

A • P • U
ASIA PACIFIC UNIVERSITY
OF TECHNOLOGY & INNOVATION

BOOK XCHANGE MANAGEMENT SYSTEM

HOW IT WORKS

GROUP ASSIGNMENT

TITLE: BOOK XCHANGE MANAGEMENT SYSTEM

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0.0 WORKLOAD MATRIX:

WORKLOAD MATRIX OF SYSTEMS ANALYSIS AND DESIGN GROUP ASSIGNMENT						
S/NO	TASKS COMPLETED	GROUP MEMBERS			TOTAL	
		MRISHO	NORAZLINA	PHAGAT		
I	-	GROUP COMPONENTS			-	
1	Introduction	50%	-	50%	100%	
2	Objectives	100%	-	-	100%	
3	Feasibility Studies	Technical	-	-	33.33%	100%
		Economical	-	-	33.33%	
		Schedule	-	-	33.33%	
		Operational [P.I.E.C.E.S Framework]	-	100%	-	100%
4	System Analysis & Design	System Development Life Cycle [SDLC]	100%	-	-	100%
		Layout & Design	100%	-	-	100%
5	Data Flow Diagrams	Context Diagram	100%	-	-	100%
		Level 0 DFD	100%	-	-	100%
		Level 1 DFD	100%	-	-	100%
6	Planning	Gantt Chart	100%	-	-	100%
		Network Diagram	100%	-	-	100%
		ROI Calculations.	100%	-	-	100%
7	Data Dictionaries	External Entities	100%	-	-	100%
		Processes	100%	-	-	100%
		Data Stores	100%	-	-	100%
		Data Flows	-	-	-	0%
8	Advantages	100%	-	-	-	100%
9	Disadvantages	100%	-	-	-	100%
10	Documentation	100%	-	-	-	100%
11	Presentation Slides	100%	-	-	-	100%
12	Printing & Submission	-	100%	-	-	100%
II	-	INDIVIDUAL COMPONENTS			-	
13	Decision Tables	100%	100%	-	-	100%
14	Decision Trees	100%	100%	-	-	100%
15	Pseudo Codes	100%	100%	-	-	100%
16	Information Gathering Techniques	Identify 1 method	100%	-	100%	100%
		Advantages	100%	-	100%	100%
		Disadvantages	100%	-	100%	100%
		Sample Questions	100%	-	100%	100%

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0.2 ACKNOWLEDGEMENT:

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0.3 ABSTRACT:

This study aims at explaining a web-based library management system of a company, "Book Xchange". Through research from articles, the internet, books and lecture notes, this report will cover on the general meaning of a system, with its characteristics, how it works, the development phases involved, the system features and requirements, data flows diagrams, pert charts, decision tables and trees, feasibility studies, the advantages and disadvantages of the system. It is also includes a conclusion, related topics in bibliography and references of the system project in mind.

1.0 INTRODUCTION:

Book Xchange is an established bookshop which specializes in selling, buying and renting second-hand books as a service of tertiary education study materials. Our group has designed a “Book Xchange Online Website Management System” where it is easy to cater users mainly for students at any point of time and anywhere online. For this project, we have designed a user friendly system that enables us to keep track of all records of the inventory of the study materials and user details, transactions records and other relevant information. Apart from that, our staff can use the system to update and organize all study material details and use information on a daily basis in order to keep all information up to date. Other features that this particular system has are enabling users to search for a books, making appointments with our salespeople for any information related to the system such as how to buy or rent books from us and also what to do when the users wants to sell books to us through our system. By developing the “Book Xchange Online Website Management System” all the information is organized and updated which makes it effortless to understand and hence it is easier to use it while making predictions for future budgets, updates and even forecasts of the system.

2.0 OBJECTIVES:

The following are the objectives of “Book Xchange Management System [BXMS]”. They are written in the order of importance;

1. To introduce new technology and innovation to the society.
2. To gain a substantial amount of loyal and worthy customers.
3. To simplify how the library system works and provide the best services available.
4. To provide knowledge and other services to our customer’s finger-tips.
5. To enable easily viewing, reading, buying, borrowing and performing all other services anywhere and at any time.
6. To create a wide clientele around the world, internationally.
7. To gain international recognition.
8. To make at least 100,000+ transactions in a period of 2/3 years after the commencement of BXMS.

3.0 FEASIBILITY STUDIES:

The following are the feasibility studies which were implemented in order to test and see if the Book Xchange Management System can be developed and implemented

3.1 TECHNICAL FEASIBILITY:

Technical feasibility can be explained as the improvement, redesign, or development of existing products, services or processes. A way to practically show the specific technical solution and a measurement of the accessibility of technical resources.

The objective of technical feasibility is to verify that there were no production barrier occurred and will perform. It enable us to produce our services or system to customer for an example, the books which customer or staff searching for, centralized all recorded information, and where the system can be accessed.

Technical feasibility is a superb tool for trouble-shooting and durable planning have helped us to look forward to the future developments. In certain aspects, it serves as a flow chart on how the inventories and services can be reached to the customers. It made it easier for Book Xchange to market their products.

Book Xchange bookshop does not have an online system. We are proposing an online system to enable to cope with the business needs, increase the performances and well maintainable system which is competent to adapt any changes in the near future.

Current System

It is obvious that the current system is totally out and does not meet the customer's requirement in terms accessibility to search, buy, rent, or sell books and have need of some changes in order to overcome the current condition. Current system is pretty slow and providing customers with weak outcome with many invalid information. This has enable staff to serve customer by delaying and fruitless services.

The system that we proposed will come with all the required solution to all the problems. New specification is highly recommended under the new system and newest technology with faster speed and performance which allows customer to receive immediate respond for their demands. This new system does not require professionals to handle; staff can be able to operate it as it is a user friendly online system.

Book Xchange need to purchase new PC with sensible price and must require features which can be boost the performance and services can be conducted without lagging. As the new system proposed, I believe that customers will have sufficient facilities to access and use this system.

Basic hardware requirement that needed to run this system is:-

- Dell Computer
- Dell PowerEdge T320 Tower Server
- Ups System for Operating PC
- Ups System for Server
- TP-Link Router
- TP-Link 8 port switch
- Dell Printer

Basic software requirement that needed to run this system is:-

- A web browser.
- Windows XP, Windows Vista, Windows 7 or Windows 8
- Mac OS
- Bit Defender Anti-virus (3 User)

3.2 OPERATIONAL FEASIBILITY:

The operational feasibility has been divided into the following sections “P.I.E.C.ES Framework”. See below for more information:

3.2.1 PERFORMANCE CHECK:

By using the BXMS system, it improves the company performances, so mere in the future; the company sales will increase in numbers. The BXMS system helps the employees in increasing their efficiency hence the company earns more profits by using the system. Compared to the current system, the sales were affected by the performance of the staff and time spent in processing customer order. Furthermore, BXMS system improves the business's performance, hence the business will expand in a short period of time which will help the company financially and in building its reputation.

3.2.2 INFORMATION CHECK:

With the new system, the data will be stored in the database unlike before, the data stored manually in books. It safe a lot amount of time for the staff to focus on more important task that being given. BXMS system, keeps the database accurately preventing it from human errors. Moreover, by using the system it will keep the information organize and easy to be review by the staff that managing the system.

3.2.3 ECONOMIC CHECK:

By improving the new system, of course the cost of the system will increase in the short term but the profit will increase in a long term. BXMS will automatically increase the order of the product since a lot of students especially master students depending on books for research purposes. BXMS system not only increases the order of the books, it is also improving the current marketing economically.

With the assistance of the internet, the company will be able to provide its services to everyone internationally which will generate many benefits in terms of transactions that will be performed. Users around the world will be able to access the system without any problems as long as they are connected to the internet. (*Please refer to Appendix 9.4*)

3.2.4 CONTROL CHECK:

The system provide good control on customer privacy by using the new system, it can minimize human errors in the company. Human it is also protect customer data privacy so that it will not be violated by other people. The company ensures that the staff that working on the maintenance of the data is trusted. Customer can easily update by themselves so that no error will occur in the system.

3.2.5 EFFINCIENCY CHECK:

By using this system the customer can register efficiently at home rather than go to the bookshop itself. BXMS system also helps the staff update the information given less than the maximum time given. Compared to the current system it takes a lot more time for the staff to actually finish the data information. By applying this system in the company, it will help staff and customer in an efficient way.

3.2.6 SERVICES CHECK:

In term of services, our company provide delivery services for the customer. It is easy for the customer to buy or borrow books if they do not have transportation. In the system we also provide an appointment in the contact us page. Basically the customer can make an appointment in the contact us page. Basically the customer can make an appointment with one of our sales person to ask question for clarification of the purchases. In the system we also provide maps for the customer to visit our bookstore. Some of the customer prefer to go to the book store and buy the book itself or pick it up by themselves to avoid charges. It will be convenient for the customer that lives near those areas.

3.3 ECONOMIC FEASIBILITY:

Analysis of a project's costs and revenues in an effort to determine whether or not it is logical and possible to complete. The system that proposed has an economic feasibility which benefits the system stability by estimating the cost involved in acquiring, installing and even operating it. Cost can be gain monthly or annually. The reason of economic feasibility involve is to identify financial

benefits and cost related to the system. To conduct a research on the economic feasibility for this system it involves benefits and cost. (*Please refer to Appendix 9.4*)

3.4 SCHEDULE FEASIBILITY:

Schedule feasibility is defined as the probability of a project to be completed within its scheduled time limits, by a planned due date. To add on, it is also used to calculate the time specified to complete the system proposed and can ensure the deadlines are at specified time. (*Please refer to appendix 9.1*)

4.0 SYSTEM ANALYSIS AND DESIGN:

The development of BXMS underwent a few phases as per the SDLC system which is show below. Respectively, the system was developed in a phrase at a time, back to back.

4.1 SYSTEM DEVELOPMENT LIFE CYCLE (SDLC):

The following below are the stages or phases or the SDLC that were followed in the development of the BXMS Online Library System;

In the planning phase, the procedures that were implemented were to first define the problem, in this case the system, to review all the requests of the system, identifying the problems faced by the current system and later propose ideas for the new system.

In the analyzing phase, there was performing of feasibility studies, preparations of the system layout and designs as shown below, explaining the advantages and disadvantages of the system, calculating the duration of which the system will take in development and lastly prepare a proposed budget for the system development process.

In the designing phase, reviewing of the previously made documentation of the planning and analyzing phases took place first, then the development of the actual system followed, identification of both hardware and software that is compatible with the system as per the minimum requirements and lastly developing of prototypes.

In the implementation phase the procedures followed are as follows, installation of the hardware and software components of the system, the installation of the finalized system, testing of the systems features and then training of the final users/end users of the system.

In the operations, support and security, installing of protective soft wares like antiviruses and hardware like locks/chains was the first procedure, then performing ongoing maintenance of the system, it's hardware and software followed after that, and lastly, monitoring of the system's performance.

4.1 LAYOUT AND DESIGN OF THE SYSTEM:

Below are the screens of the finalized system design which show the BXMS Online Library Website and the descriptions of each page of the website as given below;

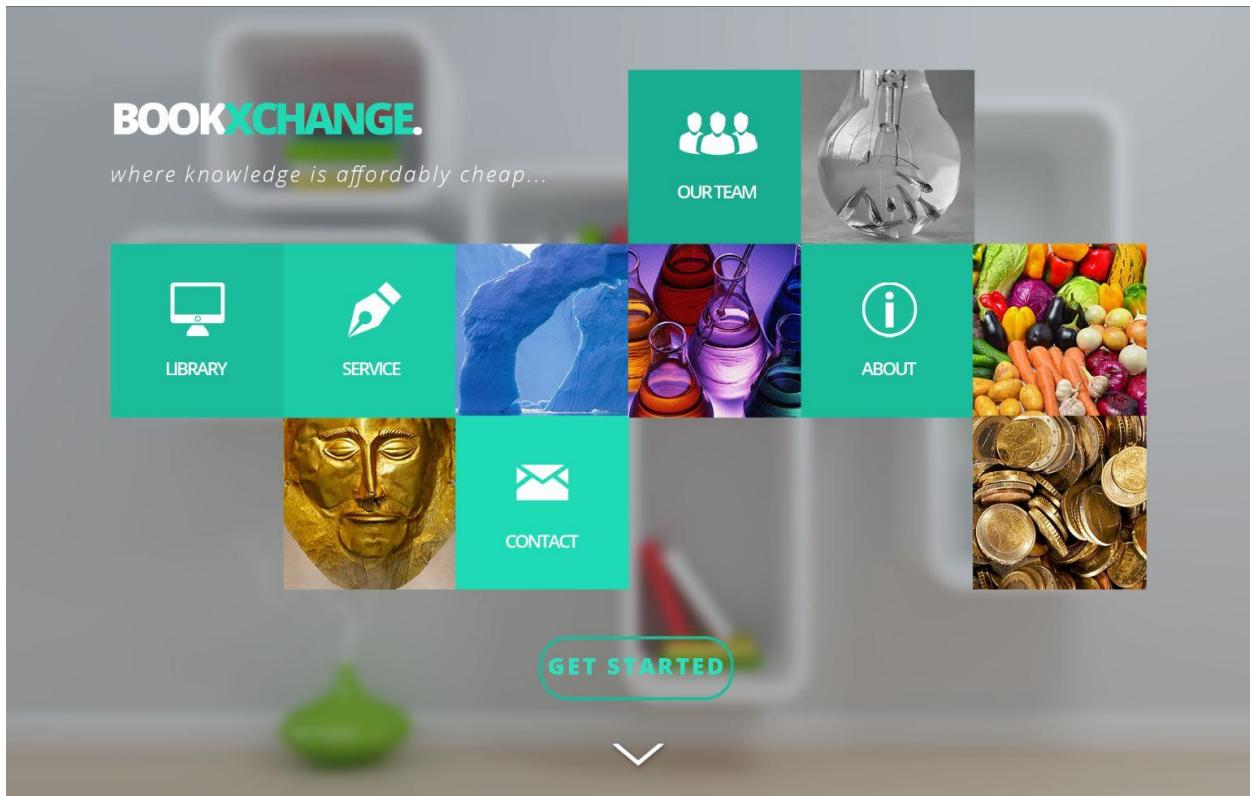


FIGURE 1: BXMS LANDING PAGE (HOME PAGE)

The landing/home page as shown in the figure above is the main page of the website which contains images links as seen. Each link when selected, directs the user to the respective page, for example by clicking on "ABOUT", the website would automatically scroll down to the About us

page since it is ran by “JAVA Script Programming”, “HTML 5” and “CSS3”. The button below “GET STARTED” contains the link to the “Sign Up page” of the website where our users can sign up with us so that they can be our members. The “V” button at the bottom of the page is the scroll button which when the users click on, it will deploy the java script code to automatically scroll the website down to the first page below the landing/home page which is “ABOUT US”.

Since the system is a “one page website design”, it was necessary to implement “java script”, “html 5” and “css3” in order to eliminate the frustration of our users scrolling up and down all the time.

STEP 1

Account	Personal	Payment	Finish
Edit account info	Personal details	Select method	Final details

User name *
mrishoabeid Username available

Password *

Retype password *

E-mail *
mrisho.lg.abeid@gmail.com Valid e-mail address

Set avatar
C:\Users\Mrisho\My Docume... Preferred size: 40x40 px.

* Fields that must be completed.

FIGURE 2: SIGN UP PAGE - STEP 01

As explained above in the landing/home page, when the user clicks on the “GET STARTED” button, they will be redirected to the “SIGN UP PAGE” as seen in the steps 01-04. In this first step

of the sign up form, users are required to create their accounts by assigning specific usernames that have not been used yet (available usernames), passwords that are 8-16 characters long (as per the system's requirements), their emails so that they can receive confirmation emails with a link to verify their newly created accounts and also they are insisted on having an avatar (a profile picture) of 40x40 pixels (preferred) to display their profiles.

STEP 2

Account Edit account info	Personal Personal details	Payment Select method	Finish Final details
-------------------------------------	-------------------------------------	---------------------------------	--------------------------------

Full name *
Mrisho Abeid Omary

Address *
Fortune Park Apartments,
B-12-09, Serdang, Selangor

Country
TANZANIA

Gender
 Male Female

Personal details

I'm a Tanzanian National. 20 yrs of age. My birthday is on 15.03 and to be honest, I find that pretty awesome in fact.

I'm in a relation with someone that I truly love with all my heart. She is the best, most beautiful and intelligent person I know.

Plus, I hope to become a NETWORK ADMINISTRATOR, if GOD wishes. In Shaa Allah. :-)

* Fields that must be completed.

Next step (3/4)

FIGURE 3: SIGN UP PAGE - STEP 02

In step 02 as seen in the screen above, the users are required to provide their personal details including their full names, addresses where they can receive the deliveries in case they opt for that particular services, their countries of origin and they are also required to specify their gender,

whether male or female. Inclusively, they are encouraged to write a short paragraph explaining their personal details.

STEP 3

Account
Edit account info

Personal
Personal details

Payment
Select method

Finish
Final details

Card type
VISA

Card number
5567-8976-9980-3246

Enter the 16 digits number on the front of your card.

Name on card
Mrisho Abeid Omary

Enter the full name written on the front of your card.

Expiration date
AUGUST 2020

Expiring date of your card.

CSV code 123

* Fields that must be completed.

Next step (4/4)

FIGURE 4: SIGN UP PAGE - STEP 03

Step 03 of the sign up form requires the users to indicate the billing details for making payments later when buying books, such details include card type, the card numbers, their names on the cards, expiration dates of the cards and also csv codes on their cards.

STEP 4

Account Edit account info	Personal Personal details	Payment Select method	Finish Final details
User name:	mrishoabeid		
E-mail:	mrisho.lg.abeid@gmail.com		
Full name:	Mrisho Abeid Omary		
Address:	Fortune Park Apartments, B-12-09, Serdang		
Country:	TANZANIA		
Gender:	Male		
Card type:	VISA		
Card number:	5567-8976-9980-3246		

I read and fully agree to the [Terms of Use](#) and [Privacy Policy](#)
 Sign up to our newsletter

[Create account](#)  [Reset](#) 

Congratulations! You can now enjoy our website. Have fun!

[Homepage](#)  [My account](#)  [Special offers](#) 

FIGURE 5: SIGN UP PAGE - STEP 04

Step 04 of the sign up form provides the user with the summary of all of the details that they just provided in the sign up process to help them confirm whether the information is right or not so that they can make changes before submitting the form. They are also required to read the terms and conditions of the website and confirm that they have read and understood all terms and agreed.

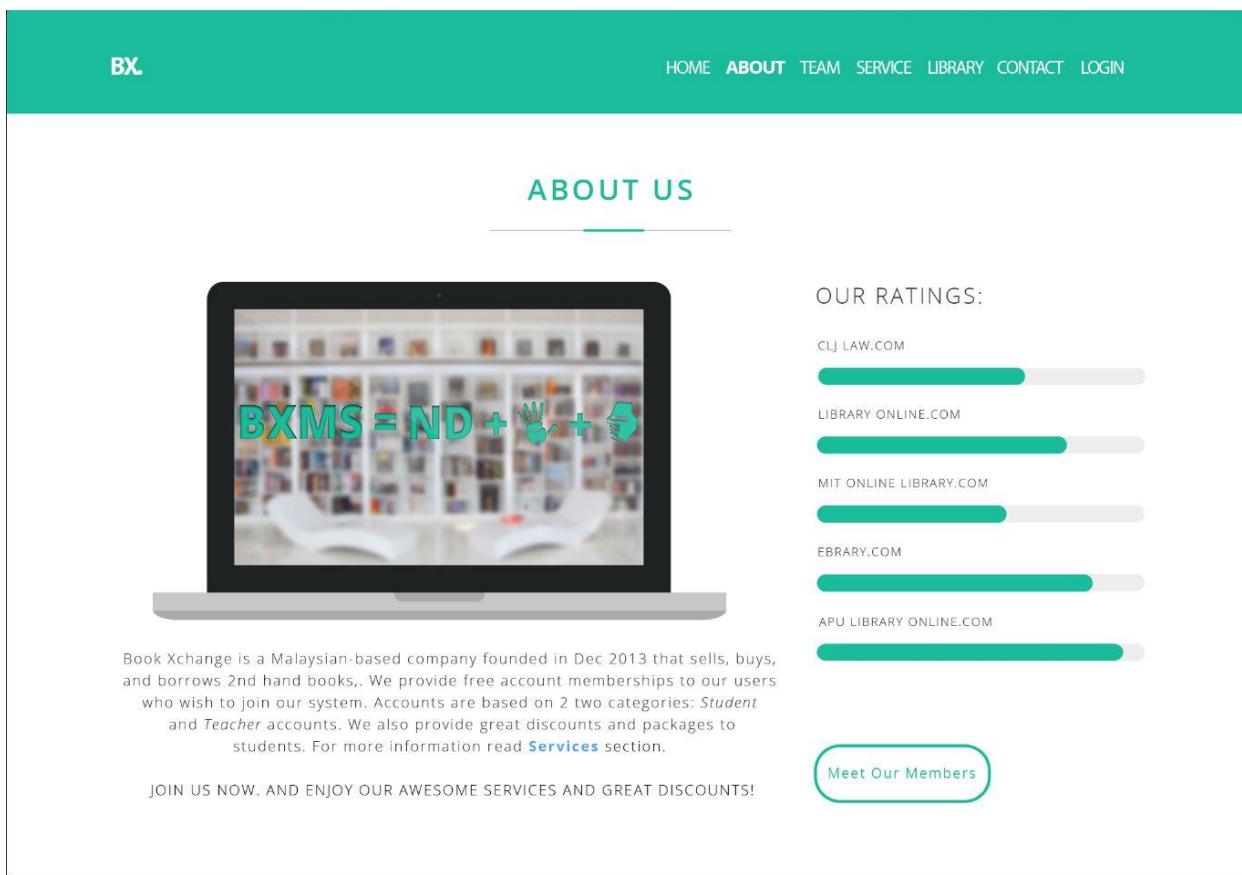


FIGURE 6: ABOUT US PAGE

In this about us page as seen about, it gives a somewhat detailed explanation of what the system is all about and what it does. The laptop on the side shows an image with the words “BXMS = ND + *HAND* + *BOOKS*” which represent in detail the main objective of the system which is to sell and buy second hand books to and from our users. The grid on the right showing different levels with ratings are the ratings that we received from other online libraries which found our system either, helpful, good or even better than theirs.

The button below the grid “Meet Our Members” contains a link that when clicked, redirects our users to a page containing the company’s hierarchy and job positions of each member and the descriptions of their jobs.

As seen on the previous image (home page), there was no navigation bar which is present on the about us page showing other page links of the website, this is simply because since the home page is the first page and there is no other page preceding it, it would not make sense to have on the home page. That is why it is only available in all other pages as seen.

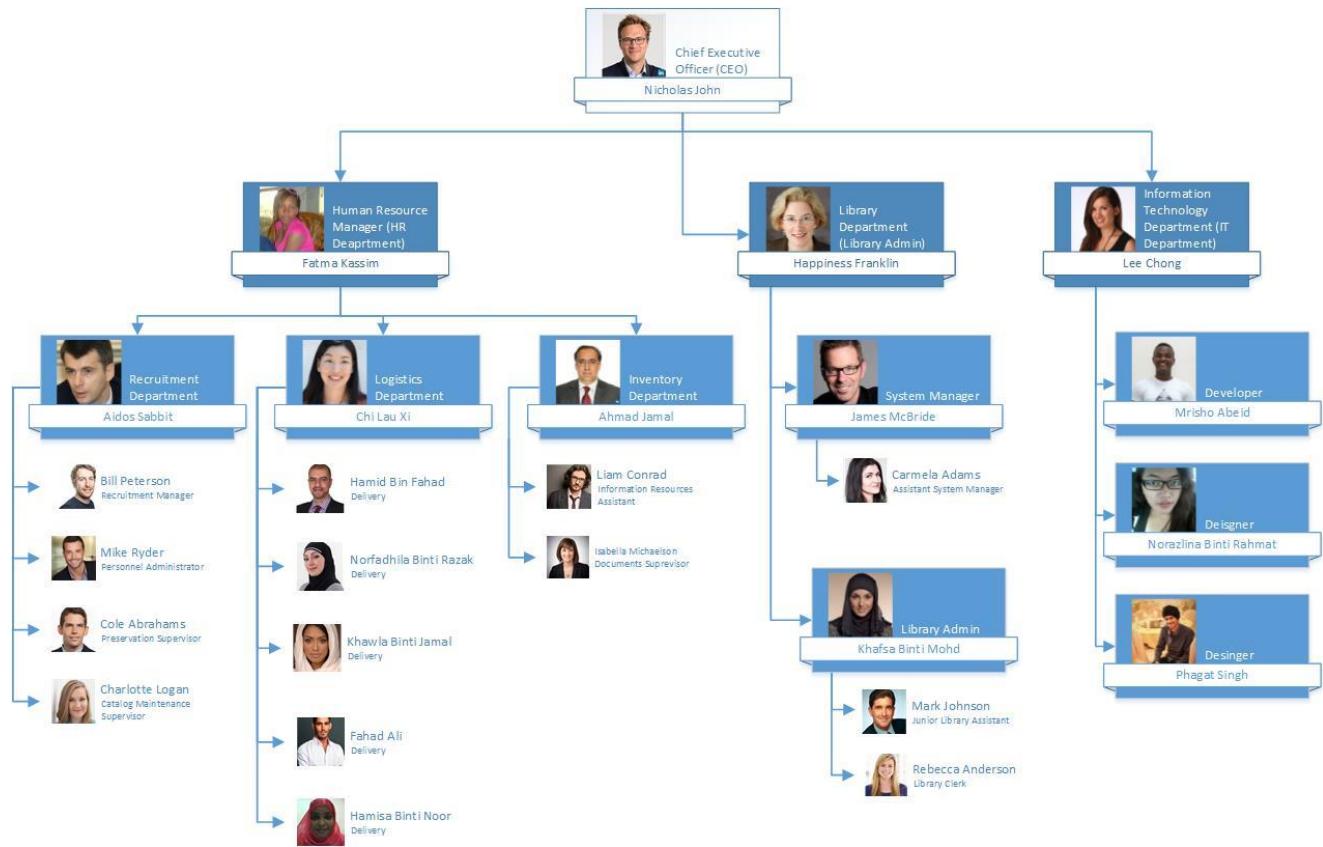


FIGURE 7: COMPANY HIERARCHY (JOB DESCRIPTION)

As explained above in the about us page, this is the page that will open once our users click on the meet our members team on the about us page. The link to this page will be an internal link hence no new tabs will be opened since it's not an external link.

As seen the company hierarchy, there are very few employees of the BXMS Company, this is due to the fact we are trying to emphasize on having the least number of employees so that we can increase our productivity by organizing good management strategies to a fewer group of people in order to maximize efficiency.

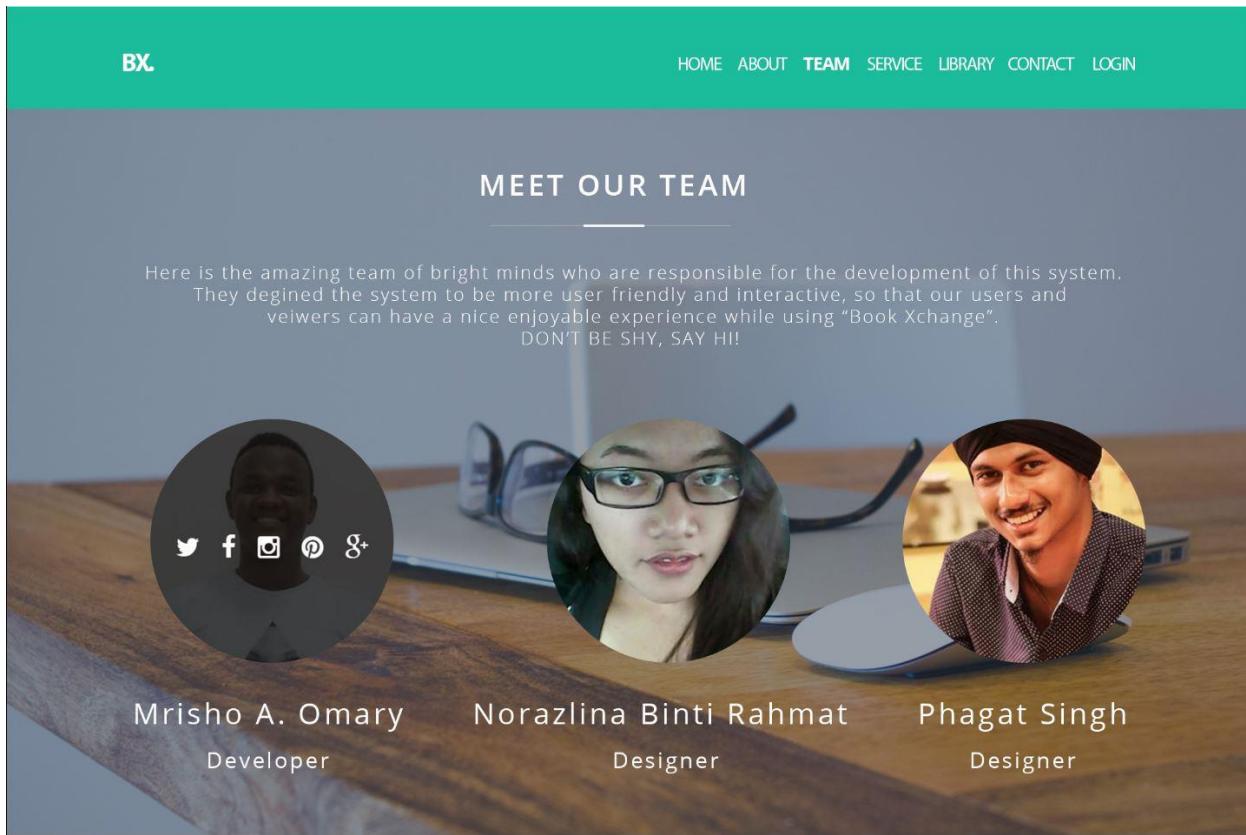


FIGURE 8: DEVELOPMENT TEAM (OUR TEAM)

The above screen shows the development behind BXMS. With the use of java script programming, we were able to add the personal social network pages to the respective images of each team member. As seen in the screenshot, when the users hover the cursor over an image of any of the developers, an animated void will appear covering the images and exposing the social network page links.

In this case, the image of the developer “Mrisho A. Omary” has been covered and his social network pages which are twitter, facebook, instagram, pinterest and google+ are exposed hence the users can be able to directly communicate with him personally.

The use of this feature is to provide direct communication from the users to the developers in case they have any issues/problems related to BXMS Online Library System or any business related issues.

The screenshot shows the 'OUR SERVICES' section of the website. It features six service cards arranged in two columns:

- Sign Up & Login**: Describes creating a free account with exclusive benefits. Includes a user icon.
- 2nd Hand Books**: Describes buying and selling second-hand books. Includes a book icon.
- Home Delivery**: Describes free delivery to customer locations. Includes a truck icon.
- Discounts**: Describes great discounts for students. Includes a discount icon.
- Customer Service**: Describes customer support. Includes a headset icon.
- 24/7 Hotline**: Describes a 24/7 assistance hotline. Includes a phone icon.

FIGURE 9: SERVICES PAGE

The services page as seen above, contains the descriptions of all functions and features of the systems. The two most important features of the system are the sign up and login together with the 2nd hand books themselves. After our users have signed up with us (subscribed), they will be able to enjoy all the features shown above and more. As elaborated in the sign up section in the services page, our users can enjoy the benefits that we provide, “exclusively”.

In case a user want to sell a book to user, all they need to so is contact us through our “CONTACT PAGE” by leaving a message containing the information of the book and photographs of the book to show the quality of the book.

In case they are buying a book, they are also offered free delivery services to their locations in case they choose to have the books/items delivered to them. On top of that, they get benefits such as discounts especially to our student users who have subscribed with us.

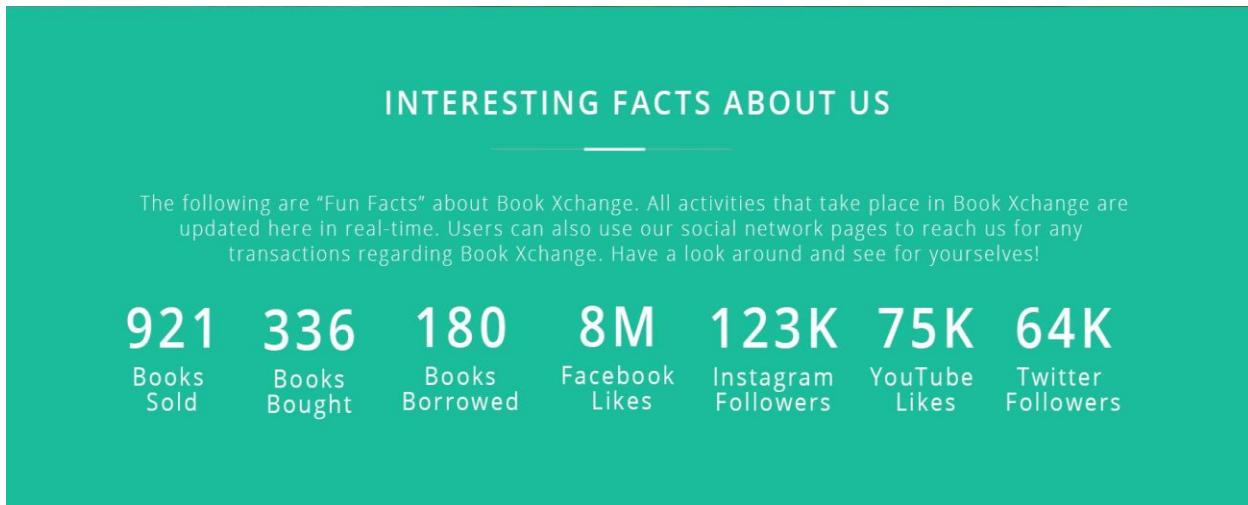


FIGURE 10: INTERESTING FACTS PAGE

The page see above (interesting facts about us) is another simple attachment to the BXMS online website system that shows an automatic update of all important information or transactions that take place in the system. The initial idea of adding this page was to motivate people or to show them that we truly are a serious business and that we provide what we promise to our customers and viewers.

The “interesting facts about us” page as you can see is not included in the navigation bar simply because it is not one of the main features of the system but it was just suggested by our users as something to provide real time information about the system whenever any transaction is made or when any information is updated.

As see from the page, the system also has as part of it other website pages in which we update all information about BXMS and also, we use those other website pages as a platform to increase our clientele all over the world. The reason of using other website pages is to be able to reach many people in a short period of time using the websites that they frequently use on a daily basis like Facebook.com or YouTube.com. With the help of these pages customers don’t really need to visit the main website of Book Xchange in order to perform transactions or make appointments, but instead, they can do all that within the social media pages themselves.

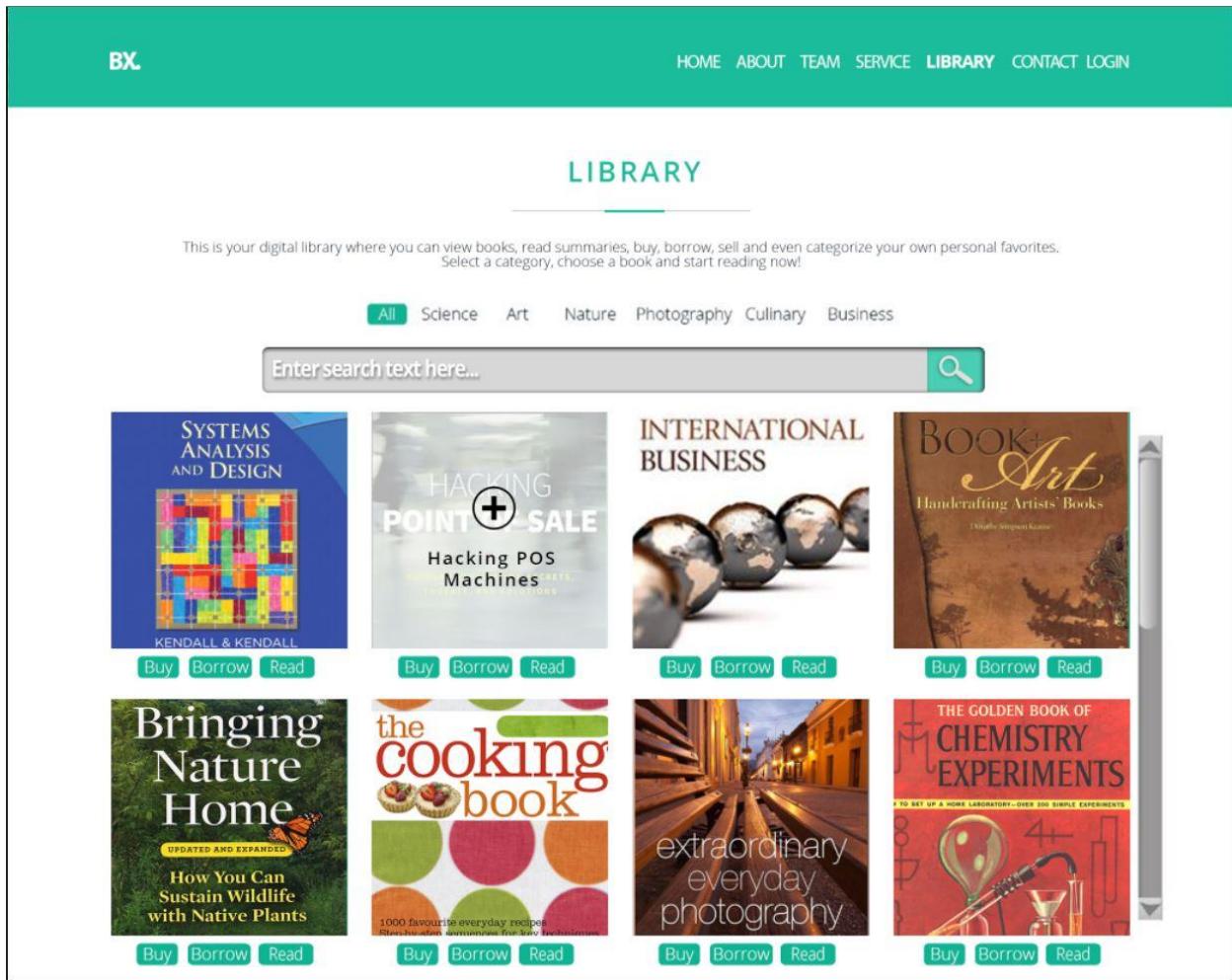


FIGURE 11: LIBRARY PAGE

In the library page, our users are capable performing a few important features of the system including categorizing books in categories as show in the screen shot where currently the category of books is on all, on top of that, they are able to search for books as one of the main requirement of the system, they can all perform other functions after obtaining the book(s) of their choice.

These functions include, buying a book from the our library by clicking on the “BUY” button below the book, they can borrow a book for some specified number of days by clicking on the “BORROW” button and lastly, they can also read the summaries of the books that they desire by clicking on the “READ” button below each book.

▼ Pay with my credit or debit card
 (Optional) Sign up for PayPal for faster future checkout

Country	<input type="text" value="Malaysia"/>
Card number	<input type="text"/>
Payment types	
Expiration date	mm <input type="text"/> / <input type="text"/> yy
CSC <small>What is this?</small>	<input type="text"/>
Billing information	
First name	<input type="text"/>
Middle name <small>(optional)</small>	<input type="text"/>
Last name	<input type="text"/>
Address line 1	<input type="text"/>
Address line 2 <small>(optional)</small>	<input type="text"/>
City	<input type="text"/>
State / Province / Region	<input type="text"/>
Postal code	<input type="text"/>
Shipping address	<input checked="" type="checkbox"/> Same as billing address
Contact information	
Telephone	<input type="text"/>
Email	<input type="text"/>
Add special instructions to the seller:	Add

Please review your information on this page to make sure it's correct. Click Pay to complete your purchase.

Pay

(PAYPAL, 2015)

FIGURE 12: BUY NOW PAGE

Users, are able to buy booking by clicking of the buy button below the books which will direct them to this page. After they fill in their billing information, they will make the purchase and get their books either by delivery or when they come to our offices. Also, if the user who is buying the book is already a member with our system, they will not need to fill in the whole since they already did during signing up. The system will help them in filling in this particular form with the “auto fill” feature.

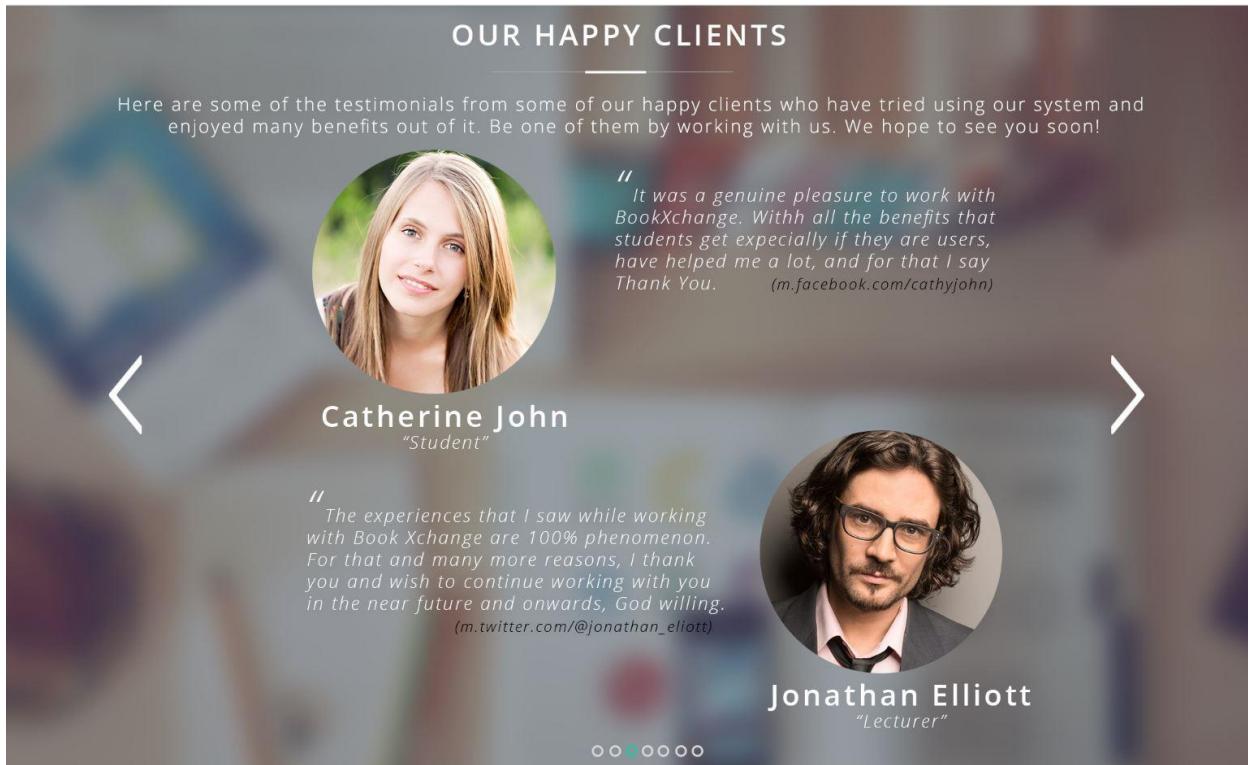


FIGURE 13: CLIENTS PAGE

Above is the clients (our happy clients) page. In the clients' page, the system administrators update all testimonials and or comments or reviews of which were spoken of by our customers who have once engaged with us in any transaction. The purpose of creating this page was to show other people around the world that we are indeed a true company which does real business and that there have been other people who have participated in transactions with us.

All testimonials, comments and reviews from our customers which we update in the clients page are collected from the social media websites in which we have developed pages for BXMS. One of the system administrators who is in charge of the social media web page is required to collect all reviews and add them to the clients' page of the BXMS website system on a weekly basis.

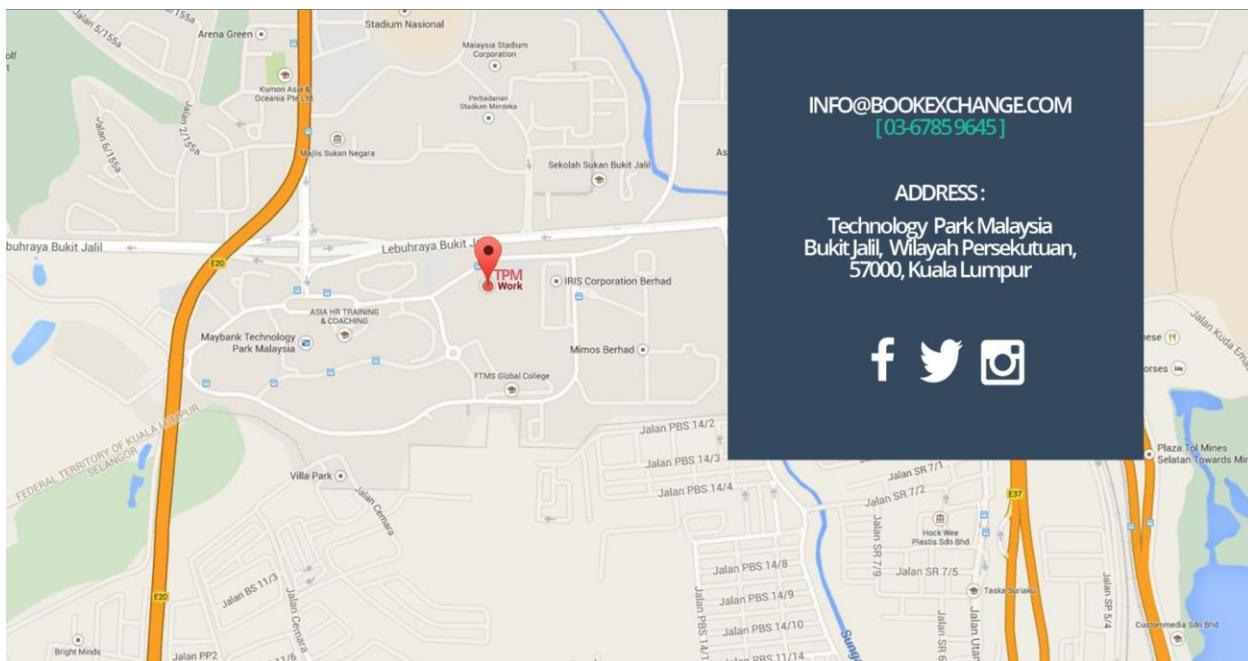


FIGURE 14: LIVE MAP AND ADDRESS

The page above is a live map showing the location of where the main headquarters of Book Xchange are settled. On top of the live map is a small pad that holds the most frequently used contact information in Book Xchange Company. The icons that are layered on top of the pad like the Facebook, Twitter and Instagram icons are holding actual links to the Book Xchange social media website pages.

The live map is generated from Google Maps hence it show everything in real time. The main purpose of embedding the map is to save out users the trouble of having to search for the location of the company. Instead, they can just open this main website of Book Xchange and see the map of the company's location.

As observed in all pages, this is one of the pages that has not been include in the navigation bar. This is simply because the page was not initially developed as one of the main requirements of the system hence its addition to the website was not compulsory or necessary for the guidelines and or requirements but very crucial for the overall graphical effectiveness of the website.

Here are more ways that you can use to reach us. Feel free to make appointments, orders, schedule dates to take and return books, buy books, and many more. We are here for you. So let us know how we can assist you and we will try our best to do just that and much more, hopefully. So, DON'T BE SHY. WRITE TO US NOW.

ADDRESS: Technology Park Malaysia Bukit Jalil, Wilayah Persekutuan, 57000 Kuala Lumpur.

EMAIL: info@bookexchange.com
bookexchange@gmail.com
bookexchange@ymail.com

PHONE: 03-6785 9645
03-7653 1233

HOURS: **Monday-Sunday:** All day everyday
24/7. We are here for you around the clock.

your name

your email

your phone number

your message

SUBMIT **RESET**

BOOK XCHANGE @mrisho_674746 Copyright MENET CORP.org, 2015, All right reserved

FIGURE 15: CONTACT US PAGE

In the contact us page as seen above, users can directly communicate with the salespeople and staff members of BXMS in order to make appointments, inquiries, ask questions for information or clarification, provide advice on what they think would be good features that can be added in the system in order to make it more user friendly.

Users can also visit the external links provided below to our social media web pages in order to find more information about the system and they can also recommend it to their friends by tagging them in the posts that they have written about the system in those respective social media web pages. All relevant information on how our users can reach us is provided in the “Contact Us” page alongside the times in which the system is operation.

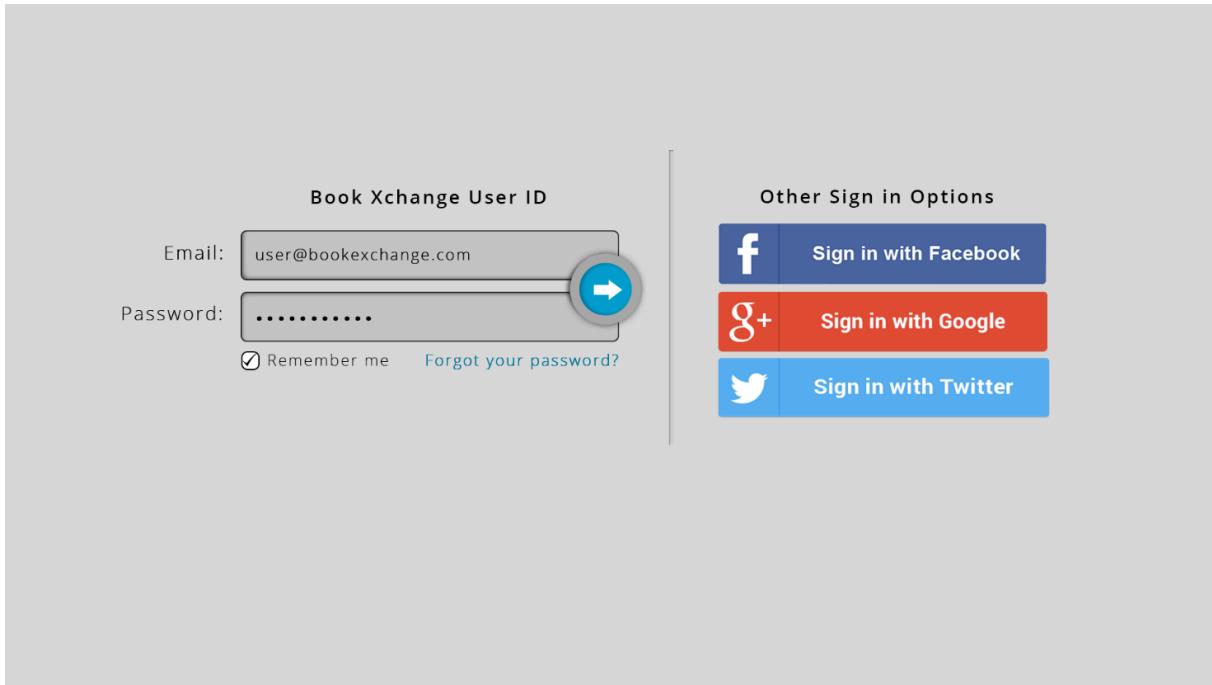


FIGURE 16: LOGIN PAGE

In the “Login Page” as seen in the above image, it shows 2 sections in which the users can use in logging into the system. Users can either log in with either “usernames and passwords” of which they have registered with in the system or opt to use the other social media website like, “Facebook”, “Twitter” and “+Google” to sign into the system.

Some of the added feature of the system in the log in section are “Remember me” which users can use to save their login details in order to evade the troubles of logging in every time they access the website. Another feature that can prove to be very important is the “Forgot your password?” feature. With the help of this feature, users who have forgotten their passwords can use in order to create a new password for their accounts.

User Membership Report							
ID	First Name	Last Name	Address	Contact Number	Email	Username	Password
CID0001	Andrew	Tan	19, Addison Street, Puchong	0122344322	tan.drew@gmail.com	andrew.tan	tan_andrew99
CID0002	Bob	Schmitz	150, Gurney Drive, Kajang	0126788765	bobschmitz123@hotmail.com	bobby.schmitz	schmitz.bobby
CID0003	Candace	Rodriguez	1015, 15th Street, Puchong	0121121123	candy_rodriguez@gmail.com	rodriguez.candice	candice_rod
CID0004	Danny	Quzzac	54, University Park, Bangi	0199999998	dan_quzak@gmail.com	quzzac.dan	danny_q.1990
CID0005	Emily	Patman	24, East 21st Street, Kuala Lumpur	0192223423	emily.patty89@ymail.com	emily_patty89	patmanemily
CID0006	Frederick	Omm	PO. Box 49, St. Anne, Serdang	0191234567	frederick_omm@hotmail.com	fred_omm	omm fred90
CID0007	Gina	Nickleback	I21, University Avenue, Kuala Lumpur	0169876543	nickleback_gina@ymail.com	ginanickleback	gina_983
CID0008	Hannah	Montana	40, Institutional Area, Puchong	0198888898	hannah_montanna90@hotmail.com	montanna_hanna	Mhanna895
CID0009	Isaac	Lewis	96, BUTL, Bangi	0195677655	issac.lewis@gmail.com	lewis_issac	20issacLewis
CID0010	Joshua	Kholes	54, Desa Hartamas, Kuala Lumpur	0194488881	joshuakholes@gmail.com	joshua.kholes	jkholes990
CID0011	Kendra	James	121, 8th Street, Puchong	0196789560	kendra@ymail.com	jkendra	jameskendra90
CID0012	Lance	Islands	PO Box 1234, Avon, Puchong	0123456758	lance.islands@hotmail.com	lance.islands	islands_lans
CID0013	Monique	Hance	67, 28th cross street, Seri Kembangan	0194488123	hance_monique98@ymail.com	monique	m.hance95
CID0014	Nancy	Gerome	1254, West spa, Serdang	0169058789	nacny@ymail.com	nancygerome	geromenancy
CID0015	Omar	Freshair	29, Main Street, Bangi	0193254567	freshair_omar98@gmail.com	omar_freshair	freshair1990
CID0016	Patrick	Edwin	56, Lodge avenue, Kuala Lumpur	0194498781	edwin_patrick.1994@hotmail.com	patrick.edwin	patrick.edwin19
CID0017	Qimmy	Dance	1015, 2nd Street, Puchong	0123232412	qimmydance@gmail.com	qimmydance	danceqimmy20
CID0018	Roy	Clod	4, Mt Lavinia, Serdang	0166781234	clod_roy@hotmail.com	royclod	hammerhead
CID0019	Stan	Brown	678, Gateway, Puchong, Seri Kembangan	0149087652	stan.brown@gmail.com	stan.brown	brown_stanly0

FIGURE 17: USER MEMBERSHIP REPORT

Appointments Report							
ID	Student	Salesperson	Address	Time	Contact Number	Status	Remarks
CID0001	Andrew	Sandra	19, Addison Street, Puchong	08:00 am	0122344322	Conducted	Successful
CID0002	Bob	Sandra	150, Gurney Drive, Kajang	07:45 am	0126788765	Conducted	Successful
CID0003	Candace	Sandra	1015, 15th Street, Puchong	06:15 pm	0121121123	Postponed	Unforeseen circumstances
CID0004	Danny	Ahmad	54, University Park, Bangi	07:00 pm	0199999998	Cancelled	Change of mind
CID0005	Emily	Sandra	24, East 21st Street, Kuala Lumpur	04:00 pm	0192223423	Conducted	Successful
CID0006	Frederick	Ahmad	PO. Box 49, St. Anne, Serdang	01:00 pm	0191234567	Postponed	Other issues
CID0007	Gina	Ahmad	I21, University Avenue, Kuala Lumpur	01:00 pm	0169876543	Postponed	Sick
CID0008	Hannah	Ahmad	40, Institutional Area, Puchong	01:00 pm	0198888898	On going	-
CID0009	Isaac	Ahmad	96, BUTL, Bangi	01:00 pm	0195677655	Conducted	Not successful. More information required
CID0010	Joshua	Sandra	54, Desa Hartamas, Kuala Lumpur	07:50 pm	0194488881	Cancelled	Other issues
CID0011	Kendra	Sandra	121, 8th Street, Puchong	09:50 am	0196789560	Cancelled	Change of mind
CID0012	Lance	Ahmad	PO Box 1234, Avon, Puchong	09:30 am	0123456758	Cancelled	Sick
CID0013	Monique	Sandra	67, 28th cross street, Seri Kembangan	12:43 pm	0194488123	On going	-
CID0014	Nancy	Sandra	1254, West spa, Serdang	11:40 am	0169058789	On going	-
CID0015	Omar	Ahmad	29, Main Street, Bangi	12:00 pm	0193254567	Conducted	Successful
CID0016	Patrick	Sandra	56, Lodge avenue, Kuala Lumpur	02:00 pm	0194498781	Conducted	Successful
CID0017	Qimmy	Ahmad	1015, 2nd Street, Puchong	08:30 am	0123232412	Conducted	Successful
CID0018	Roy	Sandra	4, Mt Lavinia, Serdang	01:00 pm	0166781234	Conducted	Successful
CID0019	Stan	Ahmad	678, Gateway, Puchong, Seri Kembangan	12:30 pm	0149087652	Postponed	Work
CID0020	Thommas	Ahmad	231, May Park, Kuala Lumpur	01:30 pm	0127878789	On going	-

FIGURE 18: APPOINTMENTS REPORT

Book Inventory Report								
Thursday, April 9, 2015 11:43:41 PM								
ID	Name Of Book	Author	Year Published	ISBN	Publisher	Status	Available copies	
CID0001	The Shepherd's Life	Isaac Asimov	1870	ISBN 978-111-881-1	Oxford	Available		10
CID0002	Think Big	Posy Simmonds	1999	ISBN 986-417-191-7	Cambridge	Available		2
CID0003	Million Dollar Arm	Rupert Thomson	2000	ISBN 976-640-140-3	Cambridge	Not Available		0
CID0004	The Mighty	Sarah Waters	2015	ISBN 958-04-6278-X	Cambridge	Available		9
CID0005	Uncommon Ground	Jonathan Swift	1987	ISBN 975-293-381-5	Oxford	Not Available		0
CID0006	Travel Guide	Will Self	1999	ISBN 983-52-0157-9	Oxford	Not Available		0
CID0007	Cook With Natasha	Natasha Walter	1867	ISBN 4-19-830127-1	McGraw-Hill	Available		18
CID0008	Famous Five	Oscar Wilde	1980	ISBN 7-301-10299-2	Cambridge	Not Available		0
CID0009	Honourable Friends	Lionel Shriver	1990	ISBN 965-359-002-2	McGraw-Hill	Not Available		0
CID0010	This Changes Everything	Wole Soyinka	2001	ISBN 974-85854-7-6	Pearson	Available		8
CID0011	Freedon Regained	Mary Shelley	2002	ISBN 2-226-05257-7	McGraw-Hill	Available		12
CID0012	To Explain The World	Art Spiegelman	1930	ISBN 83-08-01587-5	Pearson	Available		34
CID0013	All Day Long	Thomas Frank	1965	ISBN 981-3018-39-9	Oxford	Not Available		0
CID0014	Five Year Mission	Penelope Lively	1877	ISBN 92-67-10370-9	Cambridge	Not Available		0
CID0015	The Establishment	Alasdair Gray	2011	ISBN 0-330-28498-3	Oxford	Not Available		0
CID0016	Landmarks	David Grossman	2000	ISBN 5-85270-001-0	Oxford	Available		66
CID0017	Family Project	Philip Larkin	1999	ISBN 956-7291-48-9	Pearson	Available		54
CID0018	H is for HAWK	Lauren Child	1999	ISBN 84-86546-08-7	Pearson	Available		4
CID0019	Balcklisted	Kate Atkinson	1995	ISBN 94-414-0063-3	McGraw-Hill	Not Available		0
CID0020	Cukoo	Gore Vidal	1998	ISBN 979-553-483-1	Pearson	Not Available		0

FIGURE 19: BOOK INVENTORY REPORT

Transactions Report									
Friday, April 10, 2015 1:08:28 PM									
ID	Customer	Clerk	Name Of Book	ISBN	Amount	Given Date	Return Date	Action	Remarks
CID0001	Sabrina A.	Mark	Finance	ISBN 978-111-881-1	\$90.00	09-Feb-15	-	Sold	Receipt
CID0002	Ashley R.	Mark	Internet Topologies	ISBN 986-417-191-7	\$45.00	01-Jan-15	12-Jan-15	Borrowed	Invoice
CID0003	Fatma H.	Mark	National Gaographic	ISBN 976-640-140-3	\$97.00	02-Mar-15	-	Sold	Receipt
CID0004	Norfadhilah R.	Mark	Hacker's Guide	ISBN 958-04-6278-X	\$23.00	08-Apr-15	-	Bought	Cheque
CID0005	Shamsa N.	Rebecca	Windows 10	ISBN 975-293-381-5	\$55.00	03-Mar-15	-	Bought	Cheque
CID0006	Abdullah I.	Rebecca	Accounting	ISBN 983-52-0157-9	\$47.00	11-Apr-15	-	Sold	Receipt
CID0007	Jamal O.	Rebecca	Systems Analysis & Design	ISBN 4-19-830127-1	\$54.00	17-Jan-15	31-Jan-15	Borrowed	Invoice
CID0008	Hafidh C.	Mark	Think Big	ISBN 7-301-10299-2	\$67.00	15-Mar-15	30-Mar-15	Borrowed	Invoice
CID0009	Raudhia V.	Rebecca	MENET CORP	ISBN 965-359-002-2	\$33.00	15-Mar-15	-	Bought	Cheque
CID0010	Abdallah B.	Mark	Healthy Eating	ISBN 974-85854-7-6	\$87.00	07-Mar-15	-	Sold	Receipt
CID0011	Farida D.	Rebecca	How To Win In Business	ISBN 2-226-05257-7	\$18.00	11-Jan-15	-	Sold	Receipt
CID0012	Nicholas P.	Rebecca	H Is For HAWK	ISBN 83-08-01587-5	\$22.00	02-Feb-15	-	Bought	Cheque
CID0013	Juan K.	Mark	Cooking Guide For Dummies	ISBN 981-3018-39-9	\$55.00	30-Jan-15	19-Feb-15	Borrowed	Invoice
CID0014	Zainab M.	Mark	Food Network	ISBN 92-67-10370-9	\$70.00	01-Apr-15	-	Sold	Receipt
CID0015	Khadija M.	Mark	Business Law	ISBN 0-330-28498-3	\$43.00	12-Mar-15	-	Sold	Receipt
CID0016	Aisha A.	Rebecca	Million Dollar Arm	ISBN 5-85270-001-0	\$88.00	06-Mar-15	-	Sold	Receipt
CID0017	Abeid O.	Rebecca	Nature	ISBN 956-7291-48-9	\$67.00	22-Feb-15	-	Bought	Cheque
CID0018	Kassim A.	Rebecca	House Hunters International	ISBN 84-86546-08-7	\$56.00	03-Apr-15	18-Apr-15	Borrowed	Invoice
CID0019	Amina S.	Mark	Famous Five	ISBN 94-414-0063-3	\$90.00	11-Feb-15	-	Sold	Receipt
CID0020	Khawla J.	Mark	Travel Guide	ISBN 979-553-483-1	\$79.00	23-Apr-15	05-May-15	Borrowed	Invoice

FIGURE 20: TRANSACTIONS REPORT

4.2 SYSTEM FEATURES AND REQUIREMENTS:

The following are the system features and requirements in respect to the order of appearance:-

4.2.1 SYSTEM FEATURES:

The features of the systems are as explained above in the system layout and design description.

The following is the summary of those features in point form;

1. The system is capable of performing searches, taking appointments, selling, buying and borrowing books to and from its clients or users.
2. Staff members can add/edit/delete/search and even add other staff/salespeople in the system.
3. In reference to transporting the items/books, the system provides a free delivery system to the users who would like to have their orders of books delivered to them.
4. Before and after making a purchase, the system provides a receipt statement to the respective parties who are buying or selling books to and from the system.

4.2.2 SYSTEM REQUIREMENTS:

The requirements of the system as mentioned below are referred to as the minimum requirements that our users need to have in order to be able to view the system;

1. The operating system should be Windows Vista, Windows 7, 8 or 8.1 and not before these. (Google, 2015)
2. The web browser should be either Internet Explorer 5 (Office 2000) version 5.00.2314.1003, Mozilla Firefox version 3.6.2, Opera Mini version 4.5, Google Chrome version 3.6.777.5.889 or latest preferably. (Google and Mozilla, 2015 and Opera 2014)
3. An internet connection of at least 2/3 bars of speed or more preferably. (Google, 2015)
4. A graphics card which is at least type PCI-E or latest preferably. (Google, 2015)
5. The high tab casting should be at least 2nd-generation (2nd GEN) Core i5 with 2GHz+ of processing speed or equivalent. (Google, 2015)
6. For more/better experience, the standard tab should be at least 3rd / 4th-generation (3rd / 4th GEN) Core i5 processor 2.3-3.0GHz+ of processing speed or equivalent. (Google, 2015)
7. The least tab casting should be at least Core i3 or equivalent. (Google, 2015)

5.0 DATA FLOW DIAGRAM ELABORATION:

The following below are the diagrams or charts that were used as the backbones in developing the final system of Book Xchange. The categories of the diagrams are context diagrams, level 0 and 1 of the data flow diagrams. See below;

5.1 CONTEXT DIAGRAM:

The context diagram is the diagram that is drawn before everything other diagram to show the summary of all data flows to and from their respective entities. The illustration below show the design of the context diagram which depicts the overall system as mentioned above;

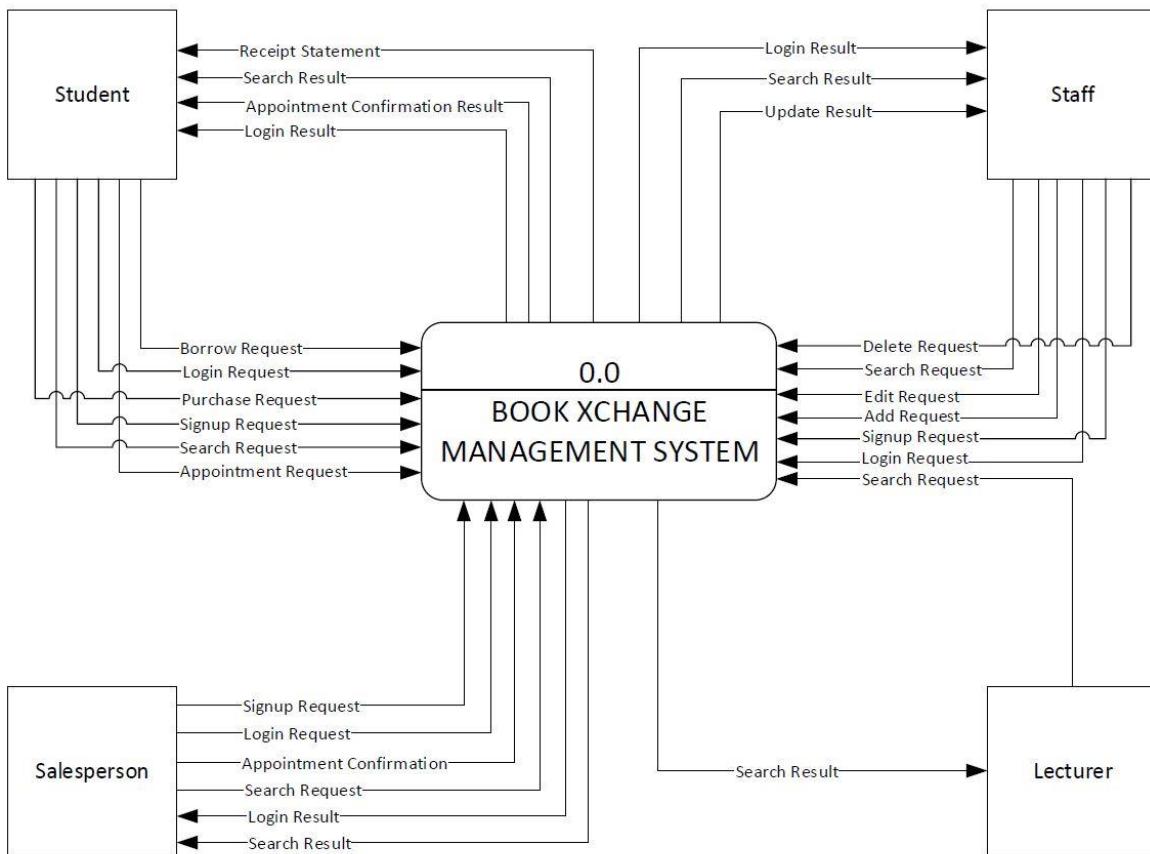


FIGURE 21: BXMS CONTEXT DIAGRAM

5.2 LEVEL 0.0 DATA FLOW DIAGRAM:

The level 0 data flow diagram is drawn after the context diagram. Its purpose is to show the processes coming from the entities to the data stores and back to respective entities through the same processes. In this level, the only divisions that can be seen are the processes that are subdivided from the context diagram. See the illustration below;

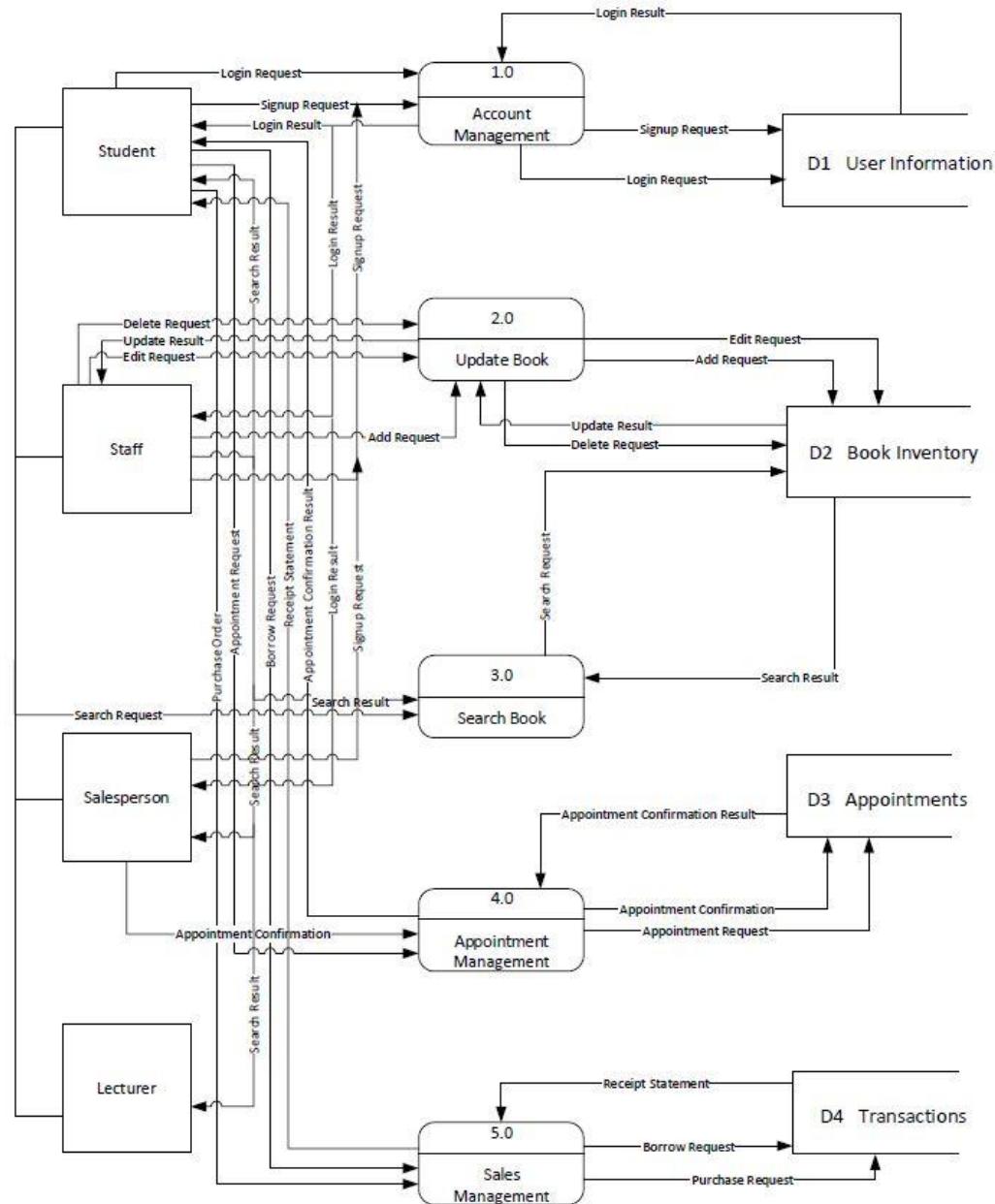


FIGURE 22: BXMS LEVEL 0.0 DFD

5.3 LEVEL 1.1 DATA FLOW DIAGRAM:

In the level 1 data flow diagram, each individual process is now divided in to respective diagrams. This division is a further subdivision from the level 0. Refer to the figures below;

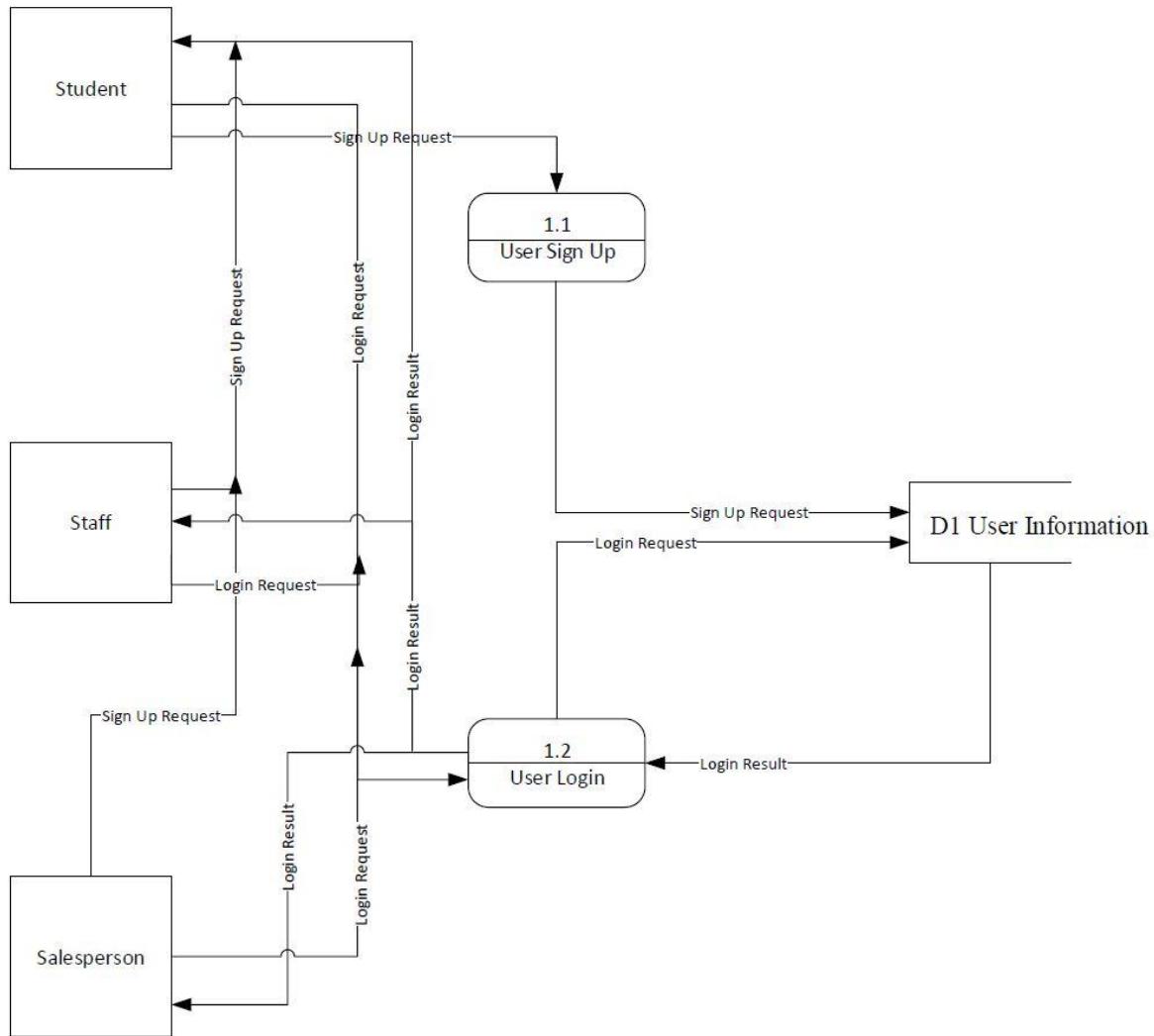


FIGURE 23: BXMS PROCESS 1.1 DFD

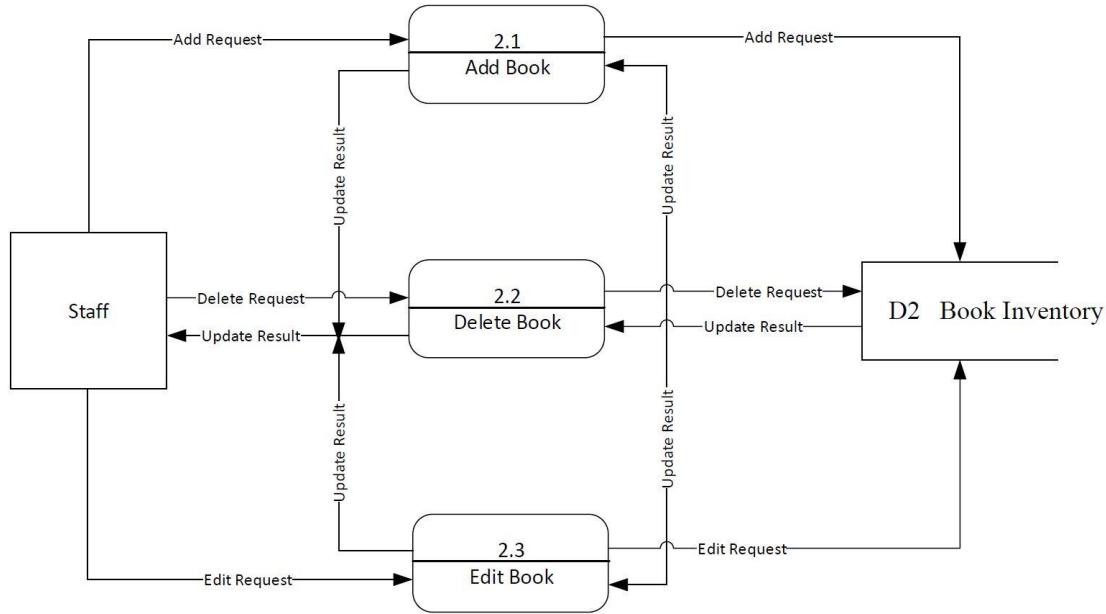


FIGURE 24: BXMS PROCESS 2.1 DFD

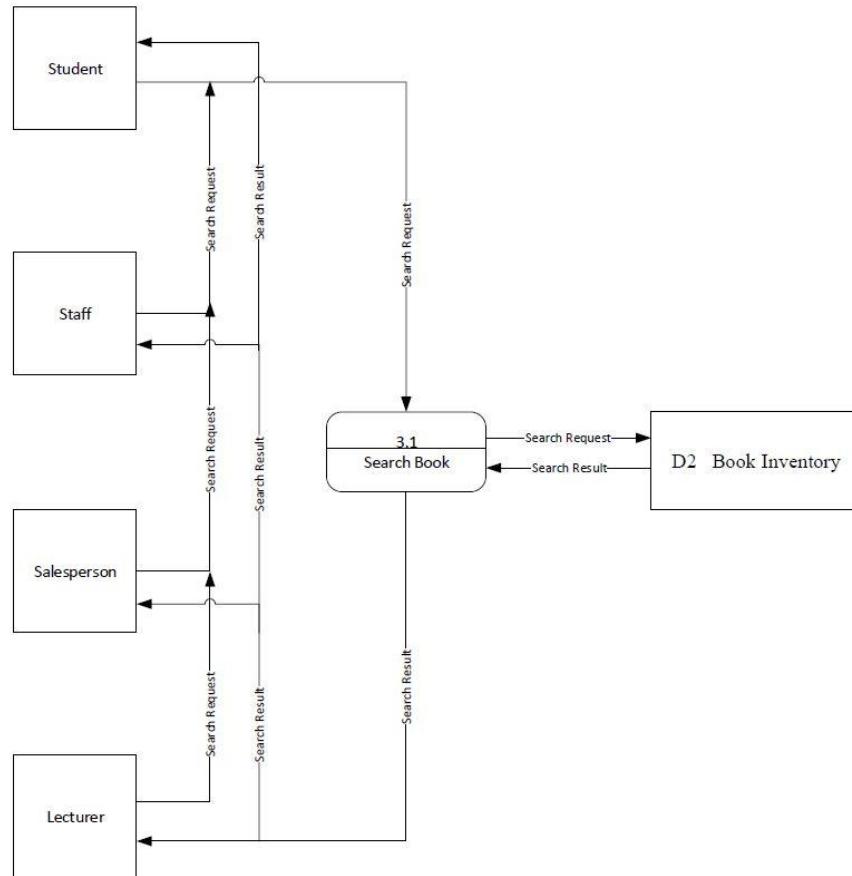


FIGURE 25: BXMS PROCESS 3.1 DFD

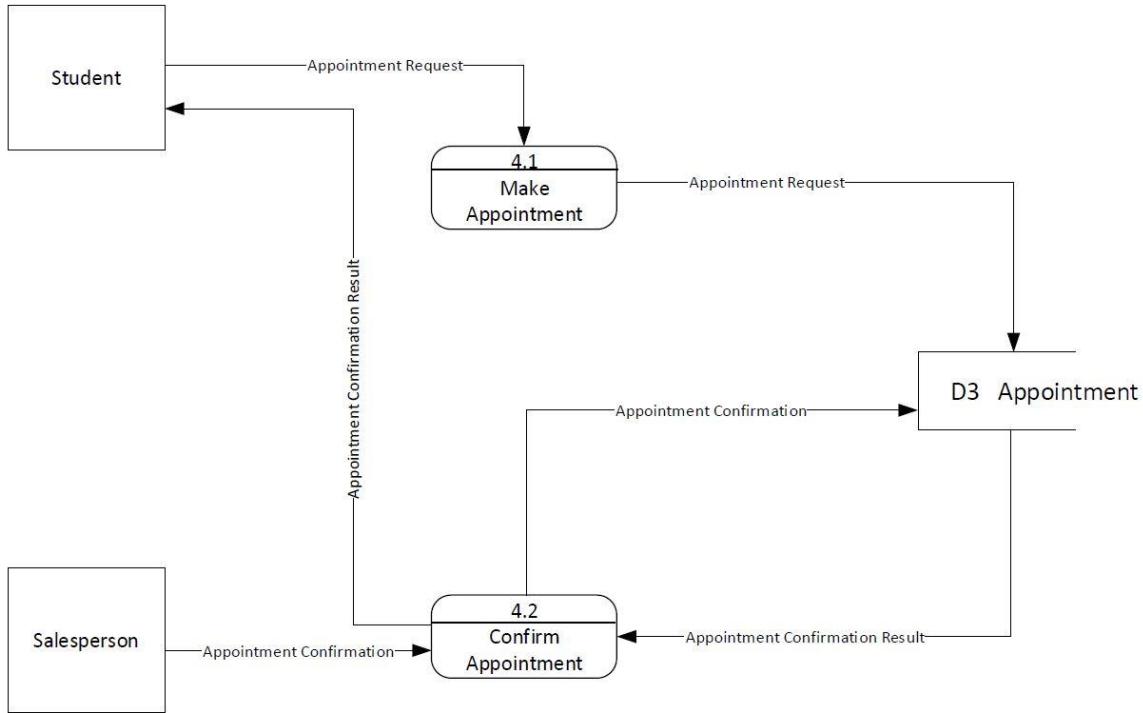


FIGURE 26: BXMS PROCESS 4.1 DFD

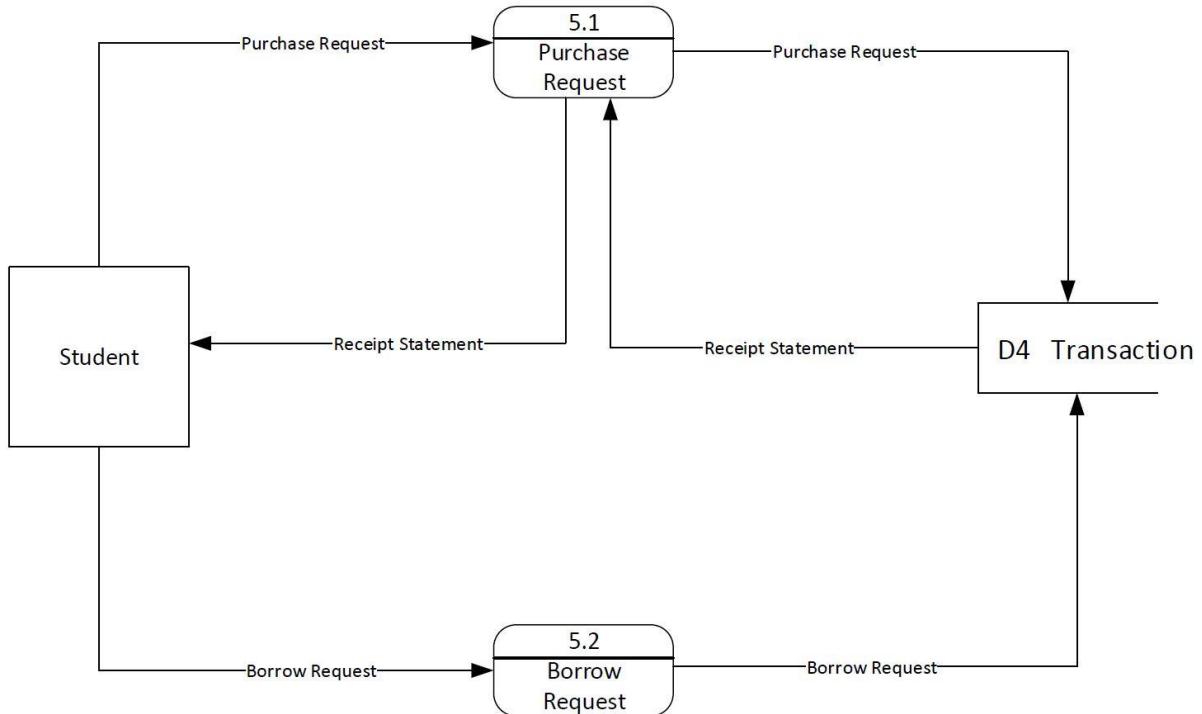


FIGURE 27: BXMS PROCESS 5.1 DFD

6.0 PERT CHART, DECISION TABLES & TREES, PSEUDOCODE & DATA DICTIONARY:

The following below are all designs of PERT chart (network diagram), decision tables and decision trees of the processes selected in the above diagrams.

6.1 PERT CHART:

Please refer to “Appendix 9.4” for the PERT Chart.

6.2 DECISION TABLES:

The following are the decision tables of some of the processes that were selectively chosen from the Level 1 Data Flow Diagrams (DFD) as shown above;

PURCHASE REQUEST:

CONDITION	Is the user registered?	Y	Y	Y	N	N	N	Y	N
	Is the book or material available?	Y	Y	N	Y	N	Y	N	N
	Did the user pay for it?	Y	N	Y	Y	Y	N	N	N
ACTION	Provide them the book. (Confirm Purchase)	YES	NO						

FIGURE 28: PURCHASE REQUEST DECISION TABLE

(Mrisho Abeid)

USER LOGIN REQUEST:

CONDITIONS	Is the user registered?	Y	Y	Y	N	N	N	Y	N
	Did the user provide a correct username?	Y	Y	N	Y	N	Y	N	N
	Did the user provide a correct password?	Y	N	Y	Y	Y	N	N	N

ACTION	Accept Login	YES	NO						
--------	--------------	-----	----	----	----	----	----	----	----

FIGURE 29: USER LOGIN REQUEST DECISION TABLE

(Mrisho Abeid)

USER SIGNUP REQUEST:

CONDITIONS	Is the information of the user correct	Y	Y	Y	N	Y	N	N	N
	Is the information of the user complete	Y	Y	N	Y	N	N	Y	N
	Did the user accept the term and condition	Y	N	Y	Y	N	Y	N	N
ACTION	Registration complete (CONFIRM SIGN UP)	YES	NO						

FIGURE 30: USER SIGNUP REQUEST DECISION TABLE

(Norazlina)

SEARCH BOOK REQUEST:

CONDITIONS	Is the signup correct	Y	Y	Y	N	Y	N	N	N
	Is the title in a correct alphabet	Y	Y	N	Y	N	N	Y	N
	Is the book related to what the company provide	Y	N	Y	Y	N	Y	N	N
ACTION	Search book complete (CONFIRM SEARCH BOOK)	YES	NO						

FIGURE 31: SEARCH BOOK REQUEST DECISION TABLE

(Norazlina)

6.3 DECISION TREES:

The following are the decision trees that were extracted or derived from the decision tables above. The arrangement or layout of each decision tree is respective to those of the decision tables.

PURCHASE REQUEST:

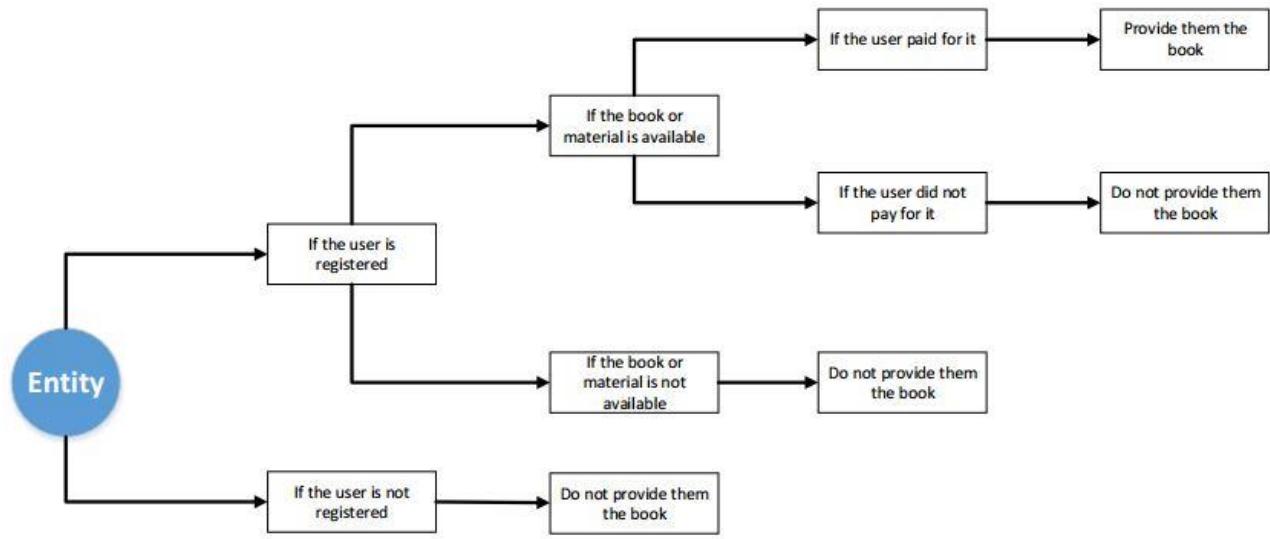


FIGURE 32: PURCHASE REQUEST DECISION TREE

(*Mrisho Abeid*)

USER LOGIN REQUEST:

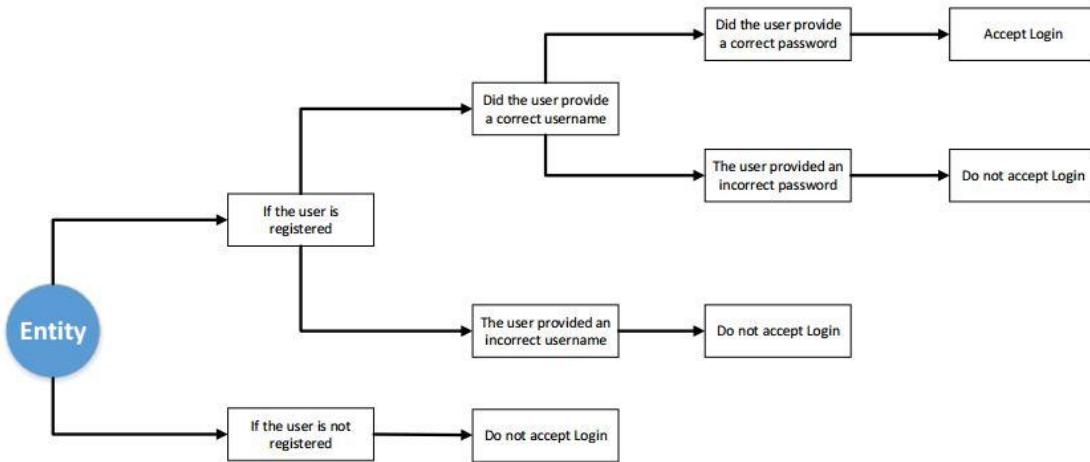


FIGURE 33: USER LOGIN REQUEST DECISION TREE

(Mrisho Abeid)

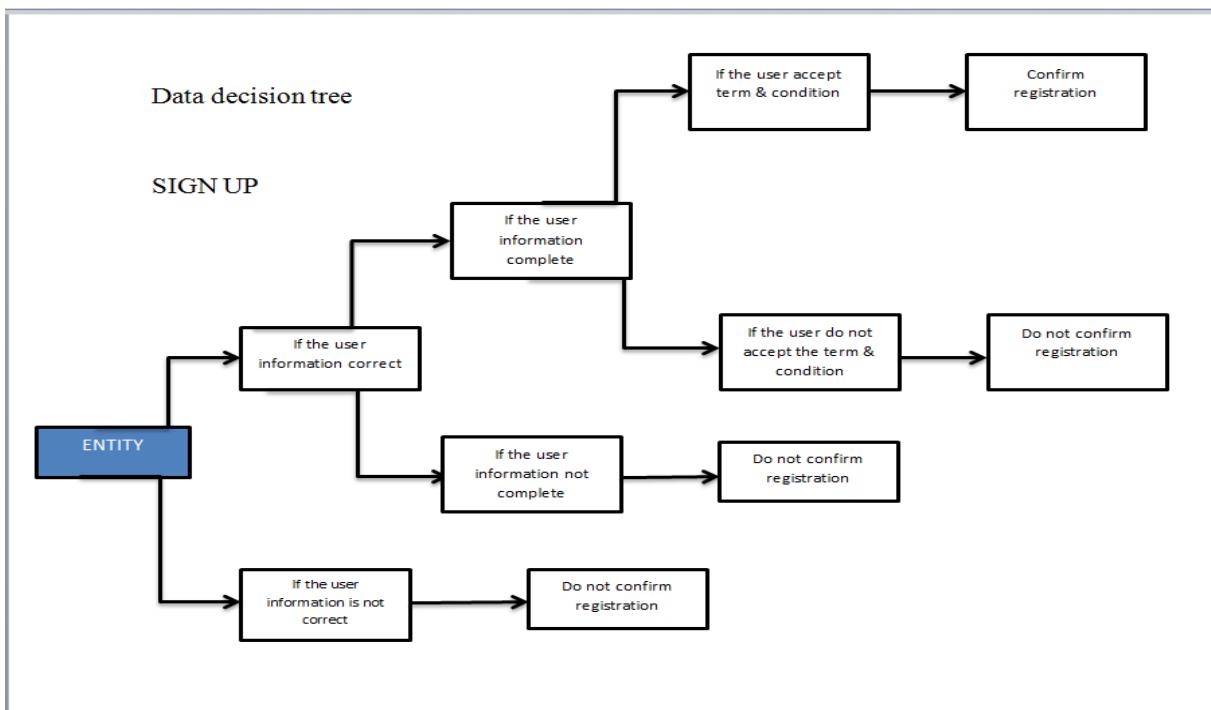


FIGURE 34: USER SIGN UP REQUEST DECISION TREE

(Norazlina)

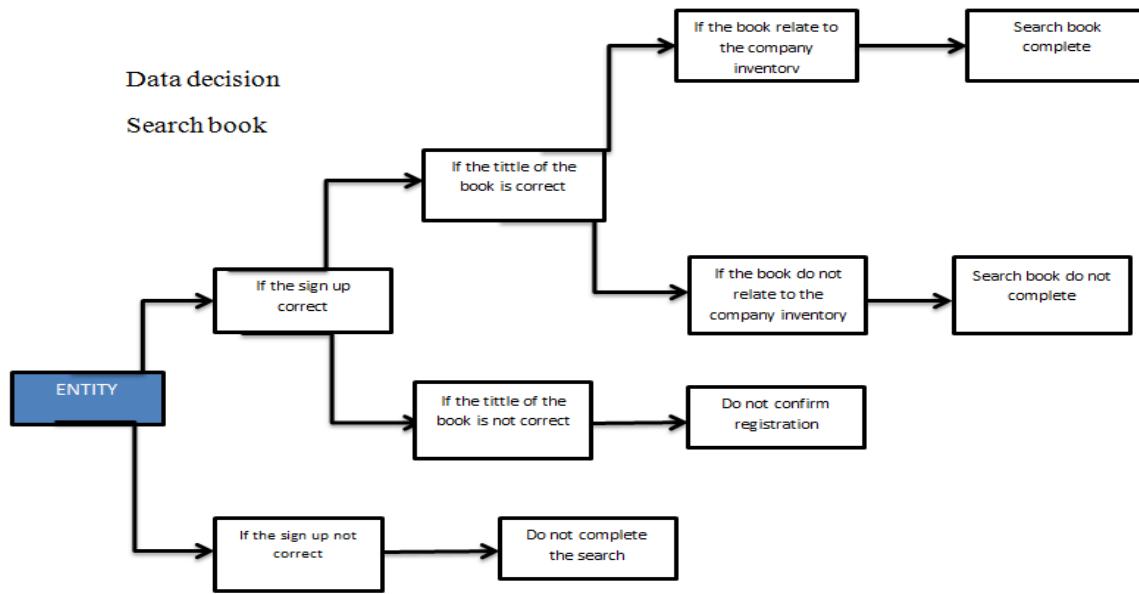


FIGURE 35: SEARCH BOOK DECISION TABLE

(Norazlina)

6.4 PSEUDO CODES/STRUCTURED ENGLISH:

The following pseudo codes below are derived from the decision trees and tables above. The arrangement of each pseudo code is respective to its decision table and or decision in their order;

PURCHASE REQUEST:

START:

IF the user is registered

 IF the book or material is available

 IF the user paid for it

 THEN provide them the book

 ELSE the user did not pay for it

 THEN do not provide them the book

END IF

ELSE the book or material is not available

THEN do not provide them the book

END IF

ELSE the user is not registered

THEN do not provide them with the book

END IF

END

(Mrisho Abeid)

USER LOGIN REQUEST:

START:

IF the user is registered

IF the user provided a correct username

IF the user provided a correct password

THEN accept login

ELSE the user provided a wrong password

THEN do not accept login

END IF

ELSE the user provided a wrong password

THEN do not accept login

END IF

ELSE the user is not registered

THEN do not accept login

END IF

END.

(Mrisho Abeid)

USER SIGN UP REQUEST:

IF the information of the user correct

IF the information of the user complete

IF the user accept the term and condition

THEN confirm sign up

IF the information of the user incomplete

ELSE do not confirm sign up

AND IF the user do not accept the term and condition

ELSE do not confirm signup

AND IF the information of the user incorrect

THEN do not confirm sign up

END

(Norazlina)

SEARCH BOOK REQUEST:

IF the sign up correct

IF the title in a correct alphabet

IF the book related to what the company provide
THEN search book complete
IF the title not in a correct alphabet
ELSE search book are in complete
AND the book do not related to what the company provides
ELSE search book are in complete
AND IF the sign up in correct
THEN search book are in complete
END

(Norazlina)

6.5 DATA DICTIONARY:

Please refer to “Appendix 9.3” for all data dictionaries.

7.0 ADVANTAGES AND DISADVANTAGES:

7.1 ADVANTAGES:

The following are the advantages of the new system if implemented. There are a few main criteria that were put into consideration while developing this system and thus the advantages of the new system arose. See the following below;

- i. **Easy updates:** The system enables the administrators and the staff to easily update information, inventory and other book related material without problems. It provides them with an easy user interface on which they can write in all the necessary particulars of the materials or book and the system will automatically categorize everything in their respective piles depending on the entries.

- ii. **Search:** With the new system, all entities and administration are provided with the search feature which helps them to find the materials that they need. This feature also comes in handy when a user wants to search through the system to confirm whether or not the material that they are looking for is available in the library of the system.
- iii. **Sign up and Login:** This system enables all students with the opportunity to join the user community of the Book Xchange company by signing up to become one of the members of the system. With this feature, student are able to get discounts whenever they perform any transactions with the system. The transactions can be buying, borrowing and selling books.
- iv. **Easy Expansion:** During the development of the system, expansion was one of the factors that was put into consideration. The system was forecasted to be used for at least 5 years without updating its storage capacity. It was also designed to be easily expanded later once the storage is full or when there are other features to be incorporated to it in order to increase its functionality and productivity.
- v. **Friendly user interface:** The graphical user interface of the system was designed to be easy to user so that even the person with the simplest idea about online website system can be able to navigate through it without any problem. The design is mainly based on that of a typical normal library website with a few minor changes.

7.2 DISADVANTAGES:

Below are some of the problems or disadvantages of the BXMS system.

- i. **Cost:** During the development, cost was one of the main disadvantages of the system. There were many tasks to do which most of them needed money and as a result of funding all of them, the cost of developing the system went high than what was previously anticipated due to the prices of all equipment used and salaries paid.
- ii. **Time:** In the period of the system development, system analysts required a lot of time in order to gather detailed information and as a result, developing of the necessary diagrams and development of the actual system took longer hence too much was spent.
- iii. **System development:** While developing the system, we had to find a lot of information which was required by the end users. This was one of the major drawbacks because while

incorporating all the acquired information, there were many mistakes especially in the development,

8.0 INDIVIDUAL PARTS:

The following are the suggested methods of gathering information for the system development in order to attain sufficient data to be used in the system development. See below;

8.1 MRISHO:

The suggested information gathering method below is brainstorming together with its justification which is attached alongside with its advantages and disadvantages of implementing it. See below;

8.1.1 BRAINSTORMING:

Brainstorming is an intuitive information gathering technique that is used in a group setting in order to quickly generate many ideas and solutions of a particular issue/problem. The parties involved in a brainstorming session are shareholders and the project team.

8.1.2 ADVANTAGES OF BRAINSTORMING:

The following are the advantages of implementing a brainstorming information gathering technique; See below;

1. It is **cost effective**. Since brainstorming can be done at any place and any time, it does not require participants to create a setting/area in which they will hold the session, hence due to this reason, there is no need to use money.
2. **Generation of ideas**. In a brainstorming session, many ideas can be created in a very short period of time since many people are discussing on different ideas about the same problem.
3. **Saves time**. Since many ideas are generated in a short period of time during a brainstorming session, time saved to do other tasks like implementing the final proposed solutions.
4. **Implementation**. Immediately after performing a brainstorming session, proposed solutions can be implemented straight away without any problems.
5. **Democratic**. Everyone in the brainstorming meeting is given a free chance to speak out their views about the related matter.

8.1.3 DISADVANTAGES OF BRAINSTORMING:

The following are the disadvantages of implementing a brainstorming information gathering technique. See below;

1. **It relies heavily on experience.** In a brainstorming session, there are no materials or resources to be used but instead all members rely on their experience and fast thinking in order to get information.
2. **Shy characters may have difficulties.** Any shy members of the team who are not comfortable to speak out or they are afraid to participate in front of a crowd, they will have hard times in doing so. Hence, if they have brilliant ideas which they can't speak out, they won't be implemented.
3. **Attention is bias.** Those participants who have the capacity to express their ideas faster and more effectively tend to gain the general attention of the whole group. Leadership can be formed in this way within the brainstorming session, which might cause participants to gain a sense of intimidation.

8.1.4 SAMPLE QUESTIONS:

The following are recommended sample questions to be used in the information gathering procedure. See the list below;

DEMOGRAPH:

- i. **Question:** What is your name?

Justification: Required to provide your full name as in your passport.

- ii. **Question:** What is your level of education?

Justification: Required to specify your education level.

- iii. **Question:** What is your major?

Justification: Required to indicate the type of course that you are taking. E.g.: Business.

- iv. **Question:** How old are you?

Justification: Required to indicate your age, as per your passport.

- v. **Question:** In which country are you from?

Justification: Required to indicate your country of origin.

SYSTEM DEVELOPMENT:

1. **Question:** Who are the main targeted users of the system?

Justification: Required to identify the people who are expected to use the system.

2. **Question:** How many people are expected to use the system?

Justification: Required to identify the approximate number of people who are expected will use the system.

3. **Question:** When is the expected release date of the system?

Justification: Required to indicate the date/month/year in which the system is expected to be released.

4. **Question:** What are the types of book genres that will be available in the system?

Justification: Required to classify the categories of books that will be offered in the system.

5. **Question:** What are the main features of the system?

Justification: Required to indicate the features that the system will have.

6. **Question:** Which type of platform/system software in which the system would run on?

Justification: Required to specify the type of software that will run the system?

7. **Question:** What are the hardware and software specifications that are required in order to properly run the system?

Justification: Required to indicate the minimum specifications that the user will need in order to run the system properly.

8. **Question:** Which plugins, if any, will the system need in order to run smoothly?

Justification: Required to identify, if any, the plugins that will be required by the users in order to enable them to view other contents of the system.

9. **Question:** How much information is the system expected to maintain or store after it is released?

Justification: Required to specify the amount of information that the system is expected to handle once it is released.

8.2 NORAZLINA:

The suggested information gathering method below is questionnaire together with its justification which is attached alongside with its advantages and disadvantages of implementing it. See below;

8.2.1 QUESTIONNAIRE:

8.2.2 ADVANTAGES OF QUESTIONNAIRE:

8.2.3 DISADVANTAGES OF QUESTIONNAIRE:

8.2.4 SAMPLE QUESTIONS:

8.3 PHAGAT:

The suggested information gathering method below is interview together with its justification which is attached alongside with its advantages and disadvantages of implementing it. See below;

8.3.1 INTERVIEW:

Interview is a method of gathering information. By using this method it allows user to give answer directly with their reviews for the system. It will also able to gather new ideas and views from user

to improvise the current system. This method can help to rectify the problem face in the current system and will help to develop new system which provides better features.

8.3.2 ADVANTAGES OF INTERVIEW:

There are few advantages in this method. Firstly, easy correction of speech. In interview it is a direct conversation between interviewer and user. Any idea or suggestion from the user can be resolve directly if there is any mistake without any problem. Moreover, relationship development. By conducting interview, it helps to build the mutual respect and understanding hence it is easier to communicate with user. Furthermore, time saving. Time consume less when you conduct interview, communication can be accomplished in very short time. In addition, less costly. Interview is a low cost method of gathering information. Lastly, sufficient information. Interviewer can ask as much questions to users in order to gain proper information.

8.3.3 DISADVANTAGES OF INTERVIEW:

There are few disadvantages in this method. Firstly, lack of attention. Sometimes, interviewer and user are not understanding hence proper information cannot be gathered. Secondly, disappointments in interviewing. Users have no idea what to answer when interviewer ask question out of the topic. Thirdly, inefficiency of the interviewer. Interviewer set of question are not clear and this makes user hard to understand. Lastly, not suitable for personal matters. Interview cannot gain users personal details.

8.3.4 SAMPLE QUESTIONS:

- 1) The system we are using now, how do you feel about this system?

Answer:

- 2) Do you feel that this system is a user friendly?

Answer:

- 3) Security and protection for information or data are secured?

Answer:

4) How do you rate this system from 1-10?

Answer:

5) Do you think this system provides sufficient information?

Answer:

6) Do you feel this system is time consuming?

Answer:

7) Have you face difficulties to buy, rent or sell books?

Answer:

8) As a suggestion, what would you recommend for improvisation on the system?

Answer:

9.0 APPENDICES:

The following are the appendices of the documented report above. Each appendix has been used to provide more information to the report in the intentions of saving the word count.

9.1 GANTT CHART:

The Gantt chart below shows the stages, steps and procedures that were followed while developing the Book Xchange Management System. The chart includes the names of all summary or main task and their corresponding subtasks that were carried it during the development of the system. It also shows the predecessors of each task which elaborate on the tasks that cannot be carried out until the previous task (predecessor) is completed.

Task Name	Duration	Start	Finish	Predecessors
1.0 INTRODUCTION OF THE SYSTEM PROJECT	11 days	Mon 23-02-15	Mon 09-03-15	
1.1 Conduct a brief Ice-breaking session	1 day	Mon 23-02-15	Mon 23-02-15	
1.2 Defining the Project	2 days	Mon 23-02-15	Tue 24-02-15	
1.3 Reviewing all System Request from the users	3 days	Wed 25-02-15	Fri 27-02-15	3
1.4 Identify the Problems faced by the System	3 days	Wed 25-02-15	Fri 27-02-15	3
1.5 Propose ideas for the system	1 day	Mon 23-02-15	Mon 23-02-15	
1.6 Documentation	2 days	Tue 24-02-15	Wed 25-02-15	6
2.0 PLANNING FOR THE SYSTEM	20 days	Tue 24-02-15	Mon 23-03-15	
2.1 Preparation of the System Layout and Design	3 days	Tue 24-02-15	Thu 26-02-15	6
2.2 Advantages and Disadvantages of the System	2 days	Fri 06-03-15	Mon 09-03-15	6
2.3. Calculating the duration of developing the system	1 day	Fri 27-02-15	Fri 27-02-15	9
2.4 Preparing budget required for the system development	2 days	Thu 12-03-15	Fri 13-03-15	
2.5 Documentation	6 days	Mon 16-03-15	Mon 23-03-15	12
3.0 ANALYSING THE SYSTEM	58 days?	Tue 24-02-15	Thu 14-05-15	
3.1 Performing Primary Research of the requested system	48 days	Tue 24-02-15	Thu 30-04-15	6
3.2 Analyzing the primary information	7 days	Fri 01-05-15	Mon 11-05-15	15

3.3 Performing Secondary Research of the requested system	54 days	Tue 24-02-15	Fri 08-05-15	6
3.4 Analyzing the secondary information	3 days	Mon 11-05-15	Wed 13-05-15	17
3.5 Documentation	1 day?	Thu 14-05-15	Thu 14-05-15	18
4.0 FEASIBILITY STUDIES	82 days	Mon 02-03-15	Tue 23-06-15	
4.1 Performing Technical Feasibility	1 day	Thu 14-05-15	Thu 14-05-15	18
4.2 Performing Operational Feasibility	28 days	Fri 15-05-15	Tue 23-06-15	21
4.3 Performing Economical Feasibility	26 days	Mon 16-03-15	Mon 20-04-15	12
4.4 Performing Schedule Feasibility	34 days	Mon 02-03-15	Thu 16-04-15	11
4.5 Documentation	4 days	Fri 17-04-15	Wed 22-04-15	24
5.0 OPERATIONAL FEASIBILITY FRAMEWORK (P.I.E.C.E.S)	49 days	Tue 21-04-15	Fri 26-06-15	
5.1 Conduct Performance Research	14 days	Fri 15-05-15	Wed 03-06-15	21
5.2 Perform Information Research	21 days	Fri 01-05-15	Fri 29-05-15	15
5.3 Perform Economic Research	36 days	Tue 21-04-15	Tue 09-06-15	23
5.4 Perform Control Research	25 days	Fri 15-05-15	Thu 18-06-15	21
5.5 Perform Efficiency Research	14 days	Thu 04-06-15	Tue 23-06-15	27
5.6 Perform Service Research	26 days	Fri 15-05-15	Fri 19-06-15	21
5.7 Documentation	5 days	Mon 22-06-15	Fri 26-06-15	32
6.0 SYSTEM DEVELOPMENT	99 days	Fri 15-05-15	Wed 30-09-15	
6.1 Reviewing of previously made documentations	10 days	Mon 29-06-15	Fri 10-07-15	13,19,25,33
6.2 Development of the System	73 days	Mon 22-06-15	Wed 30-09-15	32
6.3 Identifying all hardware required for the system	5 days	Fri 15-05-15	Thu 21-05-15	21
6.4 Identifying all software required for the system	5 days	Wed 24-06-15	Tue 30-06-15	22
6.5 Documentation	5 days	Wed 01-07-15	Tue 07-07-15	38
7.0 PROTOTYPING	37 days	Thu 01-10-15	Fri 20-11-15	
7.1 Developing Prototypes for major features of the system	22 days	Thu 01-10-15	Fri 30-10-15	36
7.2 Testing each prototype and checking for errors	11 days	Mon 02-11-15	Mon 16-11-15	41
7.3 Documentation	4 days	Tue 17-11-15	Fri 20-11-15	42
8.0 CHARTS, TABLES AND TREES	25 days	Thu 01-10-15	Wed 04-11-15	
8.1 Developing of DFD (Data Flow Diagrams) for all relevant stages	11 days	Thu 01-10-15	Thu 15-10-15	36
8.2 Developing Decision Tables	2 days	Fri 16-10-15	Mon 19-10-15	45
8.3 Developing Decision Trees	4 days	Tue 20-10-15	Fri 23-10-15	46
8.4 Reviewing of all diagrams, tables, charts and trees	5 days	Mon 26-10-15	Fri 30-10-15	47
8.5 Documentation	3 days	Mon 02-11-15	Wed 04-11-15	48

9.0 IMPLEMENTATION OF THE SYSTEM	45 days	Wed 01-07-15	Tue 01-09-15	
9.1 Installation of all hardware and software components	18 days	Wed 01-07-15	Fri 24-07-15	38
9.2 Installation of the finalized working system	5 days	Mon 27-07-15	Fri 31-07-15	51
9.3 Testing of the system features	15 days	Mon 03-08-15	Fri 21-08-15	52
9.4 Training the end users of the system	4 days	Mon 24-08-15	Thu 27-08-15	53
9.5 Documentation	3 days	Fri 28-08-15	Tue 01-09-15	54
10.0 OPERATION, SUPPORT AND SECURITY	100 days?	Mon 27-07-15	Fri 11-12-15	
10.1 Installation of protective software and hardware	1 day?	Mon 27-07-15	Mon 27-07-15	51
10.2 Performing ongoing maintenance for the system and its hardware and software	86 days	Mon 03-08-15	Mon 30-11-15	52
10.3 Monitoring of the system's performance	90 days	Mon 03-08-15	Fri 04-12-15	52
10.4 Documentation	5 days	Mon 07-12-15	Fri 11-12-15	59
11.0 DOCUMENTATION REVIEW	45 days	Mon 14-12-15	Fri 12-02-16	
11.1 Reviewing all documentations to check for errors/mistakes	36 days	Mon 14-12-15	Mon 01-02-16	7,13,19,25,33,39,43,49,55,60
11.2 Correcting any errors/mistakes found	4 days	Tue 02-02-16	Fri 05-02-16	62
11.3 Developing a summary of all documentations	5 days	Mon 08-02-16	Fri 12-02-16	63
12.0 FINAL DOCUMENTATION	8 days	Mon 15-02-16	Wed 24-02-16	
12.1 Developing Final Documentation	3 days	Mon 15-02-16	Wed 17-02-16	64
12.2 Reviewing the final documentation for any errors/mistakes	3 days	Thu 18-02-16	Mon 22-02-16	66
12.3 Creating a summary of the final documentation	2 days	Tue 23-02-16	Wed 24-02-16	67
13.0 SUBMISSION	6 days	Thu 25-02-16	Thu 03-03-16	
13.1 Print the final documentation	2 days	Thu 25-02-16	Fri 26-02-16	68
13.2 Binding the assignment	2 days	Mon 29-02-16	Tue 01-03-16	70
13.3 Submitting the final printed/bound documentation of the system	2 days	Wed 02-03-16	Thu 03-03-16	71

FIGURE 36: GANTT CHART TABLE

9.2 ABBREVIATIONS:

Listed below are all the abbreviations that were used in the report above. The main purpose of using these abbreviations was to save the word count of the final documentation in order to fit all explanations and requirements as instructed.

- i. BXMS – Book Xchange Management System.
- ii. DFD – Data Flow Diagram.
- iii. PERT Chart – Project Evaluation and Review Technique.
- iv. SDLC – System Development Life Cycle.
- v. HTML5 – Hyper Text Markup Language version 5.
- vi. CSS3 – Cascading Style Sheets version 3.

9.3 DATA DICTIONARY:

The following below are all data dictionaries of each entity, data flow, process and data store of the BXMS system. These data dictionaries are derived from the Level 1 DFD. See below;

PROCESS 1	
EXTERNAL ENTITY	
Name:	Student
Description:	Student registers his/her information in order to obtain login details such as user name and password. Uses registered information such as username and password to login into the system.
Input Data Flows:	Login Result
Output Data Flows:	Sign Up Request, Login Request
EXTERNAL ENTITY	
Name:	Staff
Description:	Staff registers his/her information in order to obtain login details such as user name and password. Uses registered information such as username and password to login into the system.
Input Data Flows:	Login Result
Output Data Flows:	Sign Up Request, Login Request
EXTERNAL ENTITY	
Name:	Salesperson
Description:	Salesperson registers his/her information in order to obtain login details such as user name and password.

	Uses registered information such as username and password to login into the system.
Input Data Flows:	Login Result
Output Data Flows:	Sign Up Request, Login Request

PROCESS 2	
EXTERNAL ENTITY	
Name:	Staff
Description:	Adds a new book into the library of the system. Deletes an existing book from the library of the system. Edits or changes the information of an existing book within the library of the system.
Input Data Flows:	Update Result
Output Data Flows:	Add Request, Delete Request, Edit Request

PROCESS 3	
EXTERNAL ENTITY	
Name:	Student
Description:	Students searches for a book in the library system in order to see if it is available or not.
Input Data Flows:	Search Result
Output Data Flows:	Search Request
EXTERNAL ENTITY	
Name:	Staff
Description:	Staff searches for a book in the library system in order to see if it is available or not.
Input Data Flows:	Search Result
Output Data Flows:	Search Request
EXTERNAL ENTITY	
Name:	Salesperson
Description:	Salesperson searches for a book in the library system in order to see if it is available or not.
Input Data Flows:	Search Result
Output Data Flows:	Search Request
EXTERNAL ENTITY	
Name:	Lecturer
Description:	Lecturer searches for a book in the library system in order to see if it is available or not.
Input Data Flows:	Search Result

Output Data Flows:	Search Request
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PROCESS 4	
EXTERNAL ENTITY	
Name:	Student
Description:	Student makes an appointment to meet the salesperson to discuss issues or matters related to the procedures of the BXMS and relevant issues.
Input Data Flows:	Appointment Result
Output Data Flows:	Appointment Request
EXTERNAL ENTITY	
Name:	Staff
Description:	Confirms the appointment to meet with the student to discuss issues or matters related to the procedures of the BXMS and relevant issues.
Input Data Flows:	
Output Data Flows:	Appointment Confirmation

PROCESS 5	
EXTERNAL ENTITY	
Name:	Student
Description:	Makes a request to buy a book from the library system. Makes a request to borrow a book from the library system.
Input Data Flows:	Receipt Statement
Output Data Flows:	Purchase Request, Borrow Request

PROCESS 1	
PROCESS	
Name:	1.1 User Sign Up
Description:	Register users such as students, staff and salesperson into the user information data store.
Input Data Flows:	Sign Up Request
Output Data Flows:	
Process:	DO
PROCESS	
Name:	1.2 User Login
Description:	Accepts login user's details and verifies them with those in the user information data store.
Input Data Flows:	Login Request

Output Data Flows:	Login Result
Process:	DO

PROCESS 2	
PROCESS	
Name:	2.1 Add Book
Description:	Accepts input from the staff and records the information in the book inventory data store
Input Data Flows:	Update Result
Output Data Flows:	Add Request
Process:	DO
PROCESS	
Name:	2.1 Delete Book
Description:	Erases the book and its information from the book inventory data store as requested by the staff
Input Data Flows:	Update Result
Output Data Flows:	Delete Request
Process:	DO
PROCESS	
Name:	3.1 Edit Book
Description:	Changes the existing information of books and other materials in the book inventory data store as requested by the staff
Input Data Flows:	Update Result
Output Data Flows:	Edit Request
Process:	DO

PROCESS 3	
PROCESS	
Name:	3.1 Search Book
Description:	Accepts input search phrases from the students, staff, salesperson and lecturers and deploys them into the book inventory data store.
Input Data Flows:	Search Result
Output Data Flows:	Search Request
Process:	DO

PROCESS 4	
PROCESS	
Name:	4.1 Make Appointment

Description:	Accepts received information of appointment details from the students and sends them to the appointment data store
Input Data Flows:	Appointment Confirmation Result
Output Data Flows:	Appointment Request
Process:	DO
PROCESS	
Name:	4.2 Confirm Appointment
Description:	Accepts confirmation request of the appointments from the salesperson and sends them to the appointment data store
Input Data Flows:	
Output Data Flows:	Appointment Confirmation
Process:	DO

PROCESS 5	
PROCESS	
Name:	5.1 Purchase Request
Description:	Accepts all requests of purchase from students and then sends them to the transaction data store
Input Data Flows:	Receipt Statement
Output Data Flows:	Purchase Request
Process:	DO
PROCESS	
Name:	5.2 Borrow Request
Description:	Accepts all requests to borrow, from students and then sends them to the transaction data store
Input Data Flows:	
Output Data Flows:	Borrow Request
Process:	DO

DATA STORE	
Name:	D1 User Information
Description:	Stores all user information and provides up to date login information of the processes.
Input Data Flows:	Sign Up Request, Login Request
Output Data Flows:	Login Result
Data Structure:	ID, First Name, Last Name, Address, Contact Number, Email, Username, Password

DATA STORE	
Name:	D2 Book Inventory
Description:	Stores all book information and other related materials and provides updated book information to the processes Provides search results to the respective search requests as requested by the users such as students, staff, salesperson and lecturers
Input Data Flows:	Add Request, Delete Request, Edit Request, Search Request
Output Data Flows:	Update Result, Search Result
Data Structure:	ID, Name of Book, Author, Year Published, ISBN, Publisher, Status, Available Copies

DATA STORE	
Name:	D3 Appointments
Description:	Accepts and stores all appointments made by the students and confirmed by the salesperson together with the status of each appointment as proof of whether the appointment was conducted or not.
Input Data Flows:	Appointment Request, Appointment Confirmation
Output Data Flows:	Appointment Confirmation Result
Data Structure:	ID, Student, Salesperson, Address, Time, Contact Number, Status, Remarks

DATA STORE	
Name:	D4 Transactions
Description:	Stores all transactions performed such as bought books (purchases), sold books (sales) and borrowed books
Input Data Flows:	Purchase Request, Borrow Request
Output Data Flows:	Receipt Statement
Data Structure:	ID, Customer, Clerk, Name of Book, ISBN, Amount, Given Date, Return Date, Action, Remarks

9.4 ROI CALCULATIONS, GRAPH AND CUMULATIVE COSTS:

The following are the ROI CALCULATIONS that were used in the Economic Feasibility of the system. This was implemented in order to see if the system was economically feasible enough to be developed. See below;

BXMS CALCULATIONS OF ROI.							Total		
	0	1	2	3	4	5			
Cost	930,000	650,000	450,000	400,000	375,000	150,000	2,955,000		
Discount Factor	1	0.926	0.857	0.794	0.735	0.681			
Discounted Cost	930,000	601,900	385,650	317,600	275,625	102,150	2,612,925		
Cumulative Cost	930,000	1,531,900	1,917,550	2,235,150	2,510,775	2,612,925			
Benefits	0	550,000	673,000	1,500,000	2,200,000	4,000,000	8,923,000		
Discount Factor	1	0.926	0.857	0.794	0.735	0.681			
Discounted Benefit	0	509,300	576,761	1,191,000	1,617,000	2,724,000	6,618,061		
Cumulative Benefit	0	509,300	1,086,061	2,277,061	3,894,061	6,618,061			
Discounted Benefit - Discounted Cost	-930000	-92600	191,111	873,400	1,341,375	2,621,850	4,005,136	NPV	NET PRESENT VALUE
Cumulative Benefits - Cumulative Cost	-930000	-1022600	-831489	41,911	1,383,286	4,005,136			
ROI (R O I)	153.2817054								
Payback in Year 3									
PV=1/(1+i) ⁿ									

FIGURE 37: ROI CALCULATIONS

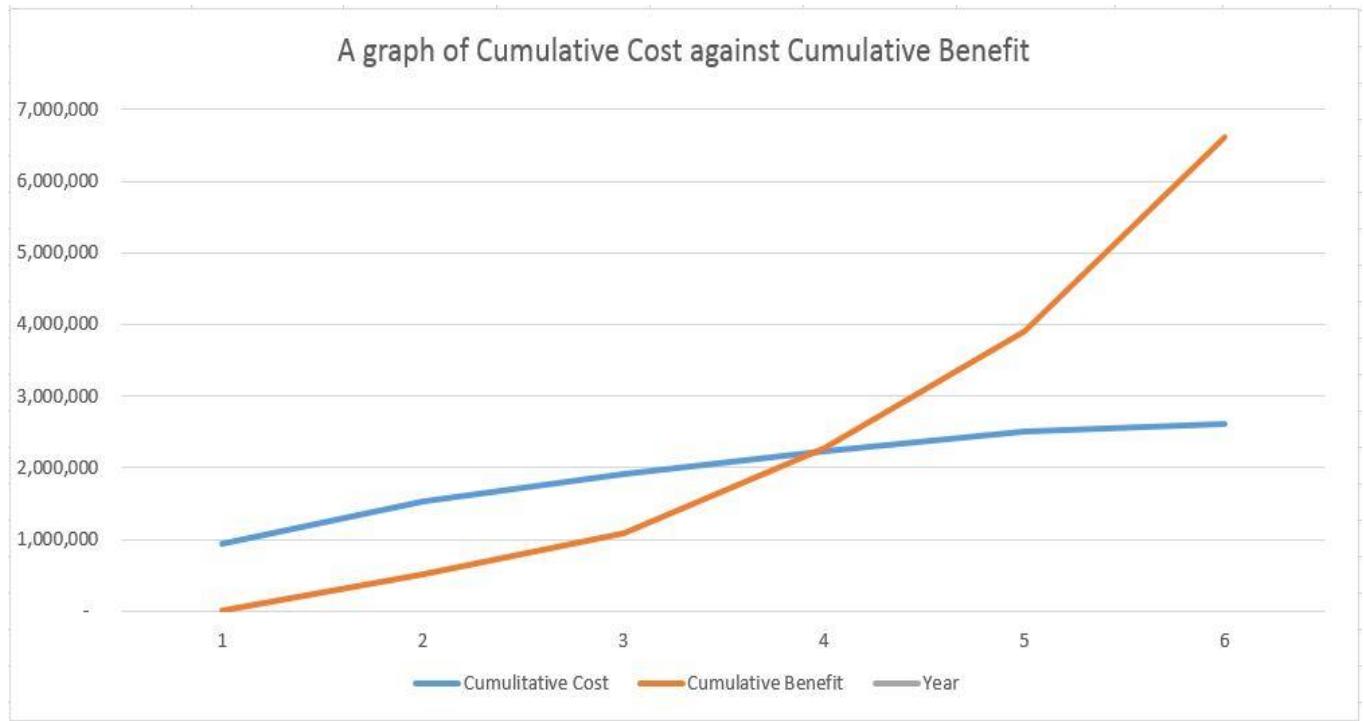


FIGURE 38: ROI GRAPH OF CUMULATIVE COST AGAINST BENEFITS

		COSTS					
		YEAR					
Developmental		0	1	2	3	4	5
Software	Direct	150,000	-	-	-	-	-
Hardware		420,000	-	-	-	-	-
Salaries	Indirect	200,000	530,000	-	-	-	-
Consultation		-	100,000	112,989	235,000	890,775	345,000
Network Admin Salary		-	400,000	114,561	411,150	650,000	89,750
Printing Charges	Direct	30,000	50,000	50,000	98,000	445,000	55,000
Maintenance	Operational	30,000	309,000	690,000	125,000	190,000	95,000
Salaries		100,000	25,000	400,000	562,000	85,000	450,000
Upgrade	Indirect	-	-	550,000	759,000	-	1,200,000
Training		-	117,900	-	45,000	250,000	150,000
TOTAL COSTS		930,000	1,531,900	1,917,550	2,235,150	2,510,775	2,384,750
BENEFITS							
Developmental		YEAR					
Direct		0	1	2	3	4	5
Employee Salaries	Indirect	-	45,000	270,000	350,000	775,000	875,000
System Maintainance		-	97,000	59,600	350,000	500,000	128,061
Ongoing Training	Operational	-	55,000	43,000	275,000	444,061	250,000
Improvement Of Services		-	90,000	95,000	125,000	250,000	375,000
Increased Revenues	Direct	-	100,000	389,461	570,000	300,000	4,500,000
Printer Charges	Indirect	-	43,000	50,000	200,000	275,000	320,000
Supplies		-	70,000	89,000	190,500	450,000	120,000
Telephone Line Charges		-	9,300	90,000	216,561	900,000	50,000
TOTAL COSTS		-	509,300	1,086,061	2,277,061	3,894,061	6,618,061

FIGURE 39: CUMULATIVE COSTS AGAINST CUMULATIVE BENEFITS

9.5

NETWORK DIAGRAM/PERT CHART:

The following is the Network Diagram or PERT Chart that was derived from the Gantt Chart which was used in developing the BXMS System. See below;

10.0 BIBLIOGRAPHY:

The following are all bibliographies of all documents that were used in the body of the report during explanations but have no huge impact in the finalized design. Also, included are the bibliographies of other documents which are relevant to the topic but were not included in the final report. All references are arranged in an “alphabetical order”. See below;

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