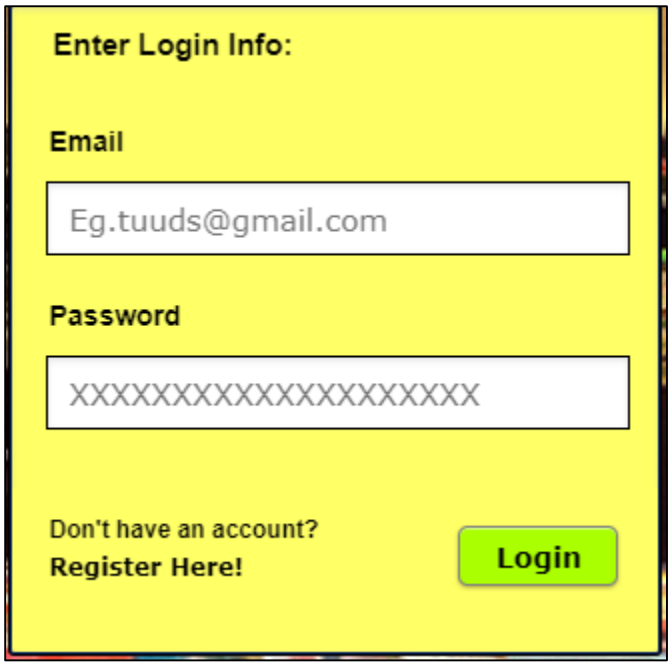


Fig 4.3

Purpose	Customer Login
Data	Email-butter@gmail.com Password-jambutter
Procedure	Fill in text boxes beside Email and Password. Click Login.
Expected Result	Message appears and click ‘OK’. Customer will be directed to Login page.
Actual Result	Message appears. Login page appears.

Customer Login

Before Testing

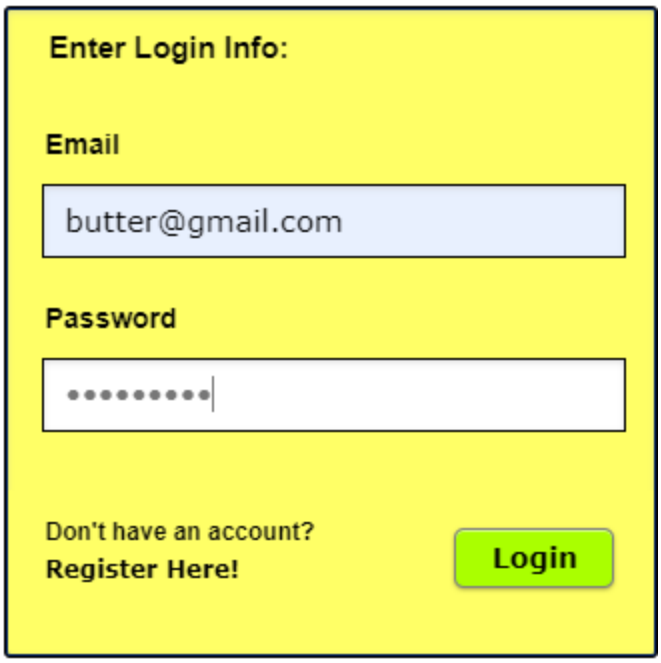


Fig. 5.1

After Testing

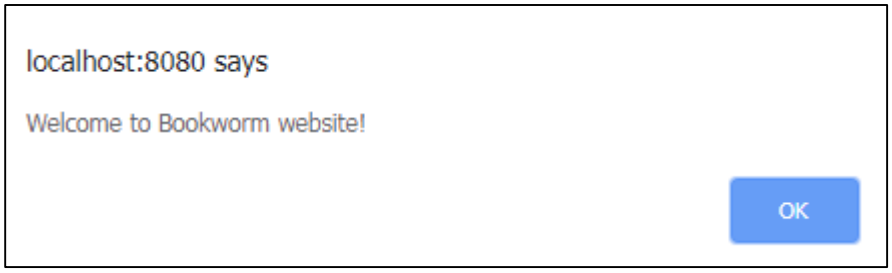


Fig.5.2

Fig 5.3

Purpose	View Book Detail
Data	None
Procedure	Click on ‘Detail’ button under a book.
Expected Result	Customer will be directed to Book Detail page.
Actual Result	Book Detail page appears.

Homepage

Before Testing

Fig 6.1

After Testing

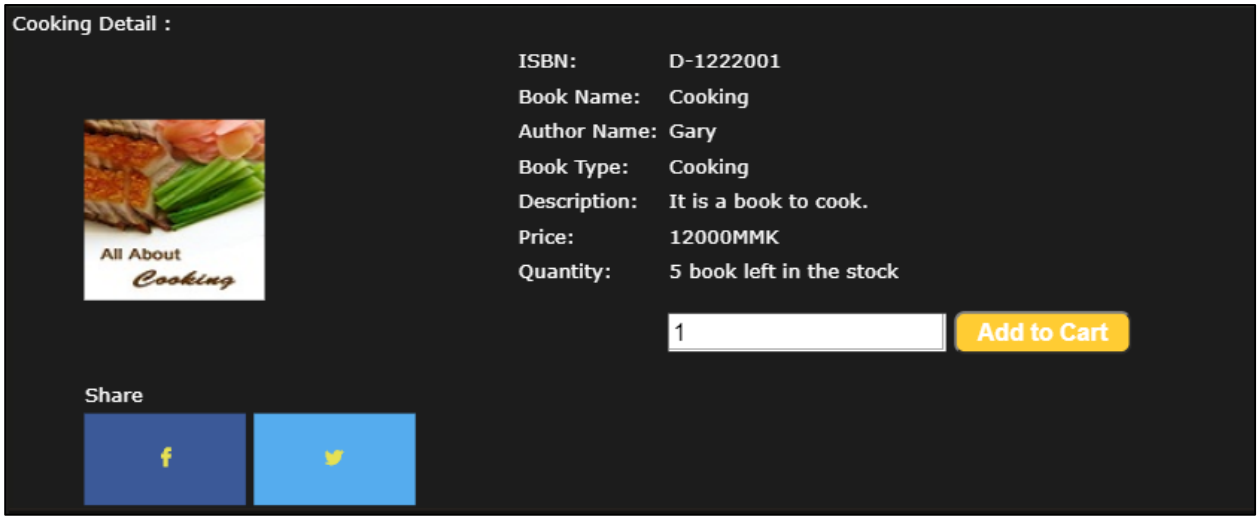


Fig.6.2

Purpose	Write quantity.
Data	1
Procedure	Write ‘1’ in the text box. Click ‘Add to Cart’ button.
Expected Result	Shopping Cart page will appear. Quantity will be 1.
Actual Result	Customer is directed to Shopping Cart page.

Book Detail Page

Before Testing

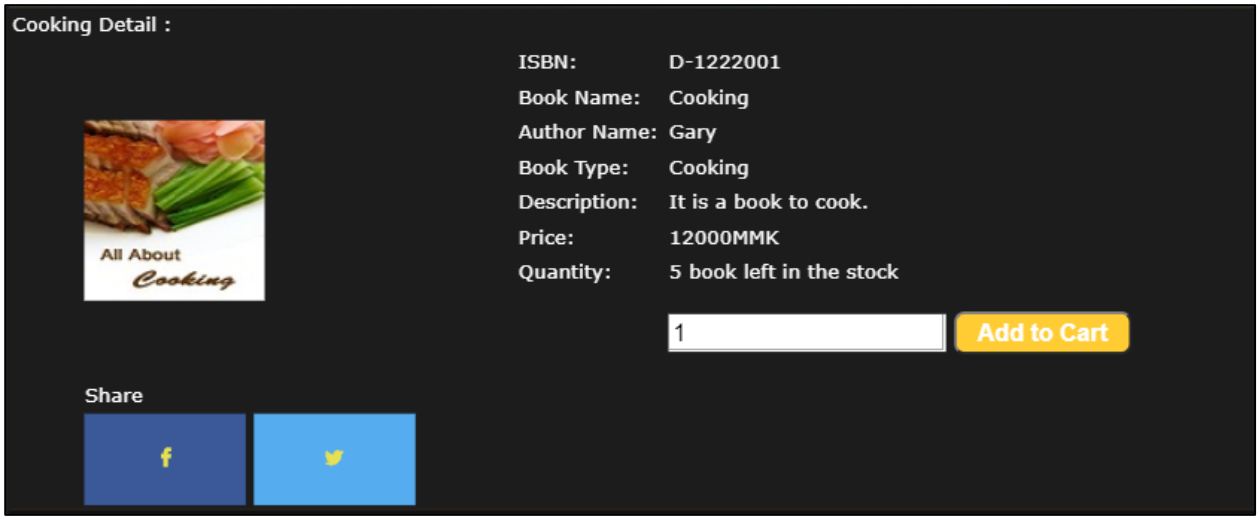


Fig 7.1

After Testing

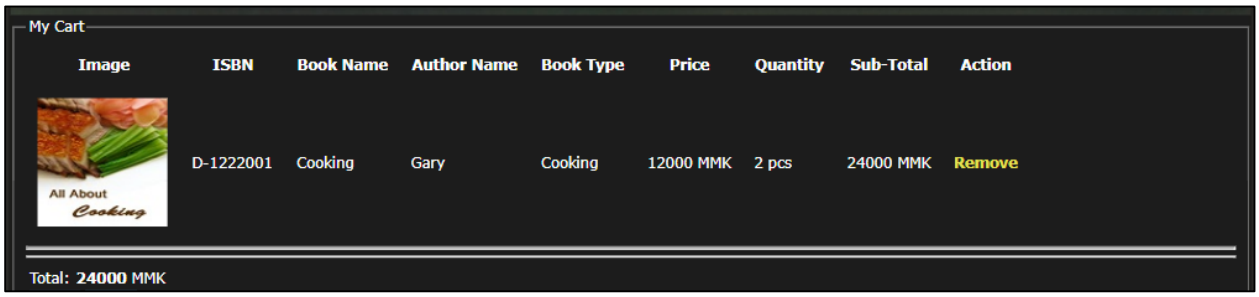


Fig. 7.2

Purpose	Checkout
Data	Phone Number- 09-984773322 Adress-No.5, Pyay Road, Sanchaung Tsp.
Procedure	Fill in text boxes beside Phone Number and Address. Click 'Checkout'.
Expected Result	Message appears and customer will be directed back to homepage.
Actual Result	Message appears. Homepage appears.

Checkout

Before Testing

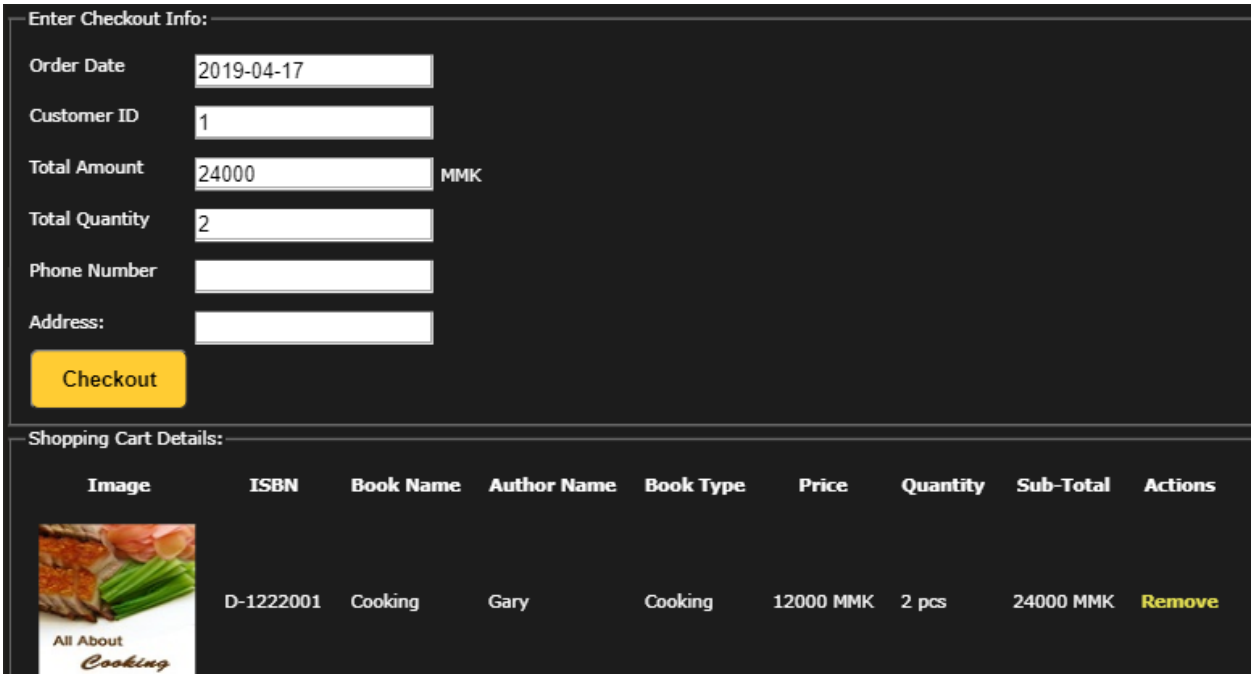


Fig.8.1

After Testing

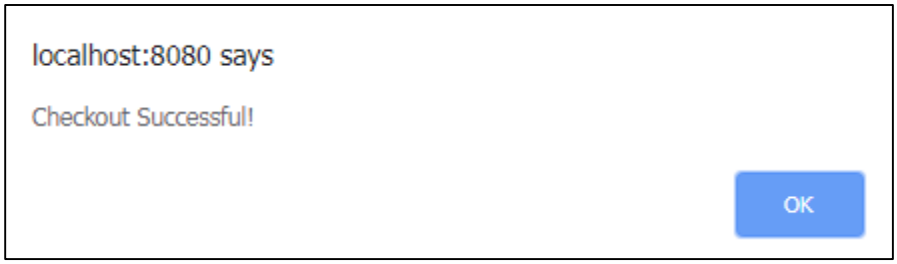
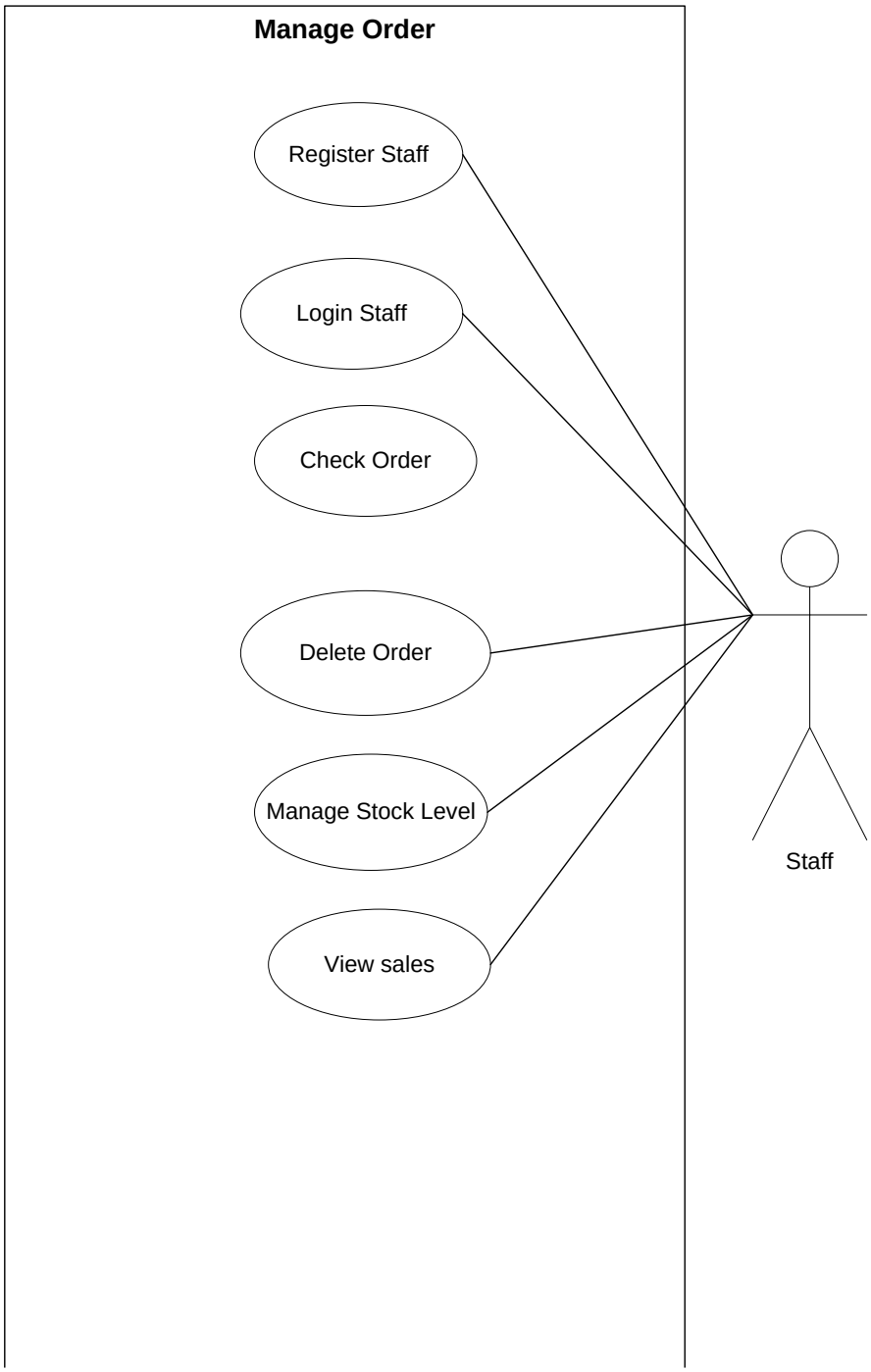


Fig. 8.2

Fig 8.3

4.3 Time box 2b

1. Use case diagram



Use case Name- Register Staff

Actor-Staff

Pre-condition-none

Description- Fill in form.

- Click ‘Register’.

Alternative-If the staff already have account, they don’t need to register.

Use case Name- Login Staff

Actor-Staff

Pre-condition-Register Staff

Description- Fill in Email and Password

- Click ‘Login’.

Alternative-If the staff does not have account, they have to go to register page.

Use case Name- Check Order

Actor-Staff

Pre-condition-Login Staff

Description- Click ‘Orders’ button.

- View Order table.

Alternative-If the staff do not have account, they won’t be able to check order.

Use case Name- Delete Order

Actor-Staff

Pre-condition- Check Order

Description- View Order table.

- Click ‘Delete’ beside order line.

Alternative-If the order hasn’t delivered yet to the customer, order data shouldn’t be deleted.

Use case Name- Manage Stock Level

Actor-Staff

Pre-condition- Login Staff

Description- View books

- Change quantity of books.
- Click ‘Save’.

Alternative-If the books do not left in the stock, this cannot be done.

Use case Name- View Sales

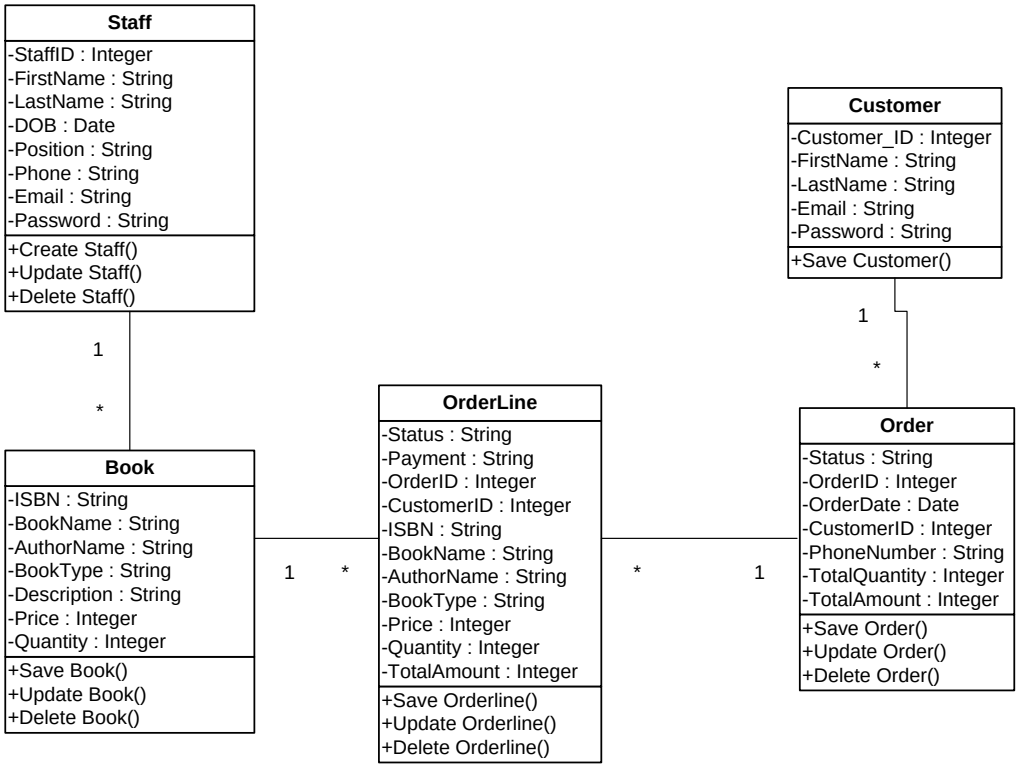
Actor-Staff

Pre-condition- Order Books

Description- Click ‘Sales’ button.

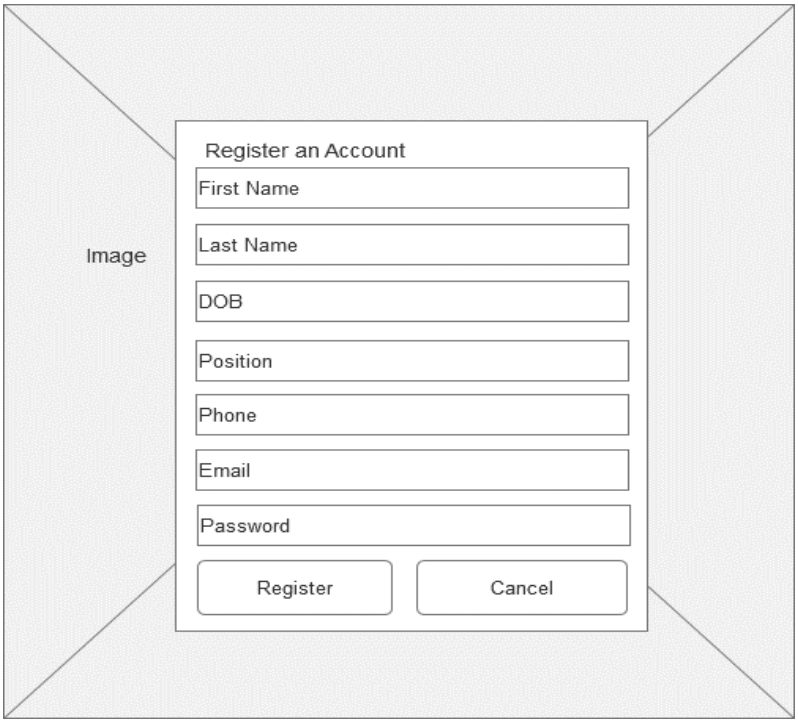
Alternative- If there is no customers who ordered books, sales will not be seen.

2. Class Diagram

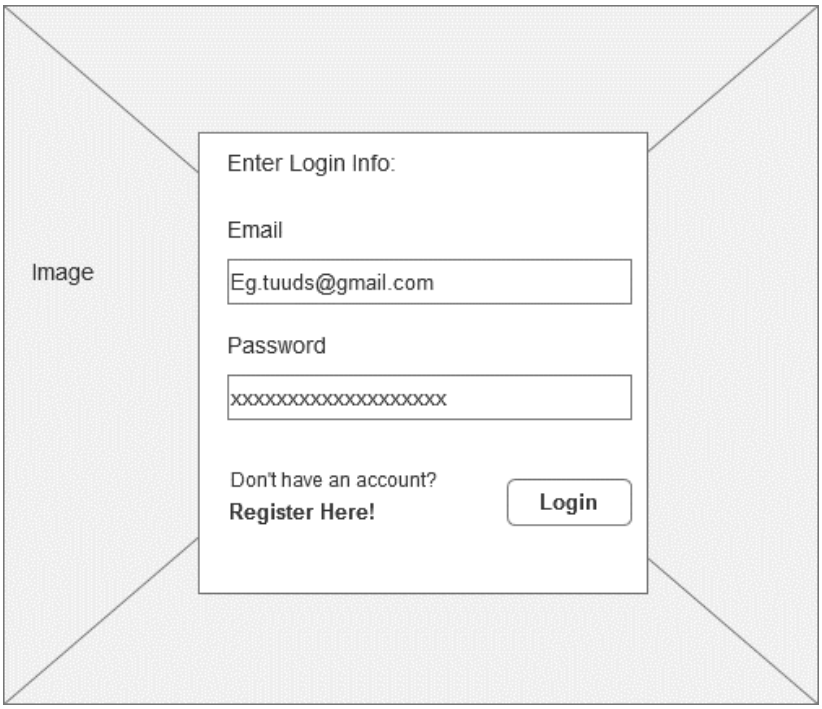


3. Low-level-prototype (LLP)

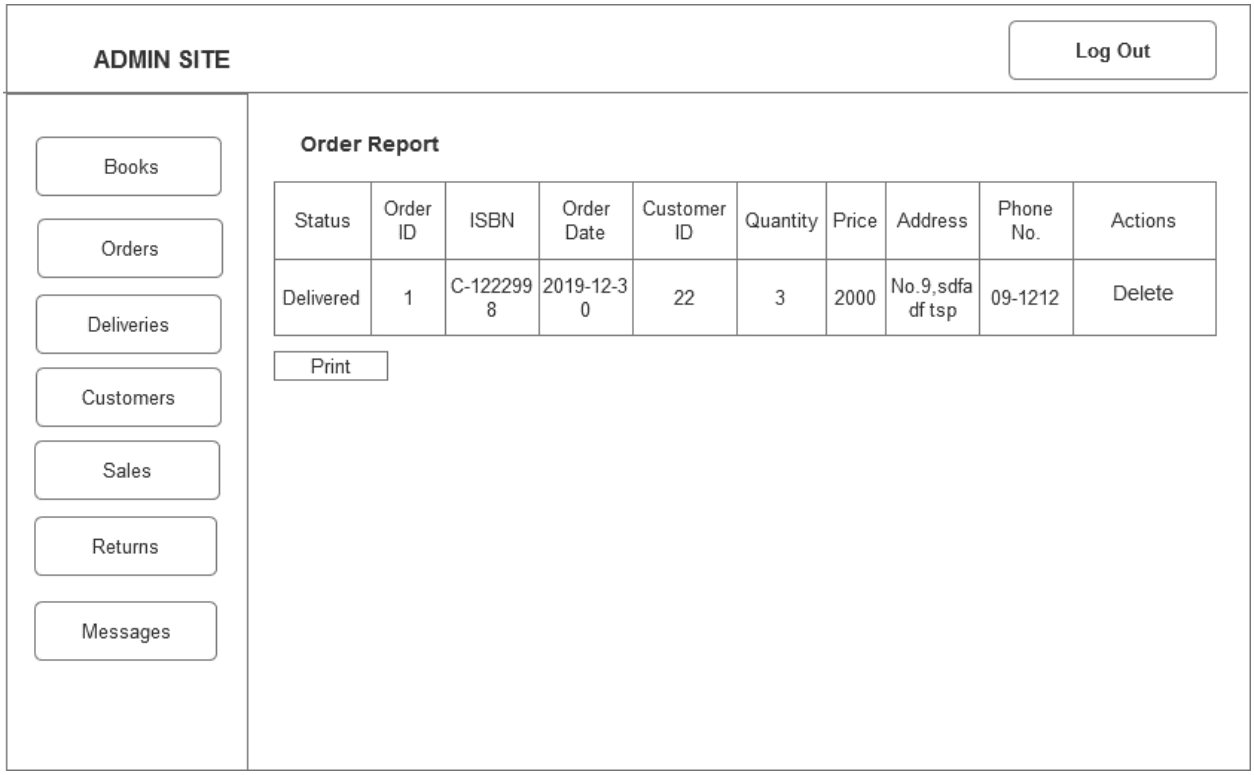
StaffRegister



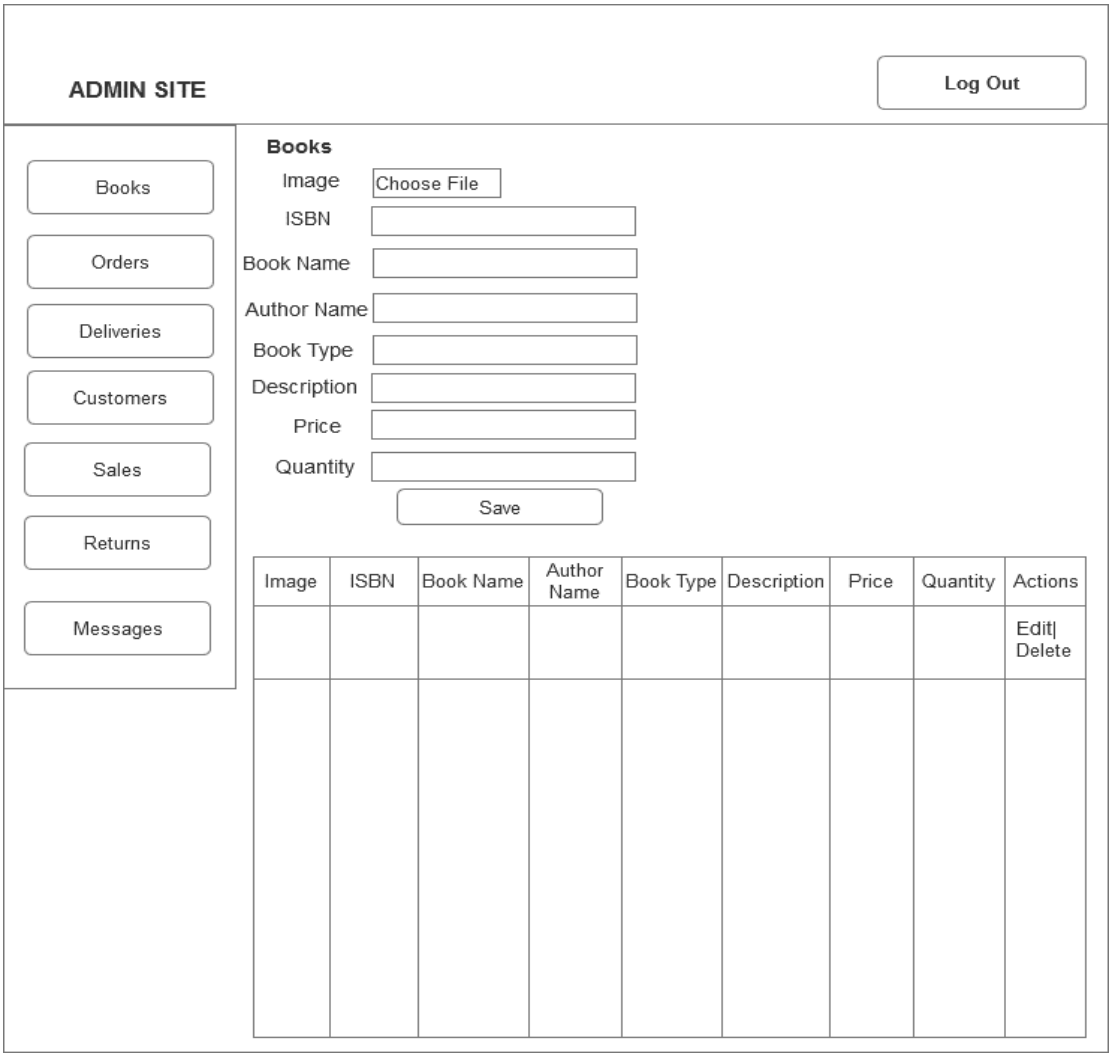
StaffLogin



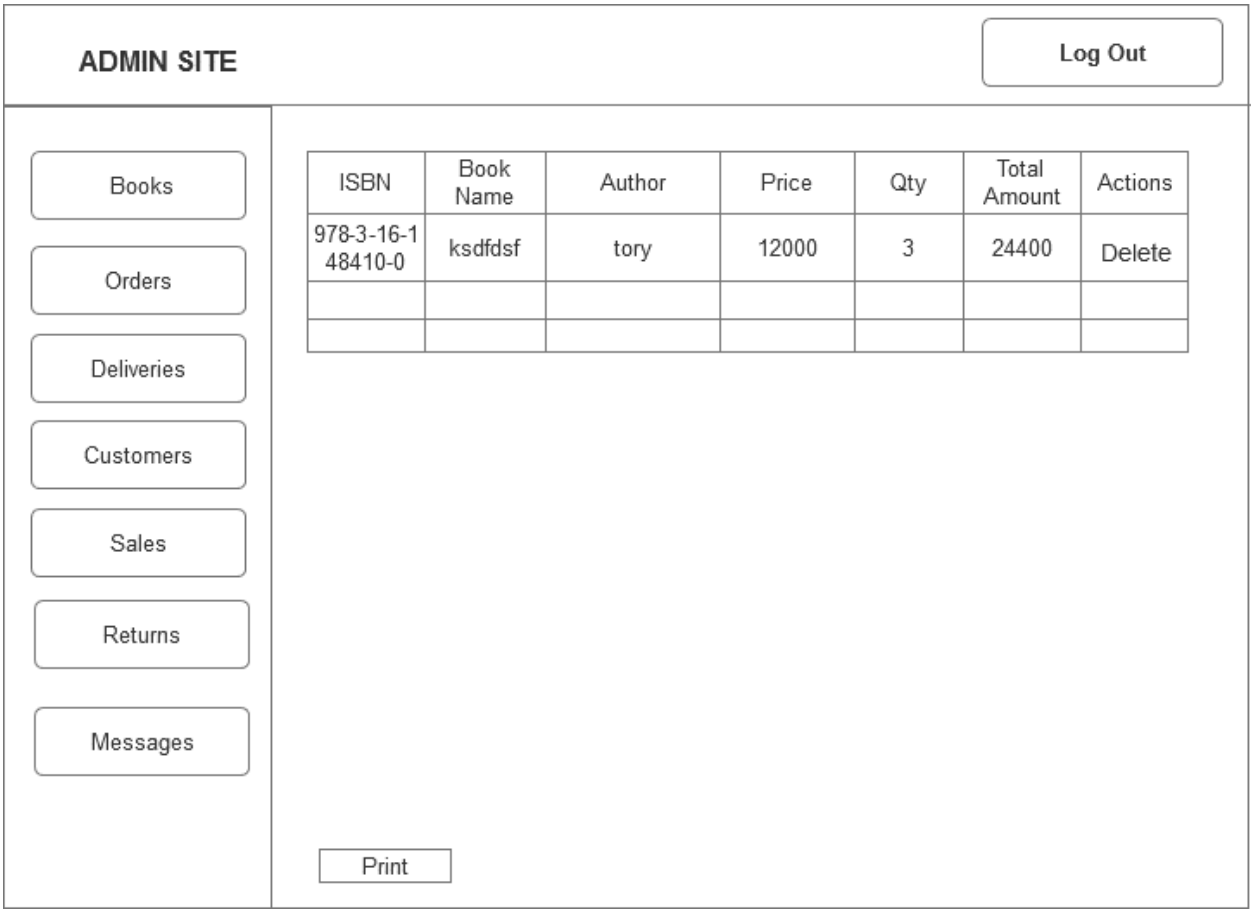
Check Order, Delete Order



Manage Stock Control



View Sales

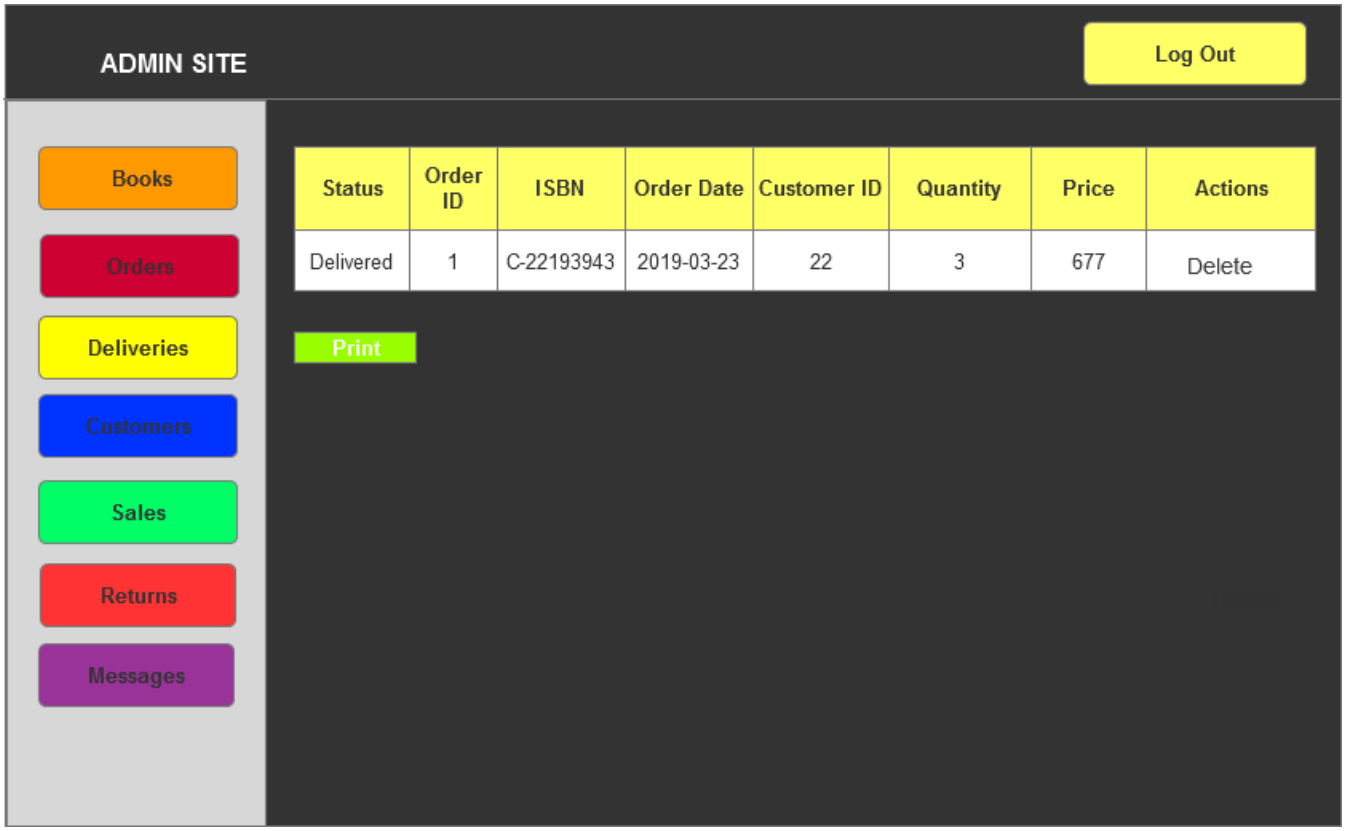

ADMIN SITE
Log Out
Books
Orders
Deliveries
Customers
Sales
Returns
Messages
ISBN
Book Name
Author
Price
Qty
Total Amount
Actions
978-3-16-148410-0
ksdfdsf
tory
12000
3
24400
Delete
Print

4. High-level prototype (HLP)

StaffRegister

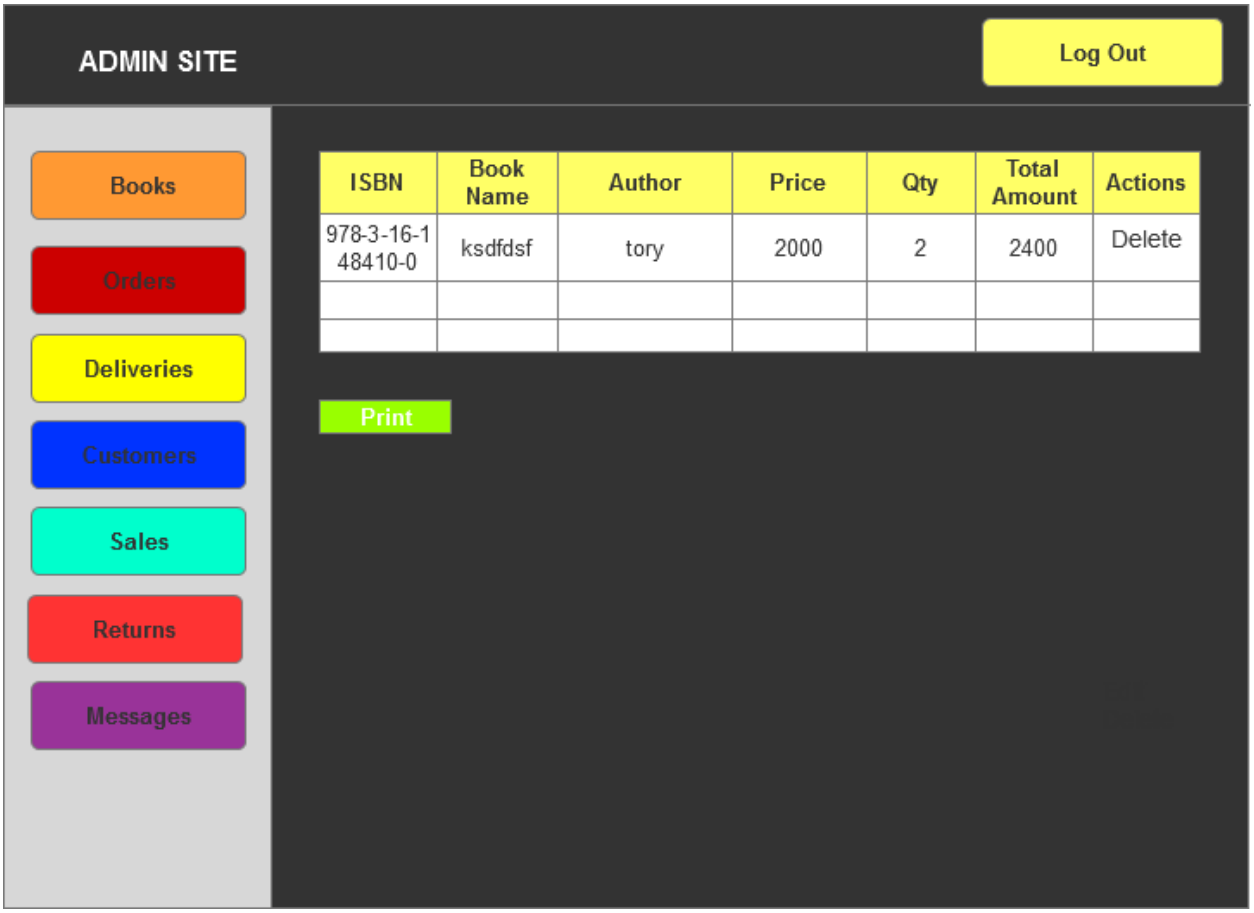
Staff Login

Check Order, Delete Order



Manage Stock Level

View Sales


ADMIN SITE
Log Out
Books
Orders
Deliveries
Customers
Sales
Returns
Messages
ISBN
Book Name
Author
Price
Qty
Total Amount
Actions
978-3-16-148410-0
ksdfdsf
tory
2000
2
2400
Delete
Print

5. Testing

Purpose	Staff Register
Data	First Name-Suzan Last Name-Boyle Date of Birth-02/03/1994 Position: marketing Phone-09-422399288 Email-suzan99@gmail.com Password-suzan24
Procedure	Fill in text boxes beside First Name, Last Name, Date of Birth, Position, Phone, Email, and Password. Click ‘Register’ button.
Expected Result	Message appears and staff will be directed to Login page.
Actual Result	Message appears. Login page appears.

Staff Register

Before Testing

Fig 9.1

After Testing

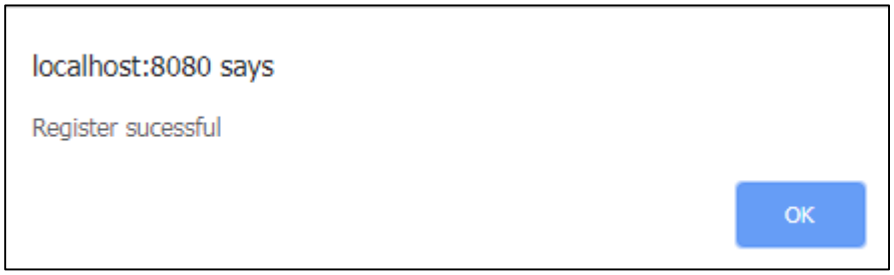


Fig 9.2

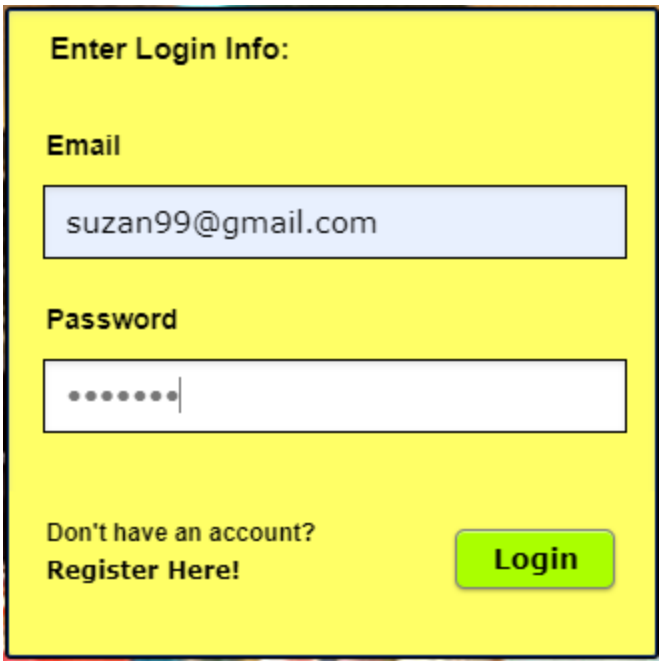


Fig.9.3

Purpose	Staff Login
Data	Email-suzan99@gmail.com Password-suzan24
Procedure	Fill in text boxes beside Email, and Password. Click ‘Login’ button.
Expected Result	Message appears and staff will be directed to Book Input page.
Actual Result	Message appears. Book Input page appears.

Staff Login

Before Testing

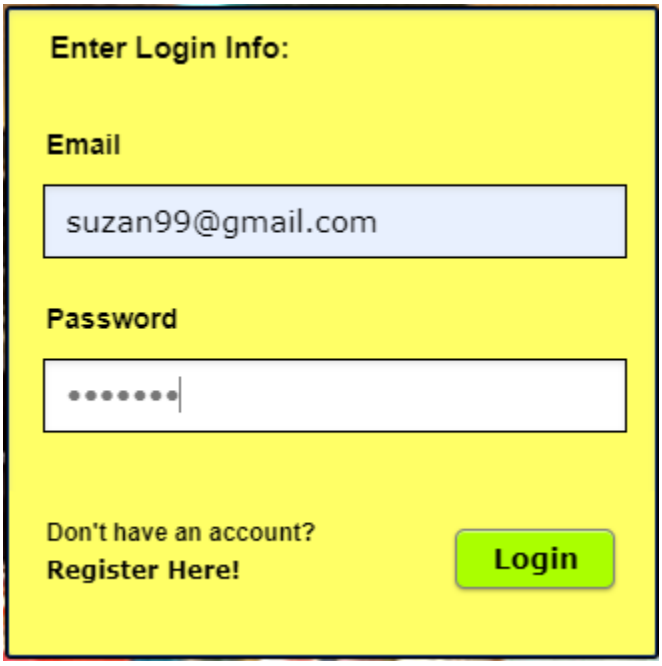


Fig 10.1

After Testing

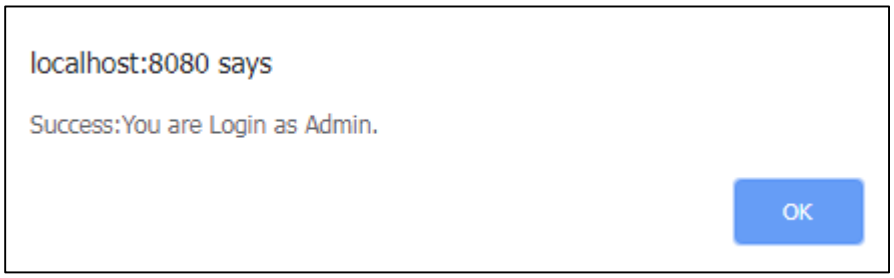


Fig 10.2

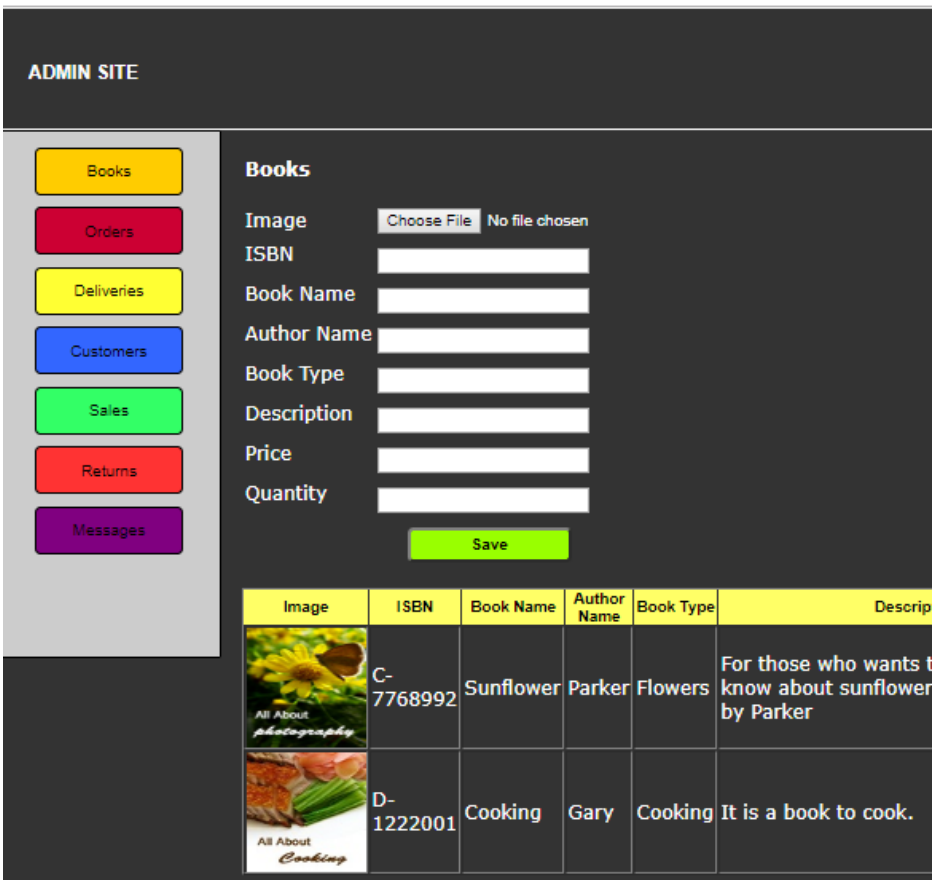


Fig 10.3

Purpose	Check Order
Data	None
Procedure	Click ‘Orders’ button on the left hand side of the page.
Expected Result	Ordered list will be shown in table.
Actual Result	Order List can be seen.

Check Order

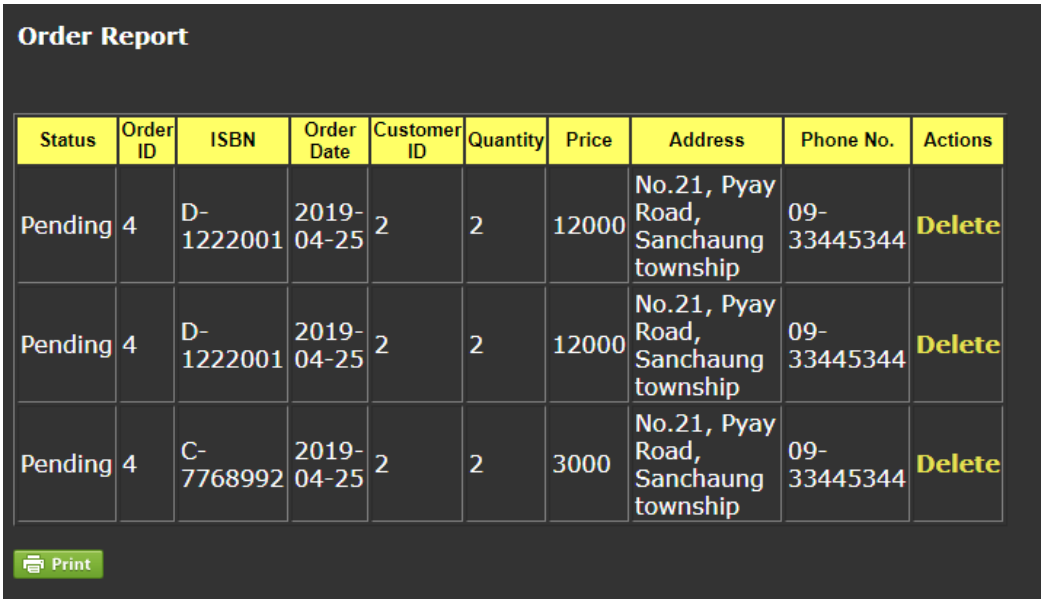


Fig 11.1

Purpose	Delete Order
Data	None
Procedure	Click 'Delete' button.
Expected Result	1 row from order will be deleted
Actual Result	1 row is deleted.

Delete Order

Before Testing

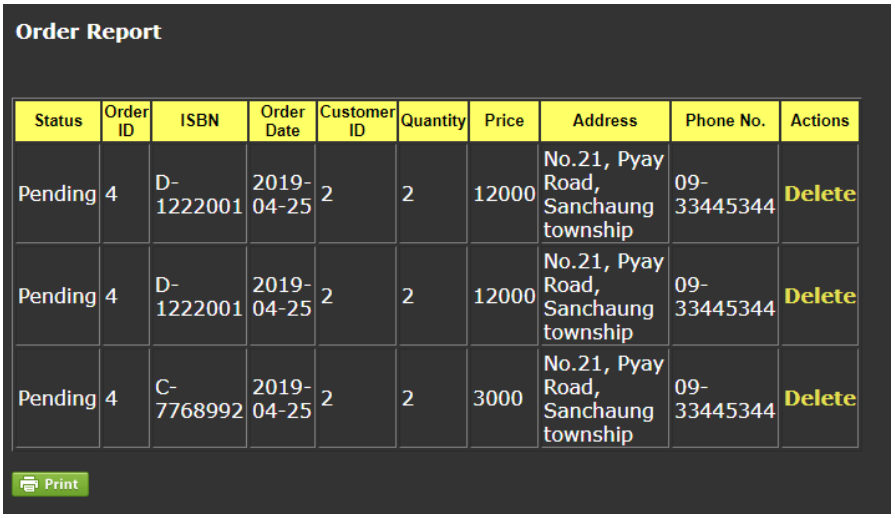


Fig 12.1

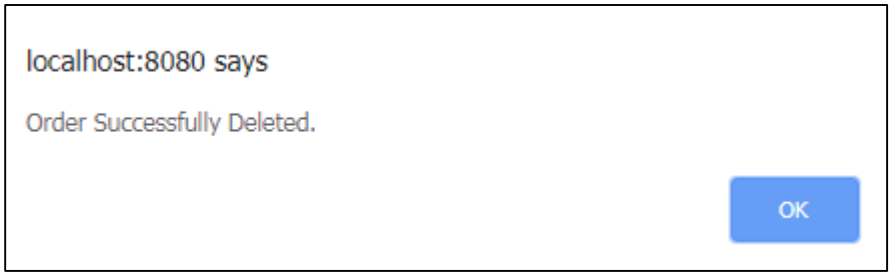


Fig 12.2

Purpose	Manage Stock Level
Data	Quantity-6
Procedure	Click ‘Books’ on the left hand side. Click ‘Edit’ beside book. Change quantity from 7 to 6.
Expected Result	Message appears. Quantity changed.
Actual Result	Message appears. Quantity change from 7 to 6.

Manage Stock Level

Before Testing

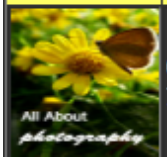
Image	ISBN	Book Name	Author Name	Book Type	Description	Price	Quantity	Actions
	C-7768992	Sunflower	Parker	Flowers	For those who wants to plant or love to know about sunflowers, read Sunflower by Parker	3000	7	Edit Delete

Fig 13.1

After Testing

Fig. 13.2

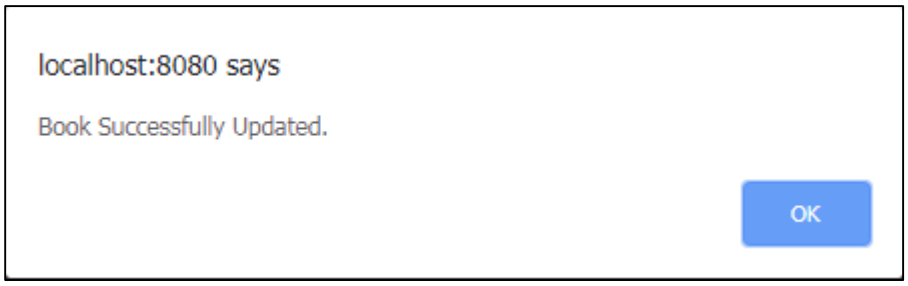


Fig 13.3

Image	ISBN	Book Name	Author Name	Book Type	Description	Price	Quantity	Actions
	C-7768992	Sunflower	Parker	Flowers	For those who wants to plant or love to know about sunflowers, read Sunflower by Parker	3000	6	Edit Delete

Fig 13.4

Purpose	View Sales
Data	None
Procedure	Click ‘Sales’ on the left hand side of page.
Expected Result	Sales data can be viewed.
Actual Result	Sales data are viewed.

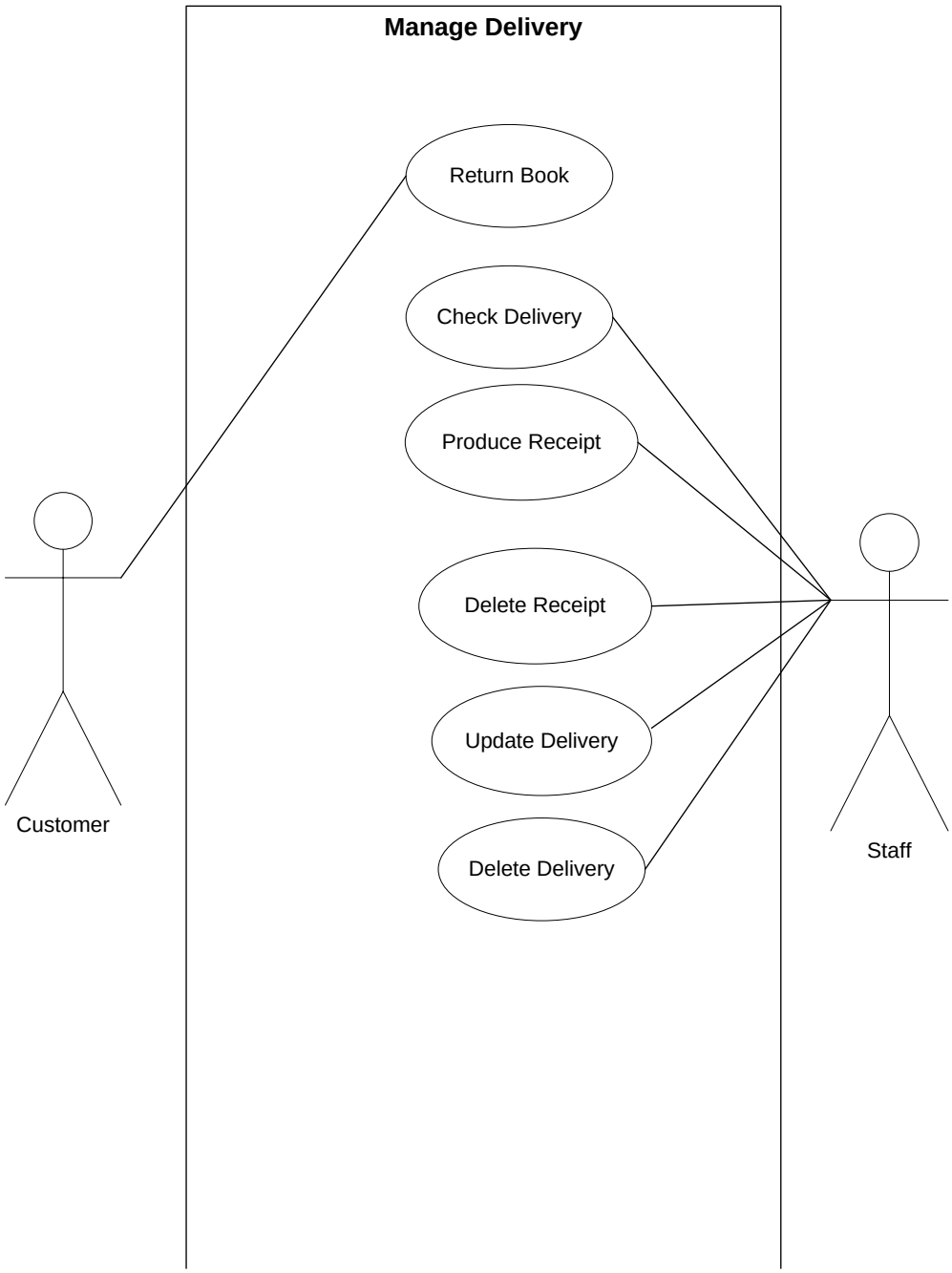
View Sales

ISBN	Book Name	Author	Price	Qty	Total Amount	Actions
C-7768992	Sunflower	Parker	3000	7	30000	Delete
D-1222001	Cooking	Gary	12000	5	30000	Delete

Fig 14.1

4.4 Timebox 3

1. Use case diagram



Use case Name- Return Book

Actor-Customer

Pre-condition- Order Book

Description- Click ‘Contact’ page.

- Write return with reason. / Phone Bookworms Bookstore.

Alternative-If the books are in good condition, customers don’t need to return book.

Use case Name- Check Delivery

Actor-Staff

Pre-condition- Check Order

Description- Fill in delivery data.

- Click ‘Save’.

Alternative-If the staff do not login, delivery cannot be checked.

Use case Name- Update Delivery

Actor-Staff

Pre-condition- Check Delivery

Description-Click ‘Edit’ beside delivery data.

- Change data.
- Click ‘Update’.

Alternative-If the data does not need to be updated, this is not necessary.

Use case name: Delete delivery

Actor-Staff

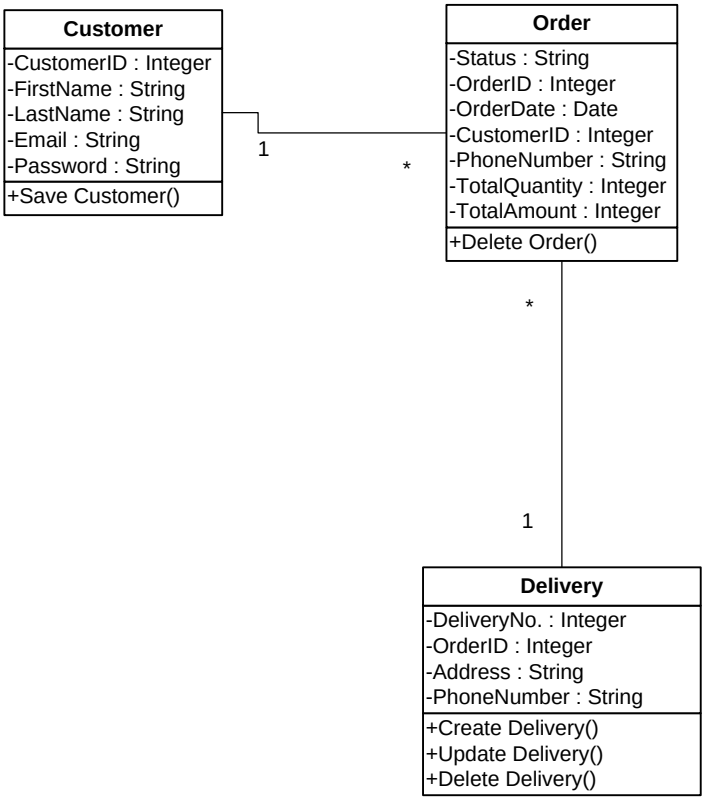
Pre-condition- Check Delivery

Description- View delivery data.

- Click ‘Delete’.

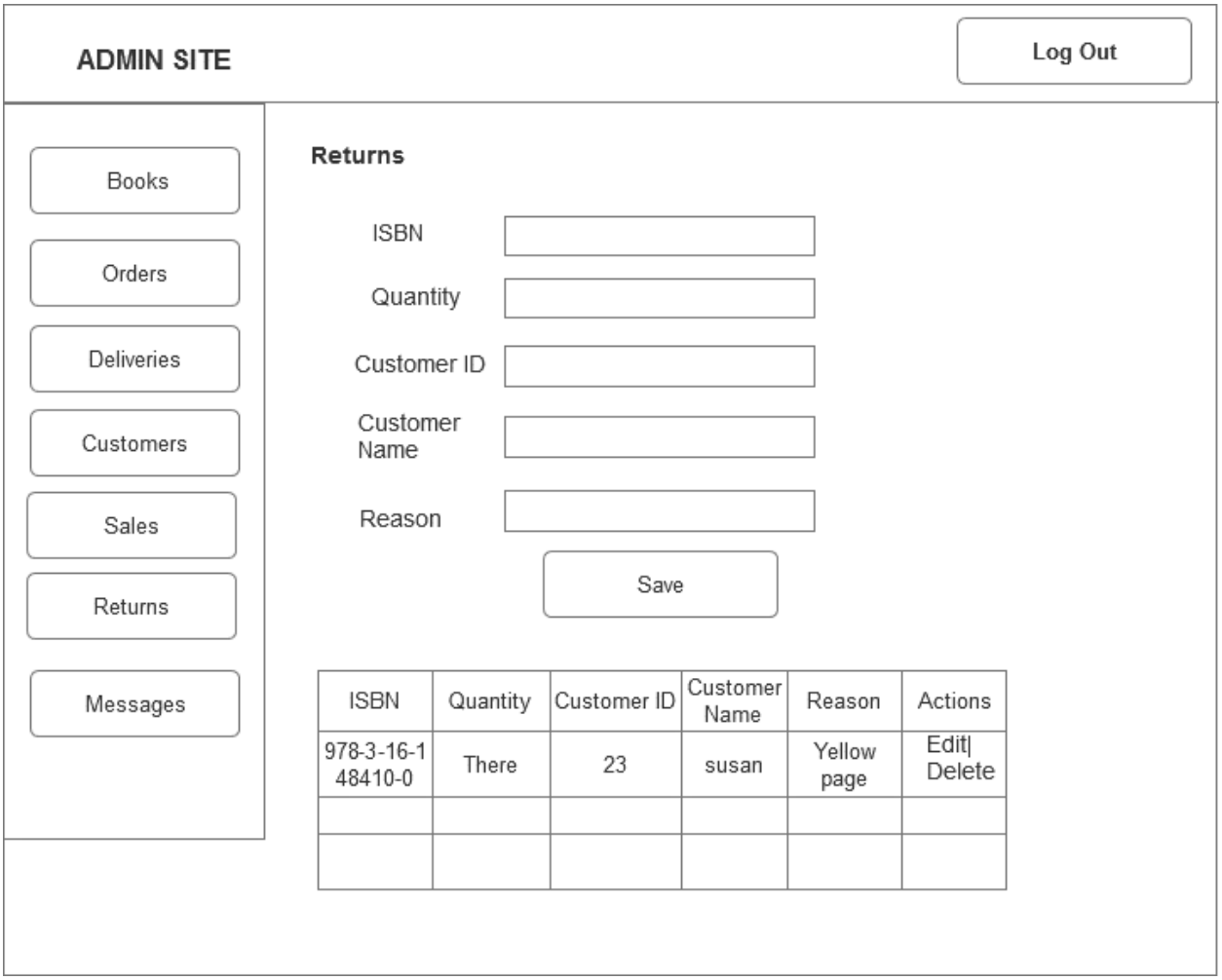
Alternative-If the books are not delivered to the customer yet, data shouldn’t be deleted.

2. Class Diagram

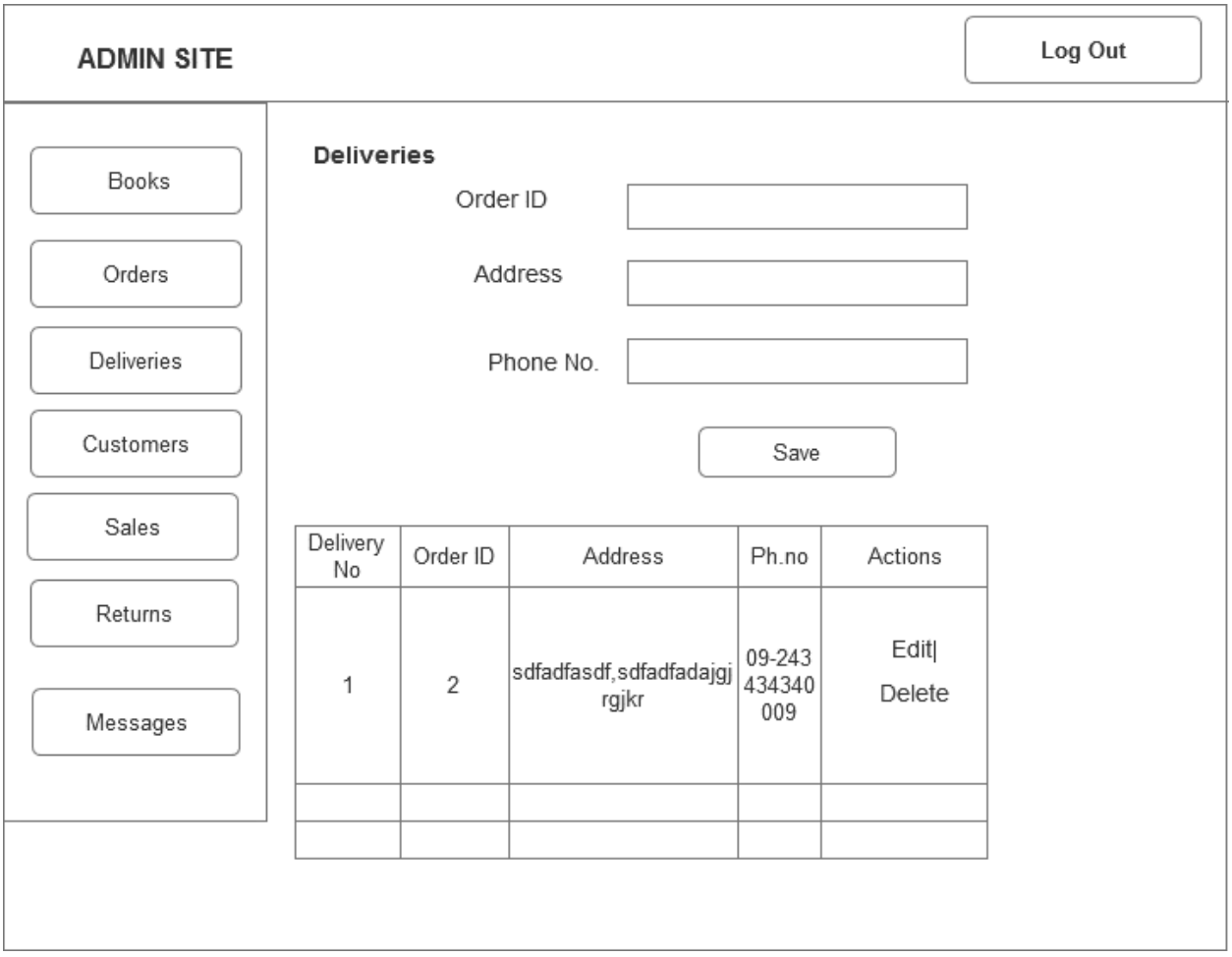


3. Low-level-prototype (LLP)

Return Book



Record Delivery



4. High-level prototype (HLP)

Return Book

Record Delivery

5. Testing

Purpose	Return Book
Data	ISBN-C-7768992 Quantity-1 Customer ID-1 Customer Name-Mandy Butterworth Reason-One paper missing.
Procedure	Fill in the text boxes. Click ‘Save’ button.
Expected Result	Data saved. Messages appears. Data appears in the table.
Actual Result	Return data is saved.

Return Book

Before Testing

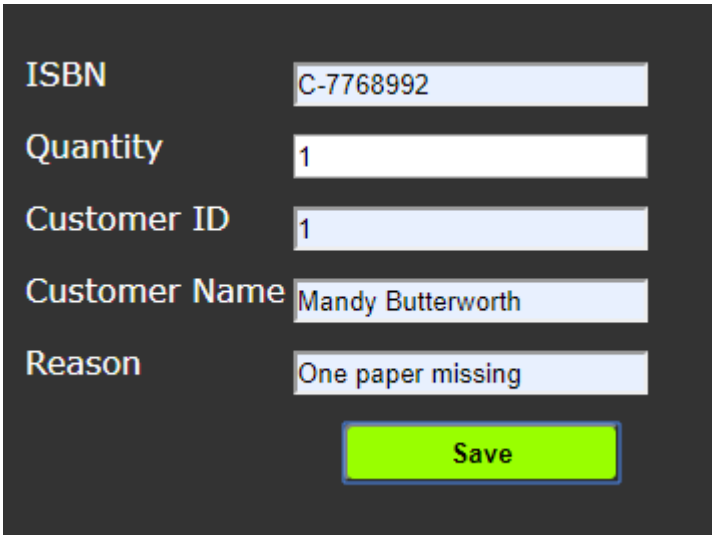


Fig 15.1

After Testing

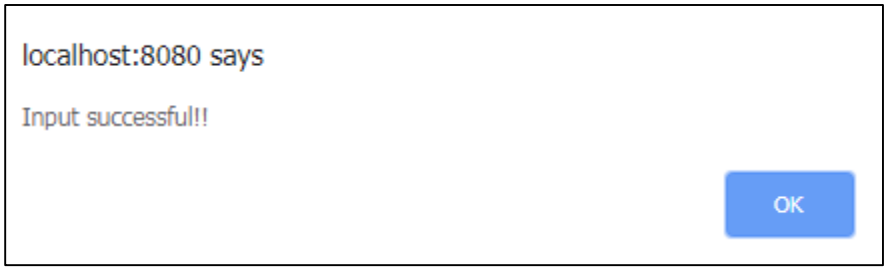
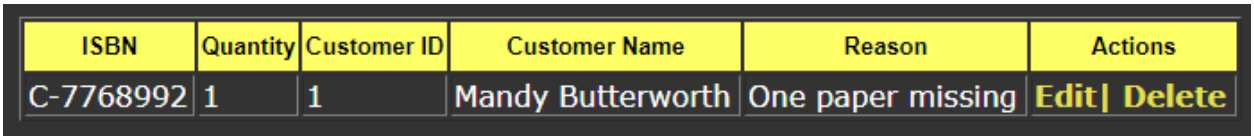


Fig.15.2



ISBN	Quantity	Customer ID	Customer Name	Reason	Actions
C-7768992	1	1	Mandy Butterworth	One paper missing	Edit| Delete

Fig.15.3

Purpose	Record Delivery
Data	Order ID-2 Address- No.8, Pyay Road, Sanchaung township Phone No. 09-923344332
Procedure	Fill in the text boxes. Click ‘Save’ button.
Expected Result	Data saved. Message appears. Data appears in the table.
Actual Result	Delivery data is saved.

Record Delivery

Before Testing

Fig. 16.1

After Testing

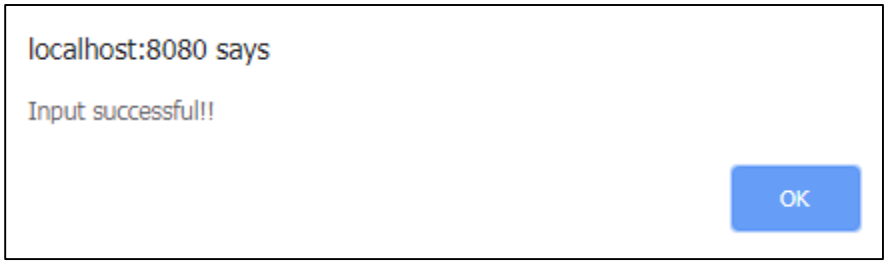
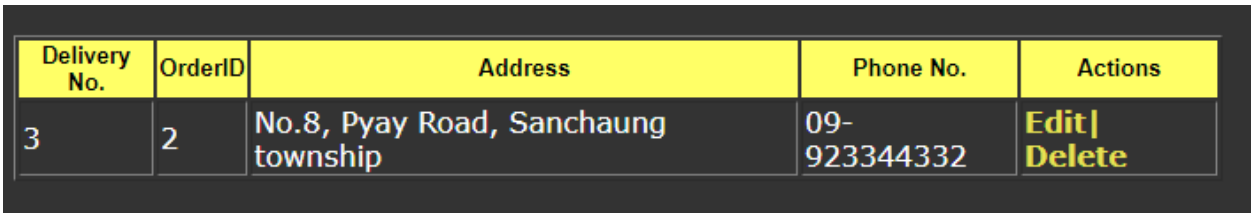


Fig 16.2



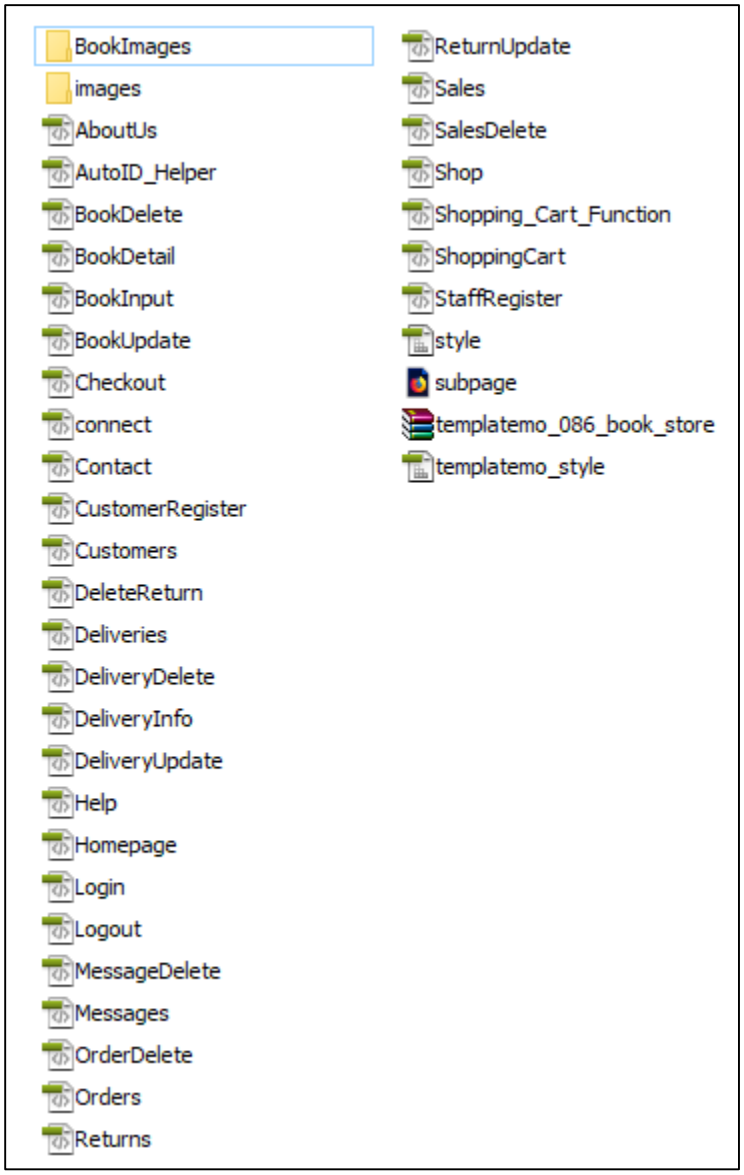
Delivery No.	OrderID	Address	Phone No.	Actions
3	2	No.8, Pyay Road, Sanchaung township	09-923344332	Edit| Delete

Fig 16.3

Configuration Management – Directory Structure

Program

Project is saved in C Drive, in Xampp folder. Pages code are saved in htdocs.



Codes can be opened with Sublime Text, and Adobe Dreamweaver software.

Chapter 5

Chapter 5

5 Review/Evaluation

In this chapter, review is written about how the project is finished. While developing the project, there were several issues that had to overcome. Some of the functions that were planned to be included in the system (Would) were not developed due to certain problems. Thus, functions that could be included in the future will also be explained. Moreover, experience I get from doing this software will also be discussed.

5.1 Steps that are done

First of all, background of Bookworms website was searched. Then, reasons why Bookworm want to build the website was researched. Then, aims and objectives of making the system was discussed. Later on, in order to gather requirements, Bookworm owner, Mr. Peter Evans was interviewed. Then, in order to find out what functions should be included, three similar bookstore websites are researched. Afterwards, the good features that are found in three websites are planned to be included in the website.

Furthermore, planning was made for the system development. For planning, methods, languages, and databases were compared and selected to be used in system development. For instance, two methods' advantages and disadvantages are stated first. Then, the methods are compared and better one is selected with reason. It is the same for languages and databases.

In addition to this, guideline was chosen. Among them, Nielsen guideline was chosen to apply for website's interface design. There are many guidelines such as Norman, Nielsen, and Shneiderman that are used a lot in IT industry. However only Nielsen guideline was chosen. From Nielsen guidelines, not all the guidelines were applied. Only 5 guidelines were chosen to apply for the design.

After this, development techniques were discussed and compared. Then 2 UML diagrams, use case and class diagram are used as tools for the project.

In Chapter 3, planning was made. Without planning, system development cannot have systematic way. Therefore, functions that are taken after researching requirements from 3 websites are written, and more functions are included. Then these functions are prioritized with MoSCoW prioritization. The functions that are necessary for the system are put in MUST, whereas functions that might be included if there is more time are input in WOULD. Next, planning is shown with Gantt chart, which is a time box.

In Chapter 4, three time boxes were drawn for development of system. Each time box includes a use case diagram, low and high level prototype, class diagram, testing, and programs.

5.2 Requirements met

After making the system, the requirements are included. Customers are able to buy more than one book and order online. Before that, they have to create an account and login, so that they become members of Bookworm website. The ordered books are collected in the shopping cart. In the shopping cart page, customers will have to fill in form and click ‘Checkout’. Then, the data will be send to admin who will manage the orders and contact them.

Good and bad experience

DSDM method was chosen as a methodology to follow. Using DSDM allows to finish the project in time. Since it contains time boxes, the processes are divided into time boxes and within fixed time. Therefore, project delay do not occur and extra money is not spent.

One of the best experience I get from making the project is having to interview a stranger. To gather requirements, I have to interview Bookworms owner. For a couple of weeks, I was hesitant to contact Bookworms owner. I’ve searched Bookworms and I found out that there is a Facebook page for ordering. Thus, I added friends with Mr. Peter Evans to communicate with him. What was surprising was that Mr.

Peter was unexpectedly very very friendly. Therefore, I could ask him questions that are required for requirement analysis. He also explained me clearly about the processes done in the bookstores, including delivery and orders. Then, I've asked him what functions should be included in the system. He told me that he wants to make sure customers have access to view all the available books from online and can shop from home comfortably.

At first, Mr. Peter wanted to make the website show best-selling books shown at the homepage. He also want to show Books of the month. However, due to a limit time, these functions could not be included. Additionally, customers cannot give feedback on the website, but they can only contact about issues or request book by writing message. Additionally, customers cannot cancel order by themselves. If they want to cancel order, they have to inform admin. Admin will be the ones who will delete for them. In addition, customers cannot modify their information. Admin will be the only ones who can delete customer's data. However, these admin cannot see password, to give customers security.

Furthermore, during Book Input, it take a long time to make image saved in the database. Other data get saved, but image didn't appear at all. After researching on internet on how to input image, book images were able to be saved. After that, I intended to update each book data. However, I was stuck when there was error showing that ISBN is an error. Later, I realized that ISBN is a primary key. So, in the update page, I removed ISBN. Thus, book data could be updated. Therefore, since developing website needs many experiences, it took a long time to fix errors due to lack of experience. Time are spent a lot on problems so management was not that good. However, the project was finished on time because of DSDM.

5.3 Future Amendments

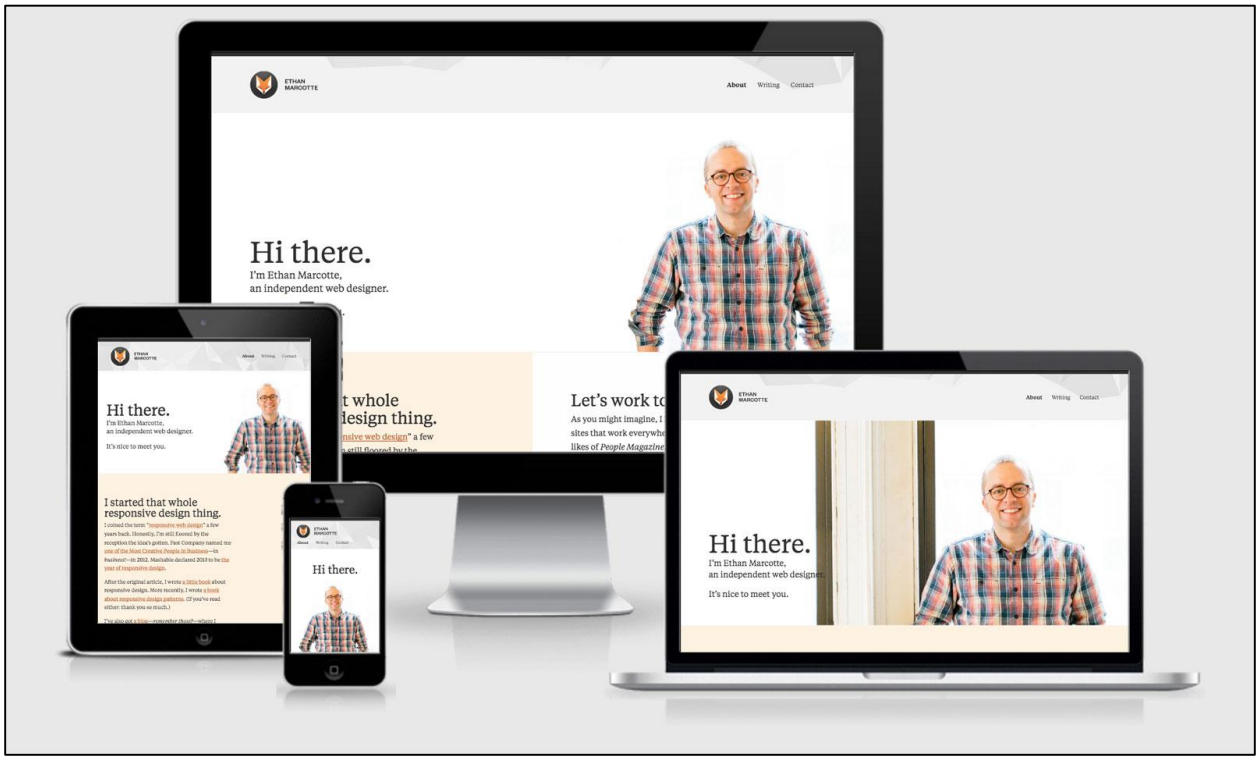
Some of the features that are placed in WOULD during MoSCoW prioritization are not included in the system. Only functions from MUST, COULD and SHOULD were developed into the system. Therefore, if more time is given, these functions might be implemented and added to the system. Customers will be able to modify their own information on My Account page. Also, during login, if they forget password, admin should be able to give recovery password.

In addition, if Myanmar's technology become advanced, Bookworms might accept payment from online. Customers will be able to pay by various cards such as PayPal, Master card, Visa, Myanpay, etc. They should also be able to cancel orders within 1 week by themselves. Next, ratings and feedback function might also be included so that people who visit the website can see loyal customers' feedback and rating and gain trust to Bookworms. This might increase the number of customers. Additionally, the website will also show best-selling authors and books of the month. Customers will also be able to search all the books from search box and can click at the categories on the left side.

Some features might also be done differently. For example, customers won't need to register and login at the first stage. Some people doesn't like registering on a website before observing whether it is good or not. Thus, customers will be able to see homepage first and search the books they're looking for. Then, when they find the book they want and put in the shopping cart to checkout, they will need to login or create an account. This way might increase the number of customers who sign up.

Another feature that might be implemented is responsive design. These days, many of the websites are using the responsive design to make usability easier. Responsive design is when the design of the website is compatible with different devices. The website design becomes compatible with the screen size of the device. To create a responsive design, CSS codes need to be studied. With responsive design, website\s content will also change. Image sizes, resolutions, and font sizes will also change.

Example of responsive design



(AVERY, 2016)

In addition to this, in the future, Bookworm mobile application might be created too, since mobile are used a lot during these days.

5.4 Lessons Learnt

By doing this project, many lessons were learned. Methods, languages and techniques are researched which makes me to find out about which ones are commonly used in the IT industry. Making of ecommerce website is also studied so knowledge is received from the project. In addition, project planning were made so time management is also learned. Having to interview business owners was also a new task, which helps improve communication skills. Writing codes also improve after the project.

5.5 References

Adu, D., 2016. *The British Computer Society (BCS) and the Code of Conduct.* [Online]
Available at: https://medium.com/@dadu_64294/the-british-computer-society-bcs-and-the-code-of-conduct-4efa47105a16
[Accessed 18 1 2019].

Amazon, 2019. *Books At Amazon.* [Online]
Available at: https://www.amazon.com/books-used-books-textbooks/b/?ie=UTF8&node=283155&ref_=topnav_storetab_b
[Accessed 25 2 2019].

Anon., 2017. *Top 5 Advantages and Disadvantages of PHP Framework.* [Online]
Available at: https://www.omkarsoft.com/blog/top-5-advantages-disadvantages-php-framework/
[Accessed 1 2 2019].

Anon., n.d.. *Structured Systems Analysis and Design Methodology,* Inida: IT Infotech India Ltd.

AVERY, J., 2016. *Ethan Marcotte.* [Online]
Available at: https://responsivedesign.is/examples/ethan-marcotte/
[Accessed 19 4 2019].

CETA, N., 2018. *All You Need to Know About UML Diagrams: Types and 5+ Examples.* [Online]
Available at: https://tallyfy.com/uml-diagram/
[Accessed 3 3 2019].

CoderCruise, 2019. *What is PHP?.* [Online]
Available at: http://php.net/manual/en/intro-whatis.php
[Accessed 1 2 2019].

Cohen, B., 2017. *Advantages & Disadvantages of SSADM.* [Online]
Available at: https://bizfluent.com/list-6781448-advantages-disadvantages-ssadm.html
[Accessed 31 1 2019].

Concepcion, C., 2017. *IT LAWS AND REGULATIONS IN MYANMAR: 5 KEY POINTS TO CONSIDER.* [Online]
Available at: http://www.bakerinform.com/home/2017/11/29/it-laws-and-regulations-in-myanmar-5-key-points-to-consider
[Accessed 14 1 2019].

Craig Stedman, T. L. J. S. C. K., 2017. *Oracle.* [Online]
Available at: https://searchoracle.techtarget.com/definition/Oracle
[Accessed 1 2 2019].

Creately, 2017. *Why the Software Industry Has a Love-Hate Relationship with UML Diagrams.* [Online]
Available at: https://creately.com/blog/diagrams/advantages-and-disadvantages-of-uml/
[Accessed 2 3 2019].

GoMyanmarTours, 2018. *Top 10 Bookstores in Yangon.* [Online]
Available at: https://www.gomyanmartours.com/top-10-bookstores-yangon/
[Accessed 12 1 2019].

Gould, H., 2016. *Systems Analysis and Design.* 1st ed. s.l.: Howard Gould & bookboon.com.

Koch, A. S., 2011. *12 Advantages of DSDM,* s.l.: Global Knowledge.

Mack, J., 2014. *Five Advantages & Disadvantages of MySQL.* [Online]
Available at: https://www.datarealm.com/blog/five-advantages-disadvantages-of-mysql/
[Accessed 1 2 2019].

Nielsen, J., 1994. *10 Usability Heuristics for User Interface Design.* [Online]
Available at: https://www.nngroup.com/articles/ten-usability-heuristics/
[Accessed 25 2 2019].

Oamkumar, R., 2018. *Advantages and Disadvantages of ASP.NET.* [Online]
Available at: https://www.software-developer-india.com/advantages-and-disadvantages-of-asp-net/
[Accessed 5 2 2019].

Oo, K. H., 2019. *Home.* [Online]
Available at: http://www.myanmarbookshop.com/MyanmarBooks/Home/All
[Accessed 25 2 2019].

Paul, D., 2018. *Advantages And Disadvantages Of PHP.* [Online]
Available at: https://bigcheaphosting.com/advantages-and-disadvantages-of-php/
[Accessed 2 2 2019].

Pwint, Z. P., 2017. *Super bookworm.* [Online]
Available at: https://www.mmtimes.com/news/super-bookworm.html
[Accessed 12 1 2019].

Reddy, P., n.d.. *The Advantages of Oracle Databases.* [Online]
Available at: https://www.techwalla.com/articles/the-advantages-of-oracle-databases
[Accessed 1 2 2019].

Rinus, M., 2016. *What are the advantages of Oracle databases?.* [Online]
Available at: https://www.quora.com/What-are-the-advantages-of-Oracle-databases
[Accessed 1 2 2019].

Rouse, M., 2018. *MySQL.* [Online]
Available at: https://searchoracle.techtarget.com/definition/MySQL
[Accessed 1 2 2019].

Slegten, K., 2016. *Dynamic Systems Development Method (DSDM),* s.l.: Kariem Slegten.

SQA, 2007. *What is SSADM?.* [Online]
Available at: https://www.sqa.org.uk/e-learning/SDM01CD/page_02.htm
[Accessed 31 1 2019].

Sunday, B. F., 2016. *Dynamic Software Development Method (DSDM).* [Online]
Available at: https://viblo.asia/p/dynamic-software-development-method-dsdm-PDOGqXgzvjx
[Accessed 1 2 2019].

Techopedia, 2019. *ASP.NET.* [Online]
Available at: https://www.techopedia.com/definition/3213/asp-net
[Accessed 4 2 2019].

techopedia, 2019. *Clickwrap Agreement.* [Online]
Available at: https://www.techopedia.com/definition/4243/clickwrap-agreement
[Accessed 14 1 2019].

Thumati, R. V., 2009. *Drawbacks of ASP.* [Online]
Available at: https://rthumati.wordpress.com/2009/07/15/drawbacks-of-asp/
[Accessed 6 2 2019].

vethics, n.d.. *Agile Software Development And Its Advantages And Disadvantages.* [Online]
Available at: http://vethics.com/agile-software-development-and-its-advantages-and-disadvantages/
[Accessed 1 2 2019].

W, M., 2018. *What is ASP.NET and Why Should I Use It?.* [Online]
Available at: https://www.wakefly.com/blog/what-is-asp-net-and-why-should-i-use-it/
[Accessed 4 2 2019].

Appendix

Undergraduate Final Year Project Proposal

[Online Bookstore System]

[Thun Su Nyi Nyi]

[ID: 001043668]

Introduction

According to Gomyanmartours website, Bookworm is the best bookstore in Myanmar. Bookworm is founded by Peter Evans and the first outlet was opened at Pansodan Township, Yangon, in July 2014. Peter stocks 3000 books at a discount price at the first outlet. Second one was opened at Pearl Condo in 2015 with 2000 books. Bookworm currently sells English books for students, since Peter's aim is to make Myanmar people to become better English readers. It is successful among the teenagers because the bookstore is always filled with latest bestsellers.

In order to get more books, Mr. Peter goes to UK twice a year. He then stores the books in the storeroom situated in Tamwe Township. Then, there is a delivery from the storeroom to the 2 bookstores. When there are many books, they would transport with a small truck. When there are just few bags, staff get them from the stock room. While transporting, the books are packed in plastic boxes so that no moistures can get in.The books that are delivered to Pansodan are sold in discount prices. There is also home delivery. Moreover, books that are ordered throughout Myanmar are also delivered through highway express.

As years went by, Peter notices that there is a decrease in readership. He thought it might be because there are more bookshops opening in Yangon. He'd also heard that some people were selling copies of the original books at cheap prices. Thus, in order to make sure sales get back to normal state, Peter started accepting orders from Facebook. People throughout the nation can order books from his account and from Bookworm page. Since Bookworm already have a good image, the sales went back to normal. However, Peter wants to add search box to the page. Since Bookworm only have Facebook page, search box cannot be added. So, customers cannot search all the

books. Therefore, he decided to change Facebook page to official website to make customers buy easily.

The Bookworm website will include some of the basic functions. When observing the competitor, Myanmar Bookshop's website, functions such as member register, and search box are found. The website have homepage which shows best-selling books, and author list in the right column. Shopping cart will also be found. However, Myanmar Bookshop allows customers from other countries to be able to buy books online. Therefore, since Bookworm bookstore is a small business, customers within Myanmar will only be allowed to buy books online. They will be able to purchase by cash-on-delivery.

(GoMyanmarTours, 2018)(Pwint, 2017)

What will the system consist of?

The online bookstore system will consist of website and backend management system. It will have two perspective views: customer and admin. If a customer wants to view the website, they will have to register first and then login. Then, they will reach homepage, where they can view list of books. From then on they can buy more than 1 book and can find more detail after they click 'Detail' button beside each book. At the shopping cart, the books that they ordered will be seen. After clicking 'Continue', they will reach Checkout page, where they will have to fill the form which asks for address and phone number. Once they click 'Checkout', the data will be sent to the database of Bookworms website.

When admin login, the pages they will see are different from customers. Customers will not be able to view the data. Admin will be able to register books, update books, and delete books. They will also be able to view ordered lists with customer names and number of books they've ordered. Thus, they can write delivery detail and save. After that, they can view customers who have registered to view the website. In addition, when customers inform about returning book, admin can input return data with customer name and reason. They should also be able to view messages sent from the

customers. After seeing the messages, they should reply back to their email addresses.

Database, method, and language to use for the system

For making the system, DSDM method will be used. Database will be MySQL and language will be PHP. DSDM means using time box throughout the system development. Therefore, there will be several time boxes. Using DSDM is good because since time box give a fixed time, processes need to be finished within the fixed time. Thus, it can prevent project delay.

Aim

The main aim of the online bookstore is to increase sales and allow customers to view all the available books from bookstore online. Additionally, by making a website, Bookworms will be able to give a better customer service, with advanced technology. Customers will be able to shop online and order books. However, they will not be able to pay online, because Bookworms want to give security to customers. Thus, payment will only be via cash -on –delivery (COD). On the other hand, admin should be able to manage data such as order, sales, or book input data. They should also be able to print reports using the system.

Objectives

The objectives of the system are as follows:

1. To allow the customers to buy books comfortably from home through the Internet.
   Activities: Add shopping cart feature to the website so that customers can order.
   Deliverables: Section for report. 1000 words

2. To allow the customers to view all books
   Activities: Make the search engine of the website very effective.

Deliverables: Section for report: 1000 words

3. To get a good official website
   Activities: Make the content very clear and organized. It would be better if the website has good interface design and user-friendly.

   Deliverables: Section for report: 1000 words

Legal, Social, Ethical and Professional Issues

Legal

When creating a website, legal issues are to be considered. In Myanmar, even though there are no specific laws for data protection, Bookworms will need to make sure that every users' personal information is protected securely. Additionally, the website need to have license to provide services online. There is also e-commerce law which allows websites to show users "click-wrap" agreements. Click-wrap agreements are the contracts in which user have to read terms and conditions, and click "I Accept" button. (Concepcion, 2017)(techopedia, 2019)

Social

Most of the time, there are many social problems when making website. Disabilities are also users who can view the website. Thus, they must be able to use the website easily. In order to do this, design of the Bookworm website need to be effective for every type of users.

Furthermore, website design needs to be user-friendly in all devices. These days, people use different devices such as mobile phones, laptops, and tablets. Therefore, website needs to have responsive design to have good interaction with users. Similar to this, users must be able to view this website from different browsers. The website must be compatible with many browsers such as Mozilla Firefox, Chrome, or Linux.

Ethical

Even though Data Protection Act is not effective in Myanmar, Bookworm will apply it. On the website, they will not ask for unnecessary information from users. It will protect every users' personal information from hackers and viruses. In addition, employees who have access to users' information must not use it for personal benefit. If they need to use the personal data, they should ask permission first from the users. Furthermore, when the users need to fill in the form for delivery, they must not be asked sensitive information such as race. General information such as address, phone number or gender could be asked.

Professional

The system developers need to have professional manners when making the system. They should act as professionals who have good knowledge when choosing designs, and contents for the website. Secondly, they should think of users' security when making design. In the work-area, they should not discriminate their colleagues but treat everyone fairly. They must not take bribes and sell the information to the competitors. (Adu, 2016)

Planning (see Chapter 3)

To manage the project in time, Gantt chart will be drawn. Tasks are scheduled so that each task finishes within duration. With this kind of planning, progress of the project can be tracked. Project delay can be prevented.

Initial References

Adu, D., 2016. *The British Computer Society (BCS) and the Code of Conduct.* Available from: https://medium.com/@dadu_64294/the-british-computer-society-bcs-and-the-code-of-conduct-4efa47105a16 [18 January 2019].

Concepcion, C., 2017. *IT LAWS AND REGULATIONS IN MYANMAR: 5 KEY POINTS TO CONSIDER.* Available from: http://www.bakerinform.com/home/2017/11/29/it-laws-and-regulations-in-myanmar-5-key-points-to-consider [14 January 2019].

GoMyanmarTours, 2018. *Top 10 Bookstores in Yangon.* [Online] Available from: https://www.gomyanmartours.com/top-10-bookstores-yangon/ [12 January 2019].

Pwint, Z. P., 2017. *Super bookworm.* Available from:https://www.mmtimes.com/news/super-bookworm.html [12 January 2019].

techopedia, 2019. *Clickwrap Agreement.* [Online] Available from: https://www.techopedia.com/definition/4243/clickwrap-agreement [14 January 2019].