
ASSIGNMENT 2-ITC303

Book.trade Version 1.0

Life Cycle Objective Milestone - LCOM

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EXECUTIVE SUMMARY

The purpose of this document is to present the Life Cycle Objective Milestone – LCOM report, which is the very first document that is prepared and presented as part of Unified Process Software Model's Inception Phase. The purpose of LCOM is to establish the goals of the project and involve all the possible stakeholders to gain a nod for finalizing and proceeding with the project. Within LCOM, we have presented different artifacts such as the vision, project plan, the system requirements which includes both functional and non-functional along with the risks involved, testing strategies and the timeline for getting the project tasks completed and delivered on time. Another key artifact mentioned within the LCOM is the Use Case Diagram and the Domain Model Diagram. These diagrams compliment the functional requirements and show the processes that are to be delivered through the final deployment of the Project and represent the key actors along with their responsibilities while interacting with the system. Along with the diagrams, the System Architecture is also presented in detail which outlines the 3-tier architecture that is to be deployed along with its benefits, constraints and specifications of how well the architecture will cope with the non-functional requirements of the finalized system.

After the Inception phase, comes the Elaboration phase. At the end of Elaboration phase, our team will present the Life Cycle Architecture Milestone that will have revised artifacts along with a few additional artifacts. It is to be noted that Unified Process Software Development Model is an iterative and incremental model, therefore many of the specifications listed within the artifacts are due to change with each iteration and so the scope of the Project will also change. However, our risk management strategies presented within the LCOM are flexible and should be able to cope with any changes in the final scope.

Introduction

Book Trade is an E-Commerce service started and sponsored by Noman, Sandesh and Aman as a final year software development project. We aim to provide a platform for users, specially students to have access to cheaper books. The goal of the project is to provide a website for users to efficiently buy/sell, trade and donate new or used books. This allows users to browse and compare prices of books from different users. Booktrade focuses on providing books in physical form.

Positioning

Problem Statement

There are students who want books for education, research or for hobby. Sometimes they are not able to find books in proper time at a proper price, or maybe the book is required only for a temporary period. People have books which they don't require anymore and they want to sell it, trade it or donate it.

Problem	<p>The problem of:</p> <ul style="list-style-type: none"> - Finding books because of various reasons. - Trading books for another book. - Selling books. - Buying books. - Donating books.
Affects	<p>This problem affects:</p> <ul style="list-style-type: none"> - Users who want book for cheaper price. - Users who want a book that is unavailable at universities or public libraries. - Users who want books in physical form. - Users who can't find proper way or platform to trade books. - Users who can't find proper way or platform to buy books. - Users who can't find proper way or platform to sell books. - Users who can't find proper way or platform to donate books.
Impact	<p>The problem where book is not available for rent:</p> <ul style="list-style-type: none"> - Users to buy new book. <p>The problem where book is not even available to purchase:</p> <ul style="list-style-type: none"> - Users to compromise and work with different or alternate version of book. - Users to work without a book or rely on various materials which requires a lot of research and time. <p>The problem where book is not in physical form:</p> <ul style="list-style-type: none"> - Users will have to use e-books which is not preferred by everyone. - Users will have to rely on different source. <p>The problem of where a proper platform is missing to trade, sell, buy, or donate books:</p> <ul style="list-style-type: none"> - Users are not able to find customers or someone who needs books. - Users will have to keep or throw away unwanted books.
Solution	<p>A successful solution is to provide a platform to users where:</p> <ul style="list-style-type: none"> - Search for affordable books. - Find books that are unavailable in stores or library but accessible through other users. - Buy, sell, trade or donate books easily, efficiently, quickly, and effectively. - Users can reach more people with online website providing global exposure. - Which helps them get rid of unwanted books by utilizing them in trading or donating rather than throwing away.

Product Position Statement

For	Book users.
Who	Who want books in physical form or want to trade books.
The Booktrade	is ecommerce type website
That	Features trading and donating books.
Unlike	Other ecommerce sites that only providing platform to buy and sell.
Our product	Provides trading platform free of cost

Stakeholder Descriptions

Stakeholder Summary

Name	Description	Responsibilities
Users	<ul style="list-style-type: none"> Students Booklovers in need of physical book Donors Sellers General Users 	<ul style="list-style-type: none"> They will create user account. Provide and manage a list of books, Give genuine information about books condition, Provide trading requirements along with the price for the book.
Web Administrator	Web administrator manages network related stuff.	<ul style="list-style-type: none"> Maintain network and servers Update network and servers Troubleshoot network and servers Ensure safety and security of network and servers
Project Manager	Monitor the entire project	<ul style="list-style-type: none"> Entrusted with the responsibility of having control over the entire project Leading and managing the whole team Making sure the project is In line with its intended deliverables Monitor the performance and progress
Web Developer	Develop the webpage	<ul style="list-style-type: none"> Designing and coding the website. Making sure that the servers and database are connected. Delivering the finished product.
System Analyst	The person who is in charge of analyzing the whole Project.	<ul style="list-style-type: none"> Gathering functional and non-functional requirements. Cost Analysis Implementation of timelines Analyzing design considerations
Third Party Services	<ul style="list-style-type: none"> Postal Service Retail Suppliers (Bookshop Keepers) Paypal Service 	<ul style="list-style-type: none"> Delivery of Books from one user to another, or from users to the company warehouse. Book keepers can sell books through our website Paypal services used to conduct online payments.

User Environment

User environment depends upon the different users using the website or working on the website.

A student sitting within the library will be using the website over the desktops, or their personal laptops, phones. The physical environment will be quiet. At first students will create accounts which will take about 5 minutes. Browsing, selecting and payment process should take about 10-20 mins depending on each user.

Users browsing the system while in public areas such as parks, stations will be either using laptops, tablets or phones. The physical environment will be quite noisy at times of rush hour, The environment also varies upon the weather for that particular day. Browsing and processing times may vary upon different conditions.

Web administrator, developers will be in a quieter environment working on either their laptops or PCs. Their process times depends on the task they are carrying out.

Product Overview

Needs and Features

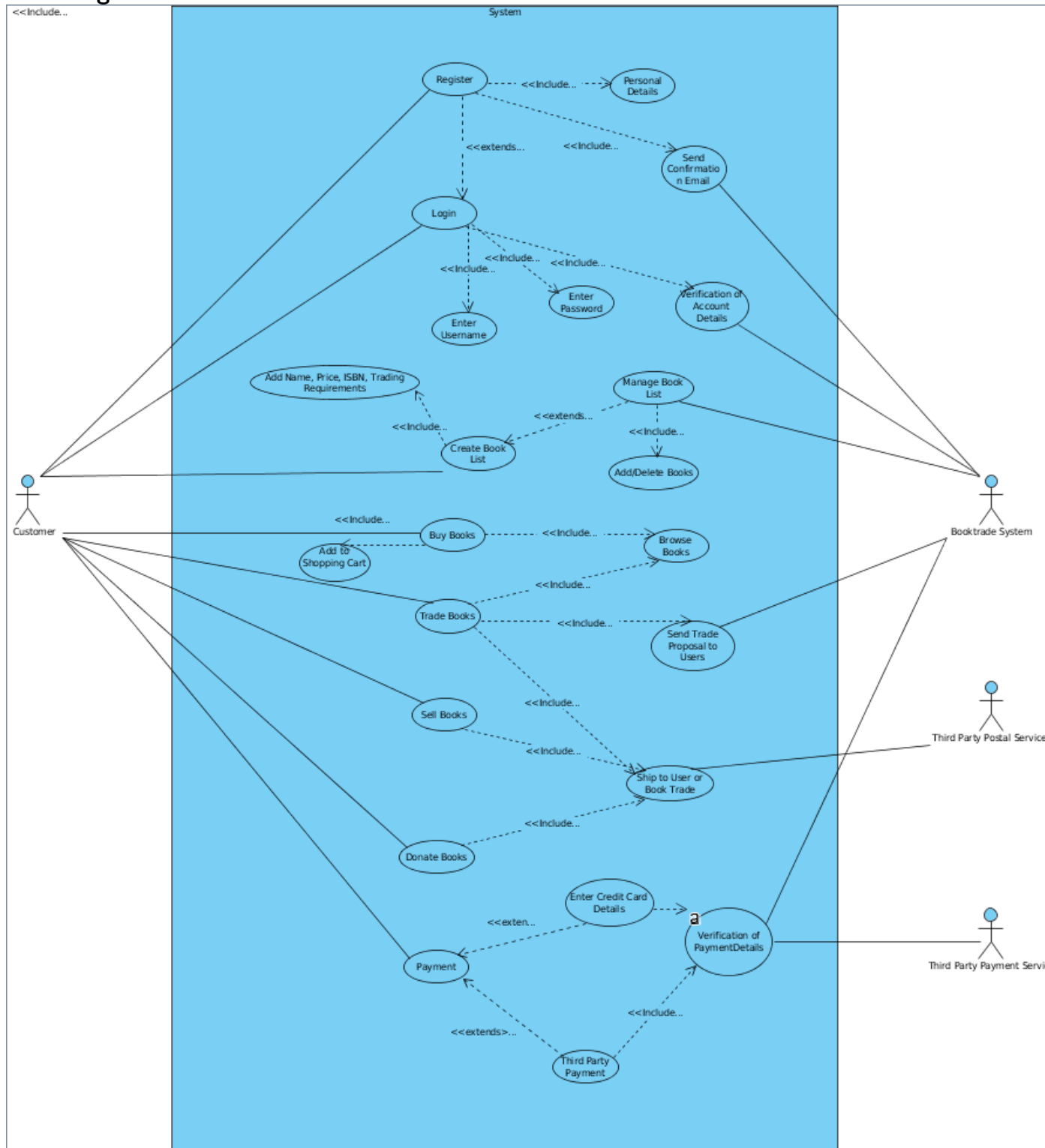
Need	Priority	Features	Planned Release
Create user account	High	A system that allows users to create account and manage it through website.	At the time of deployment
Login account	High	A system that allows users to login and manage.	At the time of deployment
Create list of books,	High	A system that manages list of books that user can provide.	At the time of deployment
Browse Books	Medium	A system that allows users to browse books provided by other users.	At the time of deployment
Trade Books	High	A system that provides a platform to set trading requirements and send proposals for trading.	At the time of deployment
Buy Books	High	A system that allows users to buy books,	At the time of deployment
Sell Books	High	A system that provides a platform for user to sell books.	At the time of deployment
Donate Books	Medium	A system that allows users to donate books.	At the time of deployment
Payment system	High	A system that allows users to make safe and secure payments either using Booktrade system or third party service.	At the time of deployment
Postal Service	High	A system that delivers only traded books to users.	At the time of deployment

Other Product Requirements

Requirement	Priority	Planned Release
Secure payment system	High	September 2017
Reliability of servers to provide 24/7-hour service.	High	September 2017
Internet to connect to website	Medium	April 2017
A user-friendly layout and design for interaction	Medium	April 2017
A FAQ (Frequently Asked Question) page for information.	Medium	April 2017

Requirements Model

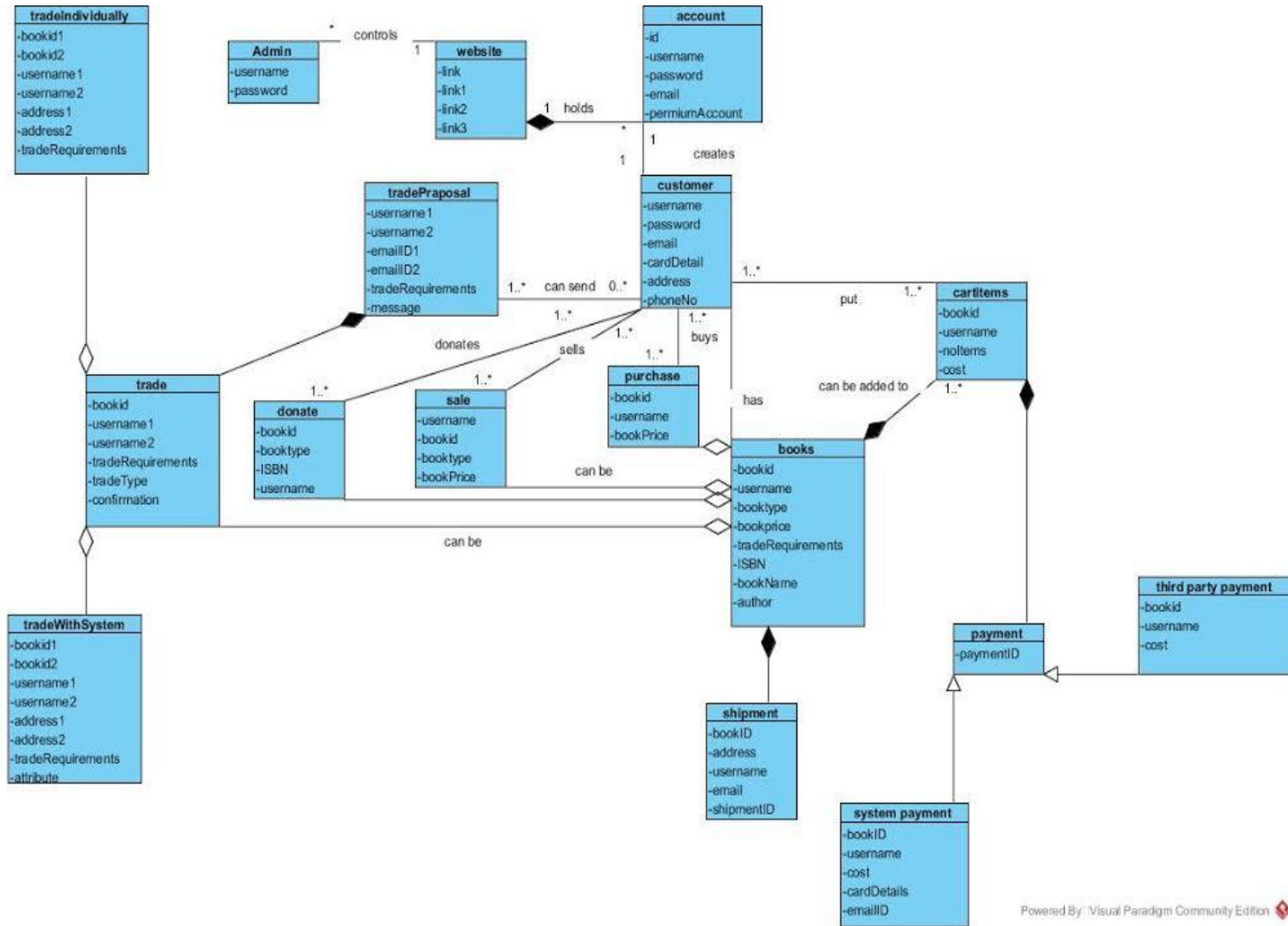
Use Case Diagram:



Use Case and Brief Description

Use Case	Actors	Includes	Extends	Short Description
Register	User System	Personal Details Send Confirmation Email	Login	When a user registers for the Website, they have to provide their personal details, a confirmation email will be sent and they have an option to log in afterwards
Login	User System	Entering Username Entering Password Verification of Account Details		Logging in requires entering username and password. The account details will be verified by the system.
Create Book List	User System	Adding Name, Price, ISBN, Trading Requirements	Managing Book List	Creating book list includes adding the book lists. Privilege of Managing Books lists as well.
Managing Book List	User System	Add/ Delete Books		Managing book list allows you to Add or Delete Books
Buy Books	User System	Browsing Books Adding to Shopping Cart		Buying books includes browsing the books and then adding them to the shopping cart
Trade Books	User System Third Party Postal Service	Browsing Books Send Trade Proposal to Users Ship to User or Book Trade		Trading books requires browsing books, sending the trade proposal and shipping the book to Recipient Users or Book Trade
Sell Books	User System Third Party Postal	Ship to User or Book Trade		Selling the books include shipping the books to Recipient Users or Book Trade
Donate Books	User System Third Party Postal	Ship to User or Book Trade		Donating Books will include Shipping the books to Recipient Users or Book Trade
Payment	User System Third Party Payment		Enter Credit Card Details Third Party Payment	Users can pay either through the credit card or pay via third party services like PayPal and Bitcoin
Enter Credit Card Details	User System	Verification of Payment Details		When credit card details are entered, it will be verified by the system
Third Party Payment	User System Third Party Payment Service	Verification of Payment Details		When Third Party Payment is done, Third Party Payment Service and Book Trade System verify it

Domain Model Diagram (ERD Relationship Diagram)



Requirements Traceability Matrix

The following trace matrix examples demonstrated are:

- BR1 – Business Requirement 1
- BRA = Business Requirement Area
- BRD1 – Business Requirement Deliverable1

Business Requirement	Area	Deliverables	Status
BR1 The system should allow the new user to register into the system and then the system should successfully accept the personal details and hence send confirmation email	BRA	BRD1 <ul style="list-style-type: none"> • Register Design 	Accepted
BR2 The system should allow the registered users to login and hence verify the credentials that support the login	BRA	BRD2 <ul style="list-style-type: none"> • Login Design • User Credentials • Account Details • Verification 	Accepted
BR3 The system should allow the user to create the book list and accept the book specifications	BRA	BRD3 <ul style="list-style-type: none"> • Creating Books Design • Book Specifications Addition 	Accepted
BR4 The system should allow the users to manage the book list by adding or deleting the books	BRA	BRD4 <ul style="list-style-type: none"> • Managing Books Design • Books Addition and Deletion 	Accepted
BR5 The system should allow the users to buy books and hence facilitate them to browse books and add them to shopping cart	BRA	BRD5 <ul style="list-style-type: none"> • Books Design • Shopping cart 	Accepted
BR6 The system should allow the users to trade books by browsing them and following trade requirements	BRA	BRD6 <ul style="list-style-type: none"> • Trade Design • Shipping Implementation 	Accepted
BR7 The system should allow the users to sell books by collaborating with the third party if required	BRA	BRD7 <ul style="list-style-type: none"> • Selling Design • Shipping Implementation 	Accepted
BR8 The system should allow the users to donate books by collaborating with the third party if required	BRA	BRD8 <ul style="list-style-type: none"> • Donating Design • Third Party Collaboration 	Accepted
BR9 The system should facilitate payment by using credit card details or by using Third Party System and hence verify the payment details	BRA	BRD9 <ul style="list-style-type: none"> • Payment Design • Credit Card Authorization • Third Party Payment 	Accepted

NON-FUNCTIONAL REQUIREMENTS

Introduction

BookTrade consists of other supporting requirements which help the website run as intended. Most of the requirements which are mentioned below is for our Book Trade website. The following sections accurately identify, are important and help to achieve the basic working and functionalities of the system.

System wide Functional Requirements

Data and Database Requirements

The system needs to be able to maintain and capture a set of characters and numbers that are in use. It will store, update, capture, manage and retrieve data whether is structured or unstructured like the free text and images. The database stores information about the books, buyers, sellers, donators, prices and all sorts of information that are necessary to be recorded. The system is also able to export the document in as a Word Document or a PDF Document.

Privacy, Authentication and System Security Requirements (Data Security)

In today's modern world, data security is crucial to any business because of its contribution to protect and preserve the system components, information and integrity. Only the web administrator as described in our Vision document will be able to access the permissions and right controls. Only the web administrator is allowed to interact directly with the records in the database.

The login screen begins and grants authorization only to the users with a unique username and password. There are limited number of login attempts after which security codes will be sent to protect identity theft. The system facilitates automatic log off after a period of inactivity. The major things such as the user's confidentiality, data integrity and data availability is ensured.

1) Process Requirements

The process controls which deal with recovery procedures and backup system will be present. A strong foundation free of bugs, viruses, spyware, malware, and other harmful codes will be created.

2) Backup Requirements

The vital information of the users in the Book Trade website need to be backed up early and often. It will be a very tedious and risky task in case of system failure. It is important to configure different backup settings and implement them so that all the important and other files stay safe and just in case if something happens, recovery processes can be brought to implementation immediately.

System Qualities

Usability

The user interface will be relatively simple and will allow the beginners in the website to get through basic operation with a short duration of time. Also, ensuring that any type of information needed will be available in less than four clicks. If in need of any additional resources in the website, they will be easily added.

Reliability

The website needs to be reliable and downtime issues will be handled effectively as per the business procedures. There will be efforts to trying, implementing and experimenting with various servers to check reliability, The system shall be maintained during business hours. The system has enough local and remote server systems to continue provide the service unless a big disaster strikes. Effective run times and fast streaming speeds are ensured.

Performance

Whenever the home page is opened after the logging in process, the system should be able to display all the required information in less than 5 seconds. The system should continue to deliver fast and optimized performance in all sections of the websites and pages without issues. Efficient optimization with the RAM, operating system, bandwidth, and disk drive space with almost no lag issues will be implemented.

Supportability

The web site system will go through various tests which will ensure testability. The website should run smoothly and be portable in the most common devices and operating systems we use in daily life. The coding has been done effectively so as to reuse the components by just reviewing several changes. Web administrator will take care of any bugs that try to hamper with the system.

System Interfaces

User Interfaces

The User Interface is essential because it outlines how the user interacts with the system. As per now, normal surfing interface in the Book Trade Website, Graphical User Interface and obviously touch interface for the devices that are compatible with it.

- Welcome screen to give the user a warm welcome
- Password-Protected login processes
- Simple and highly readable fonts, background color and overall interface.

Look & Feel

The interface will be simple and plain as possible so that even beginners can go through it without any hassle and trouble.

Layout and Navigation Requirements

The layout will be simple and represented like the web layout. The user will be able to navigate to various pages if they have the access. A normal and simple web page design will be implemented following the basics.

Consistency

Consistent fonts with appropriate screen density. The pages are designed to be clutter free and only the necessary information required will be presented. The Book Trade logo will be placed at the top of the website. The pages are print friendly and will deliver good pages when printed without issues.

User Personalization & Customization Requirements

The users can customize some of the features according to their needs. Being able to zoom in, change the alert notifications, changing the fonts in the pages are some of the customizations you can do.

Interfaces to External Systems or Devices

The system needs to interact and interface with the server application since the architecture is **3 Tier Architecture System**, where there are Users, Servers, and the Database System.

The system needs to interface with the server applications since it is a cloud-based system. The data travels from the server to the recipients while gathering the information from the database.

Software Interfaces

Object oriented language is used to design the software interfaces. It contains set of classes with an associated list of class methods. Various Protocols are used and an integration with the software is thought of for various Operating Systems.

Hardware Interfaces

The architecture that is used to connect devices with each other which includes plugs, sockets, cables, and electrical signals. The presence of web server and database server to facilitate users with all-time information access is present. There are strong security system measures to provide security and protect important data.

It is the architecture used to connect two devices to each other. It includes plugs, sockets, cables and electrical signals.

Communications Interfaces

The system connects to other systems using local area networks whereas the devices get connected through wireless network access. If the user wishes to access the site from a device that has no wireless connection, 3G or 4G data services need to be used.

Business Rules

Business rules are generally procedures, conditions which define the roles and responsibilities that a certain individual must carry out.

<Book Trade>

<Access Rights and Controls>

- This business rule discusses about the access rights and controls of the Book Trade System.
- The Web Administrator has the overall responsibility of taking care of the website. The role extends to taking care of the Database and ensure its proper functioning.
- The information uploaded in the website must not be leaked to third-parties to prevent data breaches and leaked privacy.
- Ethical measures are expected from all users in order to allow the system to run smoothly and efficiently as expected.

System Constraints

To create such a complicated system where just 3 Students, act in a project, it requires a major investment in time, effort and diligent. The major constraint that website faces is that since it is a fresh website, users will have difficulty finding the website since it is difficult for start-ups to occupy the top results in search engine results. The compatibility of this website for mobile users remain a part of major discussion and whether it is going to be implemented or not depends on the circumstances. The website is completely dependent on the wireless connection and no facilities can be used without proper internet. Obviously, the website is being built by beginners so there can be constraints on database systems, processors, memory, firewall and operating system issues.

System Compliance

Licensing Requirements

The website has a certain licensing requirements allowing only the designated individual software is a licensed product which means that only the authorized individual has the license of the website.

Legal, Copyright, and Other Notices

The website has its own logo and third parties may not use the software logo. The processes and all the services are owned by Book Trade and some other third-party services to whom Book Trade might or may not give access to. No part of the website must be replicated distributed, modified, copied and displayed unless the permission has been given to do so. The word “BookTrade” has been trademarked.

Applicable Standards

The website system contains personal information about the individuals so it may be subject to legislation and consent. Privacy policy will be essential to grant users the idea of what will happen with their information. Standardization of such systems also benefits the health in the wider community. The processes and technologies involved in the system should also be standardized.

System Documentation

System documentation covers a wide variety of documents within any industry including Information Technology. This technical document will be created by a group of people to assure that the final output is accurate, complete, and readable. Some of them would be:

- Technical Website Knowledge
- Getting around and System Help Files
- Privacy Policy and Compliance
- Contribution and Donation
- Risk Management Procedures
- Change Management Procedures
- Data Security Measures

ARCHITECTURE NOTEBOOK

Purpose

The purpose of an Architecture Design is to allow the stakeholders to understand the overall design of the whole system in relation to the functional and non-functional requirements set out in the vision. To achieve a robust and flexible system, special emphasis will be given to producing an Architecture which builds upon the non-functional requirements of availability, reliability, usability, and performance.

Architectural goals and philosophy

The main architectural goal is to implement a system that will be robust, and flexible. An architectural design is to be established that requires minimal maintenance but is also able to adapt to the additional requirements in the future. Since our project is a web-based e-commerce system and allows users to perform a variety of tasks, a layered/modular architecture is to be used. Security is to be one of the key issues that needs to be handled well as personal information such as credit card numbers and email id's will be stored within the system. For this reason, the website will be hosted on a web-server established over our own personal device using a Linux operating system, which would ensure more control and security over the website. A modular and layered architecture would allow the functionalities to be independent of one another and will make it easier for the system to be implemented, tested and managed.

Assumptions and dependencies

Assumptions include:

- Not all users feel comfortable exposing their credit card details over websites and wish to use more secure payment services. For this reason, our website is going to implement third party payment services such as PayPal and bitcoin to allow users to make payments without giving away their credit card details.
- Using MySQL database server will provide higher quality database service and more security. This is critical as website needs a secure and well tested database to be running at all times. Also, provides a friendlier workbench interface to allow our team of young developers to work effectively.
- Using Apache II server on Linux operating system should provide greater security.

Dependencies:

- Any changes to the user requirements may require changes to be made within the database.

Architecturally significant requirements

Most of the significant requirements have been discussed in detail within the System Wide Requirements section. For a better understanding refer to the NFRs document above.

Some basic significant requirements include:

- The website should be quick and responsive and not take longer than 5 seconds to respond the users command.
- The users should be able to use the website on all devices and operating systems without any errors.
- A user-friendly interface is to be provided to allow users to navigate the website effectively and efficiently.

Decisions, constraints, and justifications

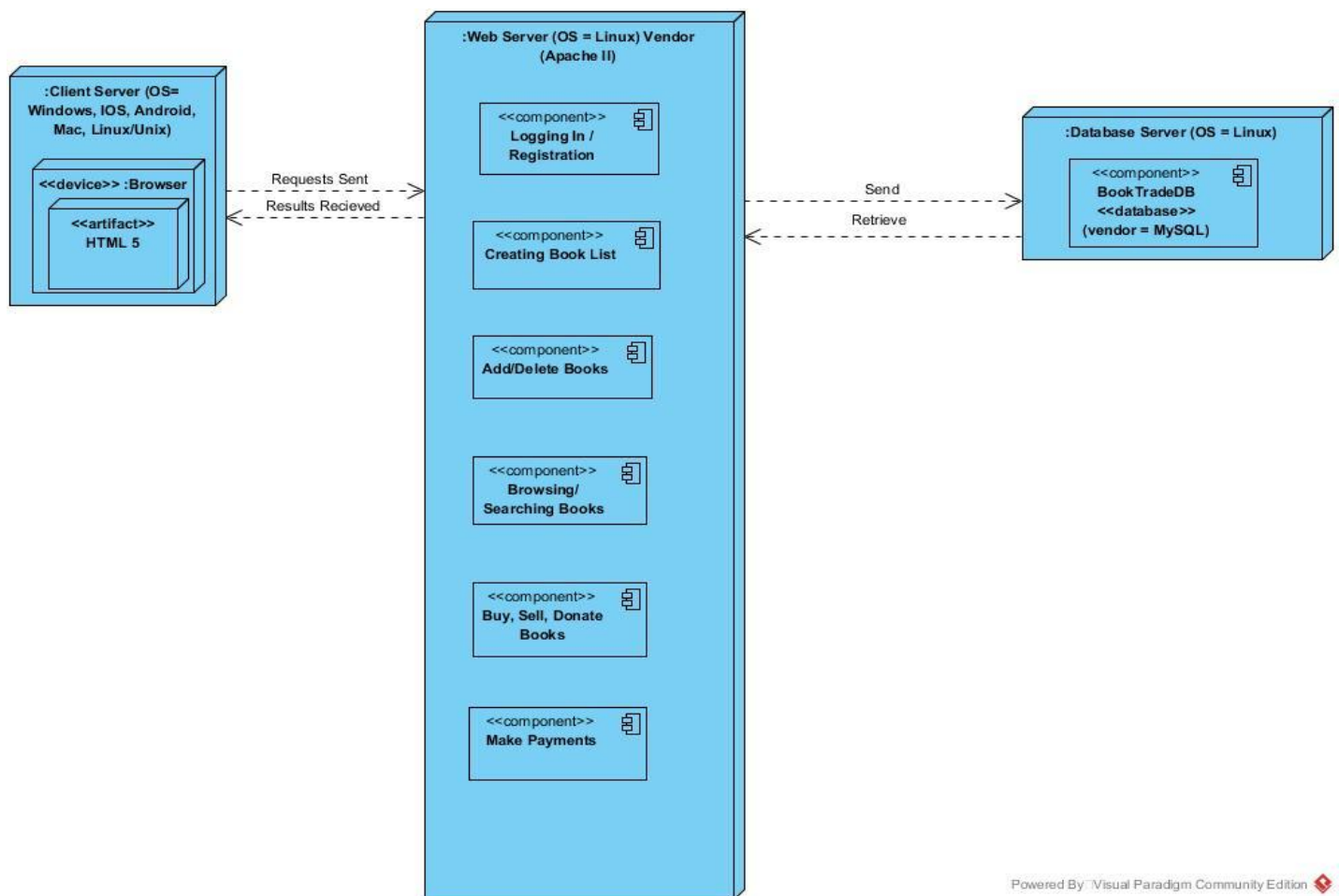
Some key decisions along with their justifications provided below:

- Using MySQL as the default database server. MySQL is an industry certified database application which is a lot easier to install and setup. Providing a user-friendly workbench for even beginners to use, it allows our developers to be more effective. MySQL also provides better security as compared to other database applications.
- Third-party payment services: This is to make payments quicker and more secure for the users. May users have already established PayPal accounts and feel comfortable using such services over providing their credit card details to newer websites.
- Hosting the web-server over our own personal computer: For better security and easier maintenance we have decided to use Apache II server running on Linux Operating System. This should also give our developers and admin more authority over the server and website.
- Building website from scratch rather than using a third-party website building software: We want to do everything from front-end programming to back-end programming on our own so that at the end of project, our development team have learned newer skills and improved on their current skills.

Architectural Framework and Design:

The following diagram represent the way the system architecture is to be established and deployed. It includes a modular architectural model along with a deployment diagram incorporated into one that describes the key components of the overall system.

It also shows the **3-tier architecture** that is to be implemented for this Project.



TECHNICAL COMPETENCY DEMONSTRATOR

Technical Competency is the combined skill and knowledge required by everyone within the organization to successfully complete a given task or a project. This is essential for the successful completion of the project especially when there is limited amount of time to work with. As our Project is to be deployed by the end of next semester, our team has carefully chosen the tools that we will work with, keeping in mind the knowledge and skills of each team member. The following are some of the technical competencies that our team possesses:

- Efficiency in HTML, CSS, PHP: Since our Project is a web-based project, our team has chosen to work with HTML, CSS, and PHP to build a dynamic website which implements a 3-tier architecture model. The front end will be handled using HTML and CSS programming languages, while the communication between the front-end and back-end will be handled using PHP. Our developers Aman and Noman are more than capable of Programming with the required languages as they have had experience working with above languages in previous courses, as well as learning on their own.
- Database Programming: Programming and managing a database is just as important as the website because database is the 3rd part of our 3-tier architecture model. For the current project, our team has chosen to work with MySQL database which is very commonly available and has features such as SQL Workbench that supports even the beginners. Our team is very much capable of producing a workable database that connects to our web server and allows for dynamic website to be built.

The above two technical competencies are shown in the links provided within this document. A live website has already been set-up which is running on Apache II server and just to show our competence we have also set-up a working log-in and registration page that allows for users to be added in to and loaded from the database.

Some other technical competencies include:

- Developing Talent: The aim of the project is not only to deploy a working software, but also to build upon the current skills of each team member and help other less capable team members to grow as better software developers. For this reason, it is extremely important that each team member communicates with others and help them understand any new concept or skill that they have acquired which is important for the completion of the project.
- Team Work and Team Leadership: Since our project team consists of only three people, each one of the members have an important leadership role to play to guide the project towards completion. Our team consists of capable leaders and professionals who work well with each other and will do what is required of them to complete their tasks on time.

Three Tier Architecture in Work

An Integrated Application:

A website with working user registration and login is established as a prototype to demonstrate a working architecture with apache2 Server, Mysql Server database and Website(Client interface). Here is the link for website:

<https://booktrade.duckdns.org>

Version Control Directory:

For version control of Book.trade GitHub is being used. Book.trade source code can be found with version information here:

<https://github.com/in-fidle/booktrade/tree/master/website>

Architecture:

Diagrams explains architectures are displayed in directories at GitHub. Here is the link:

<https://github.com/in-fidle/booktrade/tree/master/diagrams>

Server Specification:

For server specifications access this link:

<https://httpd.apache.org/>

Database Specification:

MySQL database is used for server database. More information on database can be found on following link:

<https://www.mysql.com/>

Back-end Language:

PHP is used as back-end language. It's features and usability information can be found on this link:

<http://php.net/manual/en/intro-what-is.php>

IDE used for developing source code:

Open source editor Atom is used for developing website. More information about is in following link.

<https://atom.io/>

Development environment for Website:

Linux operating system is used for development of website. More information about the specific Linux distro can be found here:

<https://www.ubuntu.com/>

Technical Specification:

System	Linux acp-HP-ENVY-15-Notebook-PC 4.8.0-46-generic #49~16.04.1-Ubuntu SMP Fri Mar 31 14:51:03 UTC 2017 x86_64
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php/7.0/apache2
Loaded Configuration File	/etc/php/7.0/apache2/php.ini
Scan this dir for additional .ini files	/etc/php/7.0/apache2/conf.d
PHP API	20151012
PHP Extension	20151012
Zend Extension	320151012
Zend Extension Build	API320151012,NTS
PHP Extension Build	API20151012,NTS
Debug Build	no
Thread Safety	disabled
Zend Signal Handling	disabled
Zend Memory Manager	enabled
Zend Multibyte Support	provided by mbstring
IPv6 Support	enabled
DTrace Support	enabled
Registered PHP Streams	https, ftps, compress.zlib, php, file, glob, data, http, ftp, phar
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, tls, tlsv1.0, tlsv1.1, tlsv1.2
Registered Stream Filters	zlib.*, string.rot13, string.toupper, string.tolower, string.strip_tags, convert.*, consumed, dechunk, convert.iconv.*, mdecrypt.*, mdecrypt.*

Configuration apache2handler

Apache Version	Apache/2.4.18 (Ubuntu)
Apache API Version	20120211
Server Administrator	booktrade17@gmail.com
Hostname:Port	127.0.1.1:80
User/Group	www-data(33)/33
Max Requests	Per Child: 0 - Keep Alive: on - Max Per Connection: 100
Timeouts	Connection: 30 - Keep-Alive: 5
Virtual Server	Yes
Loaded Modules	core mod_so mod_watchdog http_core mod_log_config mod_logio mod_version mod_unixd mod_access_compat mod_alias mod_auth_basic mod_authn_core mod_authn_file mod_authz_core mod_authz_host mod_authz_user mod_autoindex mod_deflate mod_dir mod_env mod_filter mod_mime prefork mod_negotiation mod_php7 mod_setenvif mod_status

Directive	Local Value	Master Value
Engine	1	1
last_modified	0	0
Xbithack	0	0

Apache Environment

Variable	Value
HTTP_HOST	booktrade.duckdns.org
HTTP_USER_AGENT	Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:53.0) Gecko/20100101 Firefox/53.0
HTTP_ACCEPT	text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
HTTP_ACCEPT_LANGUAGE	en-US,en;q=0.5
HTTP_ACCEPT_ENCODING	gzip, deflate
HTTP_REFERER	http://booktrade.duckdns.org/
HTTP_DNT	1
HTTP_CONNECTION	keep-alive
HTTP_UPGRADE_INSECURE_REQUESTS	1
PATH	/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin
SERVER_SIGNATURE	<address>Apache/2.4.18 (Ubuntu) Server at booktrade.duckdns.org Port 80</address>
SERVER_SOFTWARE	Apache/2.4.18 (Ubuntu)
SERVER_NAME	booktrade.duckdns.org
SERVER_ADDR	192.168.0.11
SERVER_PORT	80
REMOTE_ADDR	116.240.144.21
DOCUMENT_ROOT	/home/acp/booktrade/public_html
REQUEST_SCHEME	http
CONTEXT_PREFIX	no value
CONTEXT_DOCUMENT_ROOT	/home/acp/booktrade/public_html
SERVER_ADMIN	webmaster@localhost
SCRIPT_FILENAME	/home/acp/booktrade/public_html/data/php/test.php
REMOTE_PORT	51420
GATEWAY_INTERFACE	CGI/1.1
SERVER_PROTOCOL	HTTP/1.1
REQUEST_METHOD	GET
QUERY_STRING	no value
REQUEST_URI	/data/php/test.php
SCRIPT_NAME	/data/php/test.php

HTTP Headers Information

HTTP Request Headers	
HTTP Request	GET /data/php/test.php HTTP/1.1
Host	booktrade.duckdns.org
User-Agent	Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:53.0) Gecko/20100101 Firefox/53.0
Accept	text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language	en-US,en;q=0.5
Accept-Encoding	gzip, deflate
Referer	http://booktrade.duckdns.org/
DNT	1
Connection	keep-alive
Upgrade-Insecure-Requests	1
HTTP Response Headers	

calendar

Calendar support	enabled
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Core

PHP Version	7.0.15-0ubuntu0.16.04.4
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Risk Register

The image below outlines the detailed risk management plant. Due to difficulty of embedding the excel file within the word document, the image had to be posted. Upon zooming in, the text can be read easily.

RISK MANAGEMENT LOG					RISK MANAGEMENT LOG								
Project Name:		BookTrade			Project Name:		BookTrade						
National Center:		Sandy Homes			National Center:		Sandy Homes						
Project Manager Name:		Noman Ahmed Khan			Project Manager Name:		Noman Ahmed Khan						
Project Description:		Book E-commerce			Project Description:		Book E-commerce						
ID	Current Status	Risk Impact	Probability of Occurrence	Risk Map	Risk Description	Project Impact	Risk Area	Symptoms	Triggers	Risk Response Strategy	Response Strategy	Contingency Plan	
	Open	Medium	Low	Green	Current project skill set may not be adequate to complete all project work. The current development team has only 3 Members working in this project.	If required skills are not identified or obtained, project schedule may slip and possibly restrict the accomplishment of project goals.	Project Resources Budget Schedule and Time	The due date approaches for the completion of project but required processes and skills have not been identified.	Four weeks prior to scheduled start date if no resource is identified with required skill set implement contingency plan.	Mitigation	Planning and aiming to find various resources and develop skills to complete the project before hand	Find resources that meets required skill set through external hiring sources.	
	Open	High	Medium	Red	Various Information Risks and Security Such as copyright, trade secret and violations by web developers. Unauthorized access resulting in theft of customers private information. Credit card information disclosure or interception, used for fraudulent purposes	These information risks can cause great losses, can get the company fined and sued, loss of customers, reputation and other consequences	Website Reputation Legal Consequences Theft of vital Data Fraudulent Transactions	Various problems will overshadow the project, intruders will mess around with the website and the Web Administrator will have to take quick actions to minimize further damage	To protect further damage, everyone on the team needs to be reactive and act promptly	Mitigation	Safeguard the system immediately when fraudsters or intruders try to access the vital information resources in the system	Adopt best practises to prevent information risks from happening in the future by adopting latest technology, secure servers and strict rules	
	Open	High	Low	Yellow	Transaction Risks and Viruses Since all the business transactions and deals are travelling through the web. The presence of malicious softwares like virus, worms and Trojan horse can make your system a pray and cause damage	The business transactions can be compromised which will cause financial loss, identity theft and other issues	Financial Theft Identity Theft Virus Attacks	The different viruses that infect the system can spy on user data, crash the system, launch attacks and some other consequences	Unusual things start to happen with the website, information and financial value is compromised	Mitigation	Act immediately to deal with such viruses and remove them from your computer. Contact the service you are dealing with and let them know about the issue	Always have a good anti-virus and keep it updated to impede against any such kind of attacks in the future	
	Open	Medium	Medium	Yellow	Operational Risks Hosting issues where website suffers failure and store stays offline. Supplier issues when top-selling product is pulled off from the market. Example: Galaxy Note 7	Website becomes unavailable, huge loss of revenue	Dependency of Website Reliability Customer Satisfaction	Unable to access the website, cannot find the products	Website stays down for hours with no information of its return. Product unavailable	Avoidance	Website should be Online soon without issue	Use backup services and alternative options to avoid such issues	
	Open	Medium	Medium	Yellow	Unauthorized Access and Poor Safety Someone may access your data and account illegally, can be your employees or outsiders. Poor system configuration and poor encrypted transmission	Confidential business data will be lost by illegal measures of people	Business Data Customer Satisfaction Project Resources	Valuable and confidential business data may be leaked	Leaked information and theft of data	Avoidance	Prevent further leak and cybercrime help	Overall strong configuration of systems and strong encrypted transmission	
	Open	Medium	Low	Green	Business Risks Unethical content in the website, defamatory statements, illegal promotion and contests, violating terms, intellectual property, change in supplier relationships, data access and ownership, unprotected domain names, incorrect integration	The business objectives and goals will be compromised	Stakeholders Sponsors Content Creators	Business issues such as liability, accountability and responsibility	Chaos regarding data ownership, access and other business issues	Mitigation	Communicate effectively to resolve issue	Define strong business rules, preferences and priorities for every stakeholder. Use of contracts and ethical behaviour.	

BOOK.TRADE

H VERSION 1.0
MASTER TEST PLAN

Version 1.0

Draft

April 2017

Parmar Aman C.

Test Manager

Book.trade

Test Plan Identifier

Book.trade Version 1.0 MTP 0.1

Introduction

Book.trade is a book trading platform focused on physical books. Book.trade is for book lovers and students who likes to read physical books in this digital era. This project's basic goal is to provide trading website for books called Book.trade and can be enhanced in future. Target audiences are people who wants books in physical form.

This version 1.0 features user registration and login. It works on Intel based machine running apache2 and MySQL server on Linux operating system. These set up is for small scale implement and will be improved in near future.

Test phases are shown chronologically here:

- Integration level and unit testing – applying standard rules for coding and successful and efficient communication between units.
- Assurance of quality of code – Code and Integration level tested to system level by successful repetition of small subsets of tests.
- System tests – Checking compatibility, usability, flexibility, performance of system.
- Assurance and acceptance of quality and product through proposal to production.
- Implementation.

Test Items

This testing process will use require:

- Book.trade software version 1.0 and supporting infrastructure.
- Client platforms.

This test process will not require nor include:

- Book.trade documentation e.g: Manual , Specification guide.
- Any legacy system that Book.trade integrates with except for interface.
- Supporting services like post and trading times.

Test targets

Following aspects will be tested in the process and each phase may or may not include all of them.

- Functional aspects of website
- Logical aspects of website
- Other aspects like usability, security, and more.

Functions Not to Test

It is a pure intention to test every cases possible but if time is short then minor or less important cases can be dropped.

Approach

Test cases will be prioritized according to risk level and will be processed accordingly. High risk cases will be tested first. There will be some exception lie:

- Low priority cases can be processed in groups while using minimum resources.
- Scheduling problems.
- Some low priority test are per-requisite for another high priority tests that might get dropped later.

Source codes will be locked during testing times and won't be updated unless there are any critical and major updates pending.

Result Criteria

There will be criteria before test to fulfill and then tests will be processed with the system administrator's permission.

Suspension Criteria

Test will only stop if test subject is not available; here Book.trade website and tests will be resumed once the connection is reestablished.

Test Documents

Following docs will be generated for tests.

- Master Test Plan. (This document).
- Log files of tests.
- Tests scripts for test data.

Note: Daily incident reports will be generated and stored for some periods to give development team heads for any potential threats. In addition to that it will help team to recognize future features and functions as well as unnecessary features. That said, it will also introduce new limitation of proposed tests with new features to improve current processes.

All the documents will be provided in open document text (.odt) format.

Remaining processes

After the implementation of the system or website it will be considered that all the per-implementations test are done and only post-implementation tests remains.

Test Environments

There will be primarily two parts of test environments which are: Client side environment that will be accessed by users and Book.trade server side environment that will be accessed by development and tech teams.

Client Side Environments:

- A high-end device – This includes a full featured personal computer, laptop, mobile, tablet, or phablet with maximum resources available in market.
- A low-end device – This includes personal computer, laptop, mobile, tablet, or phablet less with bare minimum specs to run program,
- Legacy devices – This includes such devices that are no more in use or discontinued but still being operated by Book.trade.

Note: All devices have different operating systems but since our product is a website which is accessed by a browser it doesn't affect our test processes. Instead it will include all different kinds of browsers.

Since there are lots of browsers available in market it's impossible to test each one of them. These are the browsers that are available for client side environment but not limited:

- Lynx -Text only browser
- Microsoft Internet Explorer
- Mosaic- A really old legacy browser
- Google Chrome
- Safari – IOS web browser
- UC Browser
- Mozilla Firefox
- Opera
- Microsoft Edge
- Android Browser – Open source browser introduced in Android

Note: The default installation configuration will be used, no additional add ons will be installed.

Server Side Environment:

There is one server for production website and another exact same replica of it for testing and debugging. The replica will be used for all kind testing of units and integrity.

Even though that replica will be same as the production version it may differ in hardware set up due to budget limits and goals.

Available tools:

- Scrubby – meta tag analyzer from scrubtheweb.com
- Site Analysis – from site-see.com
- Website overview in detail- from nibbler.silktide.com
- W3C Validation service – w3c.org
- WAVE – website accessibility checker wave.webaim.org
- Performance test- from www.webpagetest.org

Responsibilities

- Noman Ahmed Khan, Sandesh Raja Thapa, Aman C. Parmar – Project sponsors, Final acceptance of the Web site and Legal matters.
- Noman Ahmed Khan(Project Manager)– Decisions requiring senior management approval.
- Aman C. Parmar(Developer) – System and post implementation testing, Unit and integration testing and Configuration management.
- Sandesh Raja Thapa(Business Analyst) – Quality Assurance, International testing and Business operational matters.

Risks

Following scenarios presents the most likely contingencies:

- Website is unavailable for testing.
- Testing software is not available for testing.
- Testing people are not available.
- Large number of defects make it impossible to initiate tests.
- Not enough time to complete all the tests.

Functions tests

Accessibility

The web page should have zero errors in WAVE check.

Compatibility

The web page should render correctly on all above mentioned browsers.

The web page text is clearly readable when printed in A4 size paper.

The web page is clearly understandable when accessed through text only browser; Lynx.

Coding Standards

All the server side code is written in PHP and HTML language.

All database server coding should be done in MySql database server.

Content

Book.trade logo should be on every page of the website.

Book.trade copyright information should be at the bottom of the website.

All the spells are checked with US English spell checker.

There should be no use of hidden text except for passwords.

Functional

No use of programming languages other than HTML and PHP is done. So that website functions faster and everywhere.

All sessions should be alive and not to be broken in any cases, especially for transactions.

This test will be done by testers as users:

- Pressing back and forward buttons on browser while the session is still in process.
- Clear cache during active session.
- Using history to check previous pages.
- Pressing reload button.
- Aborting session in mid way of process.

- Staying inactive for long breaks. More than 30 min.
- Changing the clock time of client side device.
- Opening same session on two different browsers or in two different instances of browser.

Checking that form data on website is not lost during session.

- User presses back or forward button in mid data entry of form.
- User goes to a previous visited page through history.
- User presses the book mark button.

Checking different scenarios by

- Disabling cookie
- Activating Cookie
- Enable or disable cookie in mid session.

All the client side validations are checked again at server side validation in case of

- User disabled scripts
- Browser defects

Resources are used properly by

- Releasing memory when user session is expired.
- Releasing memory when user session is complete.
- Network connection is completely closed after successful transaction.

Dates and times should be checked and kept in sync with server side clock time not the client side clock.

Website should show all the T&C and disclosures

Book.trade meets all the claims made on website.

Legal

No copyrighted content is on the website unless it is with written permission from owner.

Meta tags does not include other copyrighted phrases or words.

Marketing

Meta tags are used on all public pages.

Search engine query problems are to be checked by Scrubby.

Navigation

All links should be working fine.

External links opens in new browser instance.

Internal links links should use existing browser instance.

The website must be book markable.

Book mark should start from “Book.trade –”

There should be no orphan files that can’t be reached by home page.

Links should not re-redirect itself in mid way.

All pages can be browsed casually no need for site maps or search engine queries.

Correct broken link reporting available.

Performance

In webpagetest.org report the links should be accessible in less than 1 second.

Further performance tests will occur on future versions.

Reliability

Website should be able to handle worst case scenario for workload.

When server restarts abnormally all the sessions and transactions are rolled back cleanly.

Website should run for long periods of time without any distortion in resources.

Recovery time should not exceed the defined time limit.

System can handle unexpected server failure.

Server should be able to work with minimum resources available.

Security

Checks that user have chosen strong user id and password.

User is locked for 30 min after multiple failed attempts at login.

User is logged out after inactive period of 30 min.

Client side changes won't affect any security rules set by server.

All the data sent and received is secured and encrypted.

Checks that any field doesn't have obvious input like putting user as user name or password and password.

A separate database for any id verification or alternative login recovery data.

Make sure that system is not connected to outside world directly.

Usability

Website should go to minimum feature view without compromising clear and understandable layout.

Layout is consistent for user to remember.

All the requirements are clearly displayed on client screen with proper margin.

Audit

All logs are verified for client's and advertiser's use.

All management procedures are verified every month.

Every year archive is stored and junk is purged regularly.

Logical Aspects

There will be logical testings for features. Currently Login and Register feature is available.

- Open website.

- Create user account.
- Login using credentials.
- Logout using credentials.

Aspects being tested: Web pages, server and database structure working together. And test should not stop at blank pages or error pages.

Project Plan

Introduction

The project plan is of an E-commerce website BookTrade that serves as a platform for students to buy/sell trade and donate new or used books. This project plan outlines the organization of the project, different project practices and measurements, how the software is deployed and also showcases the project milestones and objectives in the sections below.

Project organization

The project team comprises of three members and there are roles assigned to them. However, all three of them have collaborated and tried to help each other in different areas of their interest so that it feels like everybody is trying their best to make the project as informative and complete as possible.

Name	Student ID	Role	Email
Noman Ahmed Khan	11567969	Project Manager, Programmer	Noman-ahmed-khan@live.com
Sandesh Raja Thapa	11575549	Project Researcher, Analyst	Sandesh.rtz96@gmail.com
Aman Kumar Chandubhai Parmar	11569794	Tester, debugger.	Aparmar62@gmail.com

Project practices and measurements

The project throughout makes use of the Unified Process Model Strategy. Practices in UP Model consists of four major phases which comprises of:

1) Inception:

The major goal of Inception is to create and establish the case of the system that we are trying to propose

2) Elaboration:

The major goal of Elaboration is to establish the ability to build the proposed system by carefully reviewing the financial constraints, time issues and various other types of constraints that a project faces

3) Construction

This process is all about building a system that is efficient and capable of operating successfully in various environments that a customer is expected to use it in.

4) Transition:

The process of rolling out a fully functional system to the people that need to use it or in simple words, customers.

Deployment

Once we've created the website, the website will be deployed through the Apache 2 Server that we are using on Linux Operating System. For the updates, the update is to be made through the website and then we will be given the rights to get into the server and make any changes or updates required.

Project milestones and objectives

Subject	Phase	Iteration	Dates	Primary objectives (risks and use case scenarios)
BookTrade Project	Inception Phase	I-1	14/03 – 27/03	<p>Complete Version 1.0 of the Vision Document</p> <p>Establish the Requirements UML Diagram</p> <ul style="list-style-type: none"> • Use Case Diagram • Domain Model Diagram <p>Set out the Architecture for the Project which compliments the non-functional requirements.</p>
		I-2	28/03 – 10/04	<p>Establish Risk Register</p> <p>Create a Master Test Plan</p> <p>Draft Version of Project Plan</p> <p>Deliver Life Cycle Objectives Milestone (LCOM)</p> <p>The Inception Phase Is Now Complete.</p>
	Elaboration Phase	E-1	11/04 – 24/04 (Session Break)	Mitigation of First Highest Priority Risks, and Implementing of Architecture to Support CCRD Use Case. Define Tests for the CCRD Use Case.
		E-2	25/4 – 8/05	Mitigation of Second Highest Priority Risks, and Implementing of Architecture to Support CCRD Use Case. Define Tests for the CCRD Use Case.
		E-3	9/05 – 22/05	<p>Mitigation of Third Highest Priority Risks, and Implementing of Architecture to Support CCRD Use Case. Define Tests for the CCRD Use Case.</p> <p>Deployment of the Executable Architecture in Trial Environment</p> <p>Complete Internal User Acceptance Testing for CCRD Use Case in Trial Environment</p>
		E-4	23/05 – 3/06	<p>Contingency</p> <p>Deliver Life Cycle Architecture Milestone (LCAM)</p> <p>Completion of Elaboration Phase Project Assessment</p>
	Mid-year Semester Break			

Mid-year Semester Break				
BookTrade Project	Construction Phase	C-1	11/07 – 24/07	Completion of the First Set of Functional Requirements along with tests against the CCRD Use Cases.
		C-2	25/07 – 7/08	Completion of the Second Set of Functional Requirements along with tests against the CCRD Use Cases.
		C-3	8/0 – 21/08	Completion of the Third Set of Functional Requirements along with tests against the CCRD Use Cases.
		C-4	22/08 – 4/09 (Session Break)	Contingency Deliver Initial Operation Capability Milestone (IOCM) Complete Construction Phase Project Assessment
	Transition Phase	T-1	5/09 – 18/09	Deployment of Application Testing Each Part of Application against the Use Cases Resolve any known errors
		T-2	19/09 – 2/10	Testing Each part of application against Use Cases Resolve any known errors.
		T-3	3/10 – 14/10	Contingency Deliver Product Release Milestone (PRM) Complete Final Project Assessment

Inception Phase Assessment

Introduction:

The inception phase is all about how a project is planned from the beginning to end. There are various task descriptions and chart to demonstrate the phases of the project. There are various iterations in the inception which sufficiently clarify and illustrate the overall project.

Task Descriptions and Gant Chart:

Task	Description
BookTrade Project	Book Trading Platform
Conception/Approval	<p>The various workflow details are included here:</p> <ul style="list-style-type: none"> • Planning the Fresh Project • Evaluation of Project Risk and Scope • Software Development Plan Initiation <p>The main outputs received are:</p> <ul style="list-style-type: none"> • Business case approval • Vision that is preliminary • Software Development Plan (including Risk List). <p>Detailed plans will follow next:</p>
Plan Remainder of Initial Iteration	<p>Workflow details included such as</p> <ul style="list-style-type: none"> • Next Iteration Planning <p>Major output obtained is:</p> <ul style="list-style-type: none"> • Iteration Plan.
Managing/Monitoring	<p>Representation of ongoing management activities in the project including the details of the workflow</p> <ul style="list-style-type: none"> • Iteration Managing • Controlling and Managing Project <p>The major obtained output artifacts are:</p> <ul style="list-style-type: none"> • Records Reviewing • Assessment of Iteration • Status Assessment

Next Iteration Planning	<p>Workflow details included as:</p> <ul style="list-style-type: none"> • Planning for next iteration • Develop Software Development Plan if change is detected • Evaluation Mission definition (Master Test Plan Activities) <p>The principal output artifacts are:</p> <ul style="list-style-type: none"> • Iteration Plan – Updated in the next assignment based on new functionalities which add maturity to the project from lessons learned and risks identified in previous iterations • Software Development Plan - all subplans updated as required to reflect changes in scope and risk. Revisiting risk list to check everything is under control • Master Test Plan – Updates that reflect the iteration to be tested next <p>The results of status assessments and iteration assessments should be considered to determine required changes</p>
Requirements	
Define Initial Scope	<p>Workflow details are included below</p> <ul style="list-style-type: none"> • Analyzing the Problem • Understanding the needs of Stakeholder • System Definition • System scope management • Manage Changing Requirements. <p>The major result is a complete Vision, which includes the important information. Further improvisation is expected in the next assignment</p>
Prototype for Technical Competency Demonstrator	<p>This includes the Activity: Prototype the User Interface.</p> <p>The main output artifact is Technical Competency Demonstrator</p>
Manage Changing Requirements	<p>Efforts in tracking tasks that are related to managing changes to requirements described in the initial Vision (as baselined at the end of the task Define Initial Scope).</p> <p>The workflow details that are relevant are: Manage Changing Requirements.</p>
Refine the System Definition	<p>Workflow details included are: Refining the System Definition (except for user-interface related activities, which are tasks that</p>

<ul style="list-style-type: none"> Requirements Set A Requirements Set B and so on 	<p>are separate).</p> <p>The main output artifacts are:</p> <ul style="list-style-type: none"> a Use Case Model (with highest priority use cases detailed) updated Vision and Supplementary Specifications. <p>A sufficiently detailed Use Case is presented with an Update Vision and required Supplementary Specifications</p>
Analysis and Design	
Perform Architectural Synthesis with Architecture Notebook	<p>More exploration in the initial inception is necessary if the identified risks are judged to be high. The details in the workflow are:</p> <ul style="list-style-type: none"> Architectural Synthesis Performance <p>The major output artifact is an Architecture Notebook</p>

A very simple diagrammatic representation in the form of **Gant Chart** is as shown below:

