American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

ONLINE BOOKSTORE SYSTEM

A Software Engineering Project Submitted
By

Semester: Summer_21_22		Section:	Group Number:	
SN	Student Name	Student ID	Contribution (CO3+CO4)	Individual Marks
1.	MD.FAYSAL KABIR	22-46783-1		
2.	MD.ASAD-UZ-ZAMAN	22-46582-1		
3.	MD.TANVIR RAHMAN MOLLA	22-46052-1		

The project will be Evaluated for the following Course Outcomes

CO3: *Select* appropriate software engineering models, project management roles and their associated skills for the complex software engineering project and evaluate the sustainability of developed software, taking into consideration the societal and environmental aspects	Total Marks	
Appropriate Process Model Selection and Argumentation with Evidence	[5 Marks]	
Evidence of Argumentation regarding process model selection	[5Marks]	
Evaluate the sustainability of the developed software in terms of both society and the environment (Impact identification)	[5Marks]	
Submission, Defense, Completeness, Spelling, grammar and Organization of the Project report	[5Marks]	
CO4: *Develop* project management plan to manage software engineering projects following the principles of engineering management and economic decision process	Total Marks	
Develop the project plan, its components of the proposed software products	[5Marks]	
Identify all the activities/tasks related to project management and categorize them within the WBS structure. Perform detailed effort estimation correspond with the WBS and schedule the activities with resources	[5Marks]	
Identify all the potential risks in the specific project and prioritizing/categorizing those to overcome the risk factors.	[5Marks]	

Description of Student's Contribution in the Project work

Student Name: MD.FAYSAL KABIR
Student ID: 22-46783-1
Contribution in Percentage (%): 33.33%
Contribution in the Project:
Process Model
Prototype Design
Test case
Gantt Chart

_____
Signature of the Student

Student Name: MD.ASAD-UZ-ZAMAN
Student ID: 22-46582-1
Contribution in Percentage (%): 33.33%
Contribution in the Project:
Project Description
Problem Statement
Proposed Solution
WBS
Test case
Maintenance plan

_____
Signature of the Student

Student Name: MD.TANVIR RAHMAN MOLLA
Student ID: 22-46052-1
Contribution in Percentage (%): 33.33%
Contribution in the Project:
Project Requirements
Class Diagram
Project Risk
Activity Diagram

_____
Signature of the Student

Rubric for Project Assessment (CO3)

Criteria	Marks distribution (Max 4X5= 20)				Acquired Marks
	Missing/ Incorrect (0-1)	**Inadequate (2)**	**Satisfactory (3-4)**	**Excellent (5)**	
Selection of Software Engineering Models	Does not articulate a position or argument of choosing appropriate model. Does not present any evidence to support the arguments for the choice of the model.	Articulates a position or argument for choosing models that is unfocused or ambiguous. Presents incomplete/vague evidence to support argument for model choice.	Articulates a position or argument of choosing models that is limited in scope. Does not present enough evidence to support the argument for the choice of the model	Clearly articulates a position or argument for the choosing software engineering models. Presents sufficient evidence to support argument for the model selection	
Role identification and Responsibility Allocation	The project has poor project management plans for identifying roles and assigning the responsibilities	Identify few roles in the project management where some of the roles are left alone with any project responsibilities	Identify most of the roles in the project management and assign their responsibilities	Well planned project with proper role identification and responsibility allocation in the project management activities	
Impact identification	Student vaguely discuss the impact of societal, health, safety, legal, cultural, or environmental issues in their project	Student provided with partial relevance to the impact of societal, health, safety, legal, cultural, or environmental issues in their project	Student fairly provided the analysis to the impact of societal, health, safety, legal, cultural, or environmental issues in their project	Student comprehensively provided the analysis to the impact of societal, health, safety, legal, cultural, or environmental issues in their project	
Formatting and Submission	Project report is not complete and Several errors in spelling and grammar. Present a Confusing organization of concepts, supporting arguments, and real-life example. Sentences rambling, and details are repeated.	Some errors in spelling and grammar. Some problems of organizing the answer in a logical order of defining, elaborating, and providing real-life examples.	Few errors in spelling and grammar. Presents most of the details in a logical flow of organization in definition, details, and example.	Project report is complete and No errors in spelling and grammar. Consistently presents a logical and effective organization of definition, details, and real-life example of the topic.	

	Acquired marks:	
	CO Pass / Fail:	

Rubric for Project Assessment (CO4)

Marking Criteria	Marks Distribution (Maximum 3X5=15)				Acquired Marks
	Missing/ Incorrect (0-1)	Inadequate (2)	Satisfactory (3-4)	Excellent (5)	
Project Planning	Missing or incorrect project plan;	Insufficient project plan provided: project team, project tasks, goals etc. stated poorly.	Sufficient information provided : project team members, their tasks, project plan discussed in details.	Thorough and relevant project plan is provided; project plan is clear and easy to follow.	
Effort Estimation and Scheduling	Missing or incorrect effort estimation or schedules based on available project resources	Insufficient or poorly stated effort estimation or schedules based on available project resources	Correct or sufficient technique used for effort estimation or schedules based on available project resources	Project estimation was described using proper effort estimation or schedules based on available project resources	
Risk Management	Risk analysis activities were missing or inappropriate for the specific project: unidentified risks or wrongly categorized risks or not prioritized properly.	Risks are partially identified(insufficient) and not properly categorized or not prioritized properly.	Sufficient and critical risks are identified(insufficient) and properly categorized but not prioritized properly.	Sufficient and appropiate risks are identified, analyzed, and properly categorized or prioritized.	
				Acquired Marks:	
				CO Pass / Fail:	

1.Project Description:

The Online Bookstore System is a web-based platform designed to provide users with a seamless and convenient way to browse, purchase, and manage their favorite books online. With an intuitive user interface and robust backend functionality, this system aims to revolutionize the way people engage with literature in the digital age.In the Online Bookstore System there are three types of users including admin user, employee user and customer user. All three types of users can login to the system with their own username and password. A customer can login by creating an account from the create account option or by registration. An admin can add any kind of users (admin user, employee user and customer user).The system will show who logged into the system.When an employee logs in the system, the system will generate an interface of employee panel where employee can add books, modify them, and can delete them. There is a refresh button which will help the employee to know about the current condition of the employee panel.When an employee adds a book, it will automatically show in the customers' homepage with book title and price. Customers can search for books by the book title and add the book into their cart. Customers can also see the details of a book and can place orders directly as well as can sell the bought books. Customers can also borrow the books and return after a certain time period.The Delivery system of the online bookstore will deal with the delivery of orders.

2.Problem Statement:

In the contemporary digital landscape, traditional bookstores are increasingly transitioning towards online platforms. However, numerous challenges persist within existing online bookstores, impeding both user experience and operational efficacy:

The first challenge revolves around **User Experience**: Existing platforms often present users with convoluted interfaces, resulting in frustration and reduced engagement. Additionally, the absence of intuitive search functionalities exacerbates this issue, making it arduous for users to locate desired books efficiently.

Secondly, **Book Management Capabilities** remain limited: Administrators and employees face hurdles in effectively managing the bookstore's inventory. These challenges manifest in the difficulty of seamlessly updating the customer-facing interface with new additions or modifications to the book catalog.

Security concerns pose another significant obstacle, particularly concerning **User Authentication and Access Control**: Weak authentication mechanisms compromise user account security, while the absence of role-based access control jeopardizes system integrity, potentially granting unauthorized users access to administrative functionalities.

Lastly, the absence of comprehensive **Logging and Tracking Mechanisms** hampers the ability to monitor user activities and system events effectively. This lack of oversight impedes the timely identification and resolution of security breaches or operational issues.

Addressing these multifaceted challenges necessitates the development of a comprehensive and user-centric online bookstore solution. Such a solution must prioritize efficient book management, seamless user experience, robust security measures, and enhanced customer satisfaction.

3.Proposed Solution: The proposed solution is the development of an Online Book Store system that caters to the needs of different user roles - admin, employee, and customer. The system will offer a user-friendly interface for easy navigation and browsing of books. Admin

users will have the authority to manage users and oversee the entire system. Employee users will be able to add, modify, and delete books, ensuring an up-to-date book inventory. Customer users will enjoy features such as searching for books by title, viewing book details, adding books to their cart, and placing orders.

Key features of the proposed solution include:

- User authentication and role-based access control.
- Intuitive employee panel for efficient book management.
- Seamless integration of books into the customer homepage upon addition by employees.
- Comprehensive search functionality for customers to find desired books.
- Detailed book information including title, author, ISBN, and price.
- Cart functionality for customers to add and manage selected books before checkout.
- Order placement directly from the cart or book details page.

By implementing this solution, the Online Book Store aims to provide a convenient and enjoyable online shopping experience for book lovers, while also offering efficient book management tools for administrators and employees.

4.Process Model:

Based on the nature and environment of developing an "Online book store" software, Feature-Driven Development (FDD) stands out as a highly suitable method. Here's a detailed analysis and reasoning for selecting FDD over other methods:

Nature of the Software

- An online book store involves a multitude of features such as user authentication, search functionality, browsing categories, adding items to cart, payment processing, order management, user reviews, etc.
- These features can be broken down into manageable chunks, making it conducive to FDD's feature-centric approach.

Suitability of FDD for Online Book Store

Complexity and Scale:

- Developing an online book store can be complex due to the integration of various components like databases, user interfaces, payment gateways, and external APIs for book data.
- FDD allows breaking down this complexity into smaller, manageable features, facilitating easier understanding, development, and testing.

Iterative Development:

- FDD promotes iterative development, where features are built incrementally and iteratively. This aligns well with the iterative nature of software development in an online business where requirements might evolve or change.
- Iterative development enables early feedback from stakeholders, helping to validate assumptions and make adjustments as needed.

Focus on Features:

- FDD emphasizes building features based on client needs and priorities. In an online book store, features like search functionality, recommendation systems, and secure payment processing are critical.
- By focusing on features, FDD ensures that the most valuable functionality is delivered early and continuously.

Flexible Planning and Adaptation:

- FDD's iterative nature allows for flexible planning and adaptation to changing requirements or market conditions.
- In the dynamic environment of online businesses, the ability to adapt quickly is essential for staying competitive and meeting customer expectations.

Historical Success and Industry Adoption:

- FDD has a track record of success in various software development projects, including large-scale enterprise applications.
- It has been successfully used in e-commerce projects, which share similarities with an online book store.

Deployment Diagram:

-

5.WBS:

5.2 Gantt Chart:

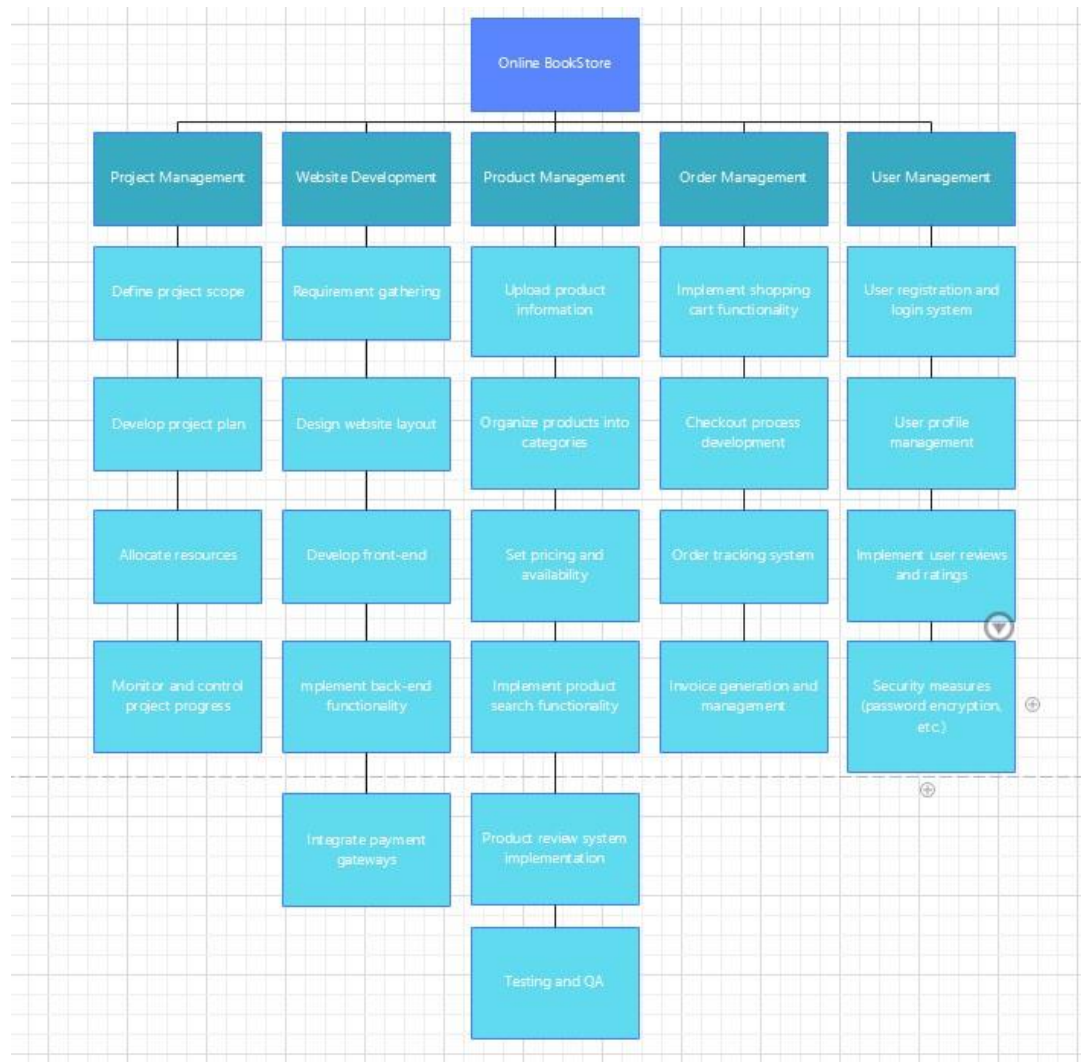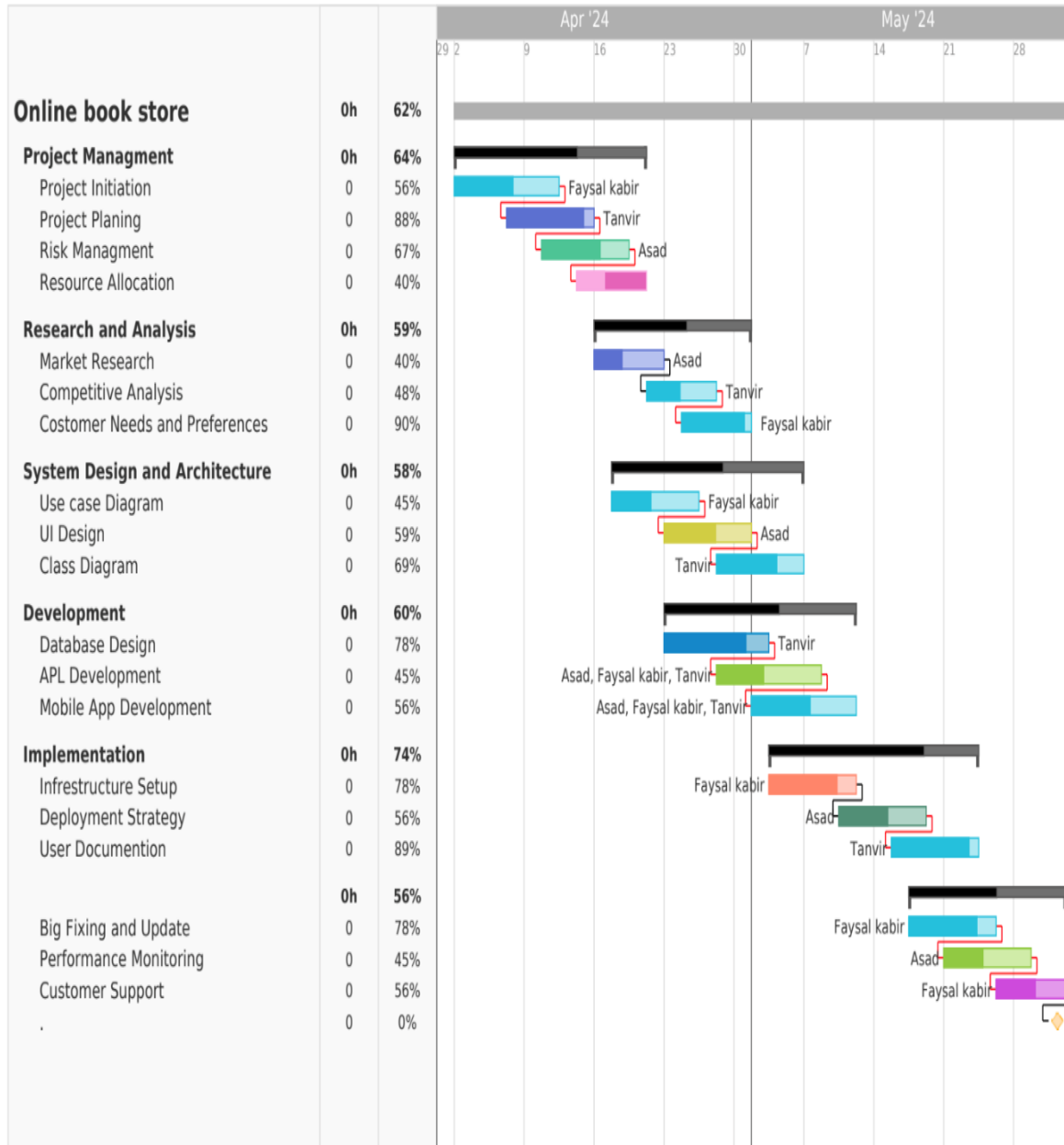|			Apr '24				May '24			
			29 2	9	16	23	30	7	14	21	28
Online book store	0h	62%								
Project Managment	0h	64%								
Project Initiation	0	56%	Faysal kabir							
Project Planing	0	88%	Tanvir							
Risk Managment	0	67%	Asad							
Resource Allocation	0	40%								
Research and Analysis	0h	59%								
Market Research	0	40%	Asad							
Competitive Analysis	0	48%	Tanvir							
Costomer Needs and Preferences	0	90%	Faysal kabir							
System Design and Architecture	0h	58%								
Use case Diagram	0	45%	Faysal kabir							
UI Design	0	59%	Asad							
Class Diagram	0	69%	Tanvir							
Development	0h	60%								
Database Design	0	78%	Tanvir							
APL Development	0	45%	Asad, Faysal kabir, Tanvir							
Mobile App Development	0	56%	Asad, Faysal kabir, Tanvir							
Implementation	0h	74%								
Infrastructure Setup	0	78%	Faysal kabir							
Deployment Strategy	0	56%	Asad							
User Documention	0	89%	Tanvir							
	0h	56%								
Big Fixing and Update	0	78%	Faysal kabir							
Performance Monitoring	0	45%	Asad							
Customer Support	0	56%	Faysal kabir							
.	0	0%								

6.Project Risks:

Project Risk, Impact, Risk level

Date of last review:	01/05/2024	

| ID	Description of Risk	Impact	Risk Reponse	Risk Level	Risk owner	Notes
OBS0	**Planning**					
OBS0.1	Unclear project objectives	Misalignment of expectations	Conduct a thorough project kickoff meeting to gather requirements	medium	Tanvir	medium
OBS0.2	Inadequate Resource Planning	Delays in project milestones	Perform resource capacity planning; consider outsourcing if necessary	high	Asad	high
OBS1	**Analysis/Software Requirements**					
OBS1.1	Incomplete Requirements Gathering	Scope creep, frequent changes during development	Conduct detailed stakeholder interviews	high	Faysal	high
OBS1.2	Conflicting Requirements	Design and development rework, project delays	Implement a formal requirements validation process	medium	Tanvir	
OBS2	**Design**					
OBS2.1	Overlook Architecture Constraints	Inefficient system performance, scalability issues	Conduct architecture reviews; engage experienced architects	medium	Asad	
OBS2.2	Poor User Interface (UI) Design	User dissatisfaction, decreased usability	Involve UX/UI experts early in the design phase	medium	Tanvir	
OBS3	**Security**					
OBS3.1	Vulnerabilities in the system	Loss of customer trust, legal consequences	Implement robust authentication and authorization mechanisms	high	Asad	
OBS4	**Payment**					
OBS4.1	Transaction Failures	Loss of revenue, negative customer experience	Implement redundant payment gateways for fallback	medium	Faysal	
OBS5	**Development**					
OBS5.1	Technology Integration Challenges	System instability, compatibility issues	Pilot test integrations; use standardized interfaces	high	Asad	
OBS5.2	Lack of Skilled Developers	Slower development pace, quality issues	Invest in developer training; consider hiring experienced contractors	high	Tanvir	
OBS6	**Testing**					
OBS6.1	Inadequate Test Coverage	Undetected defects in production	Develop comprehensive test plans; use automated testing tools	medium	Faysal	medium
OBS6.2	Limited Access to Test Environments	Inability to replicate production issues	Utilize cloud-based testing services	medium	Asad	
OBS7	**Scope Creep**					
OBS7.1	Constantly changing requirements	Delays in project delivery	Educate stakeholders on the importance of maintaining project scope	high	Tanvir	
OBS8	**Third-Party Service Dependency**					
OBS8.1	Reliance on external services	Order fulfillment delays, customer complaints	Have backup service providers or contingency plans in place	medium	Asad	

7.Project Requirements:

8.Prototype Design:
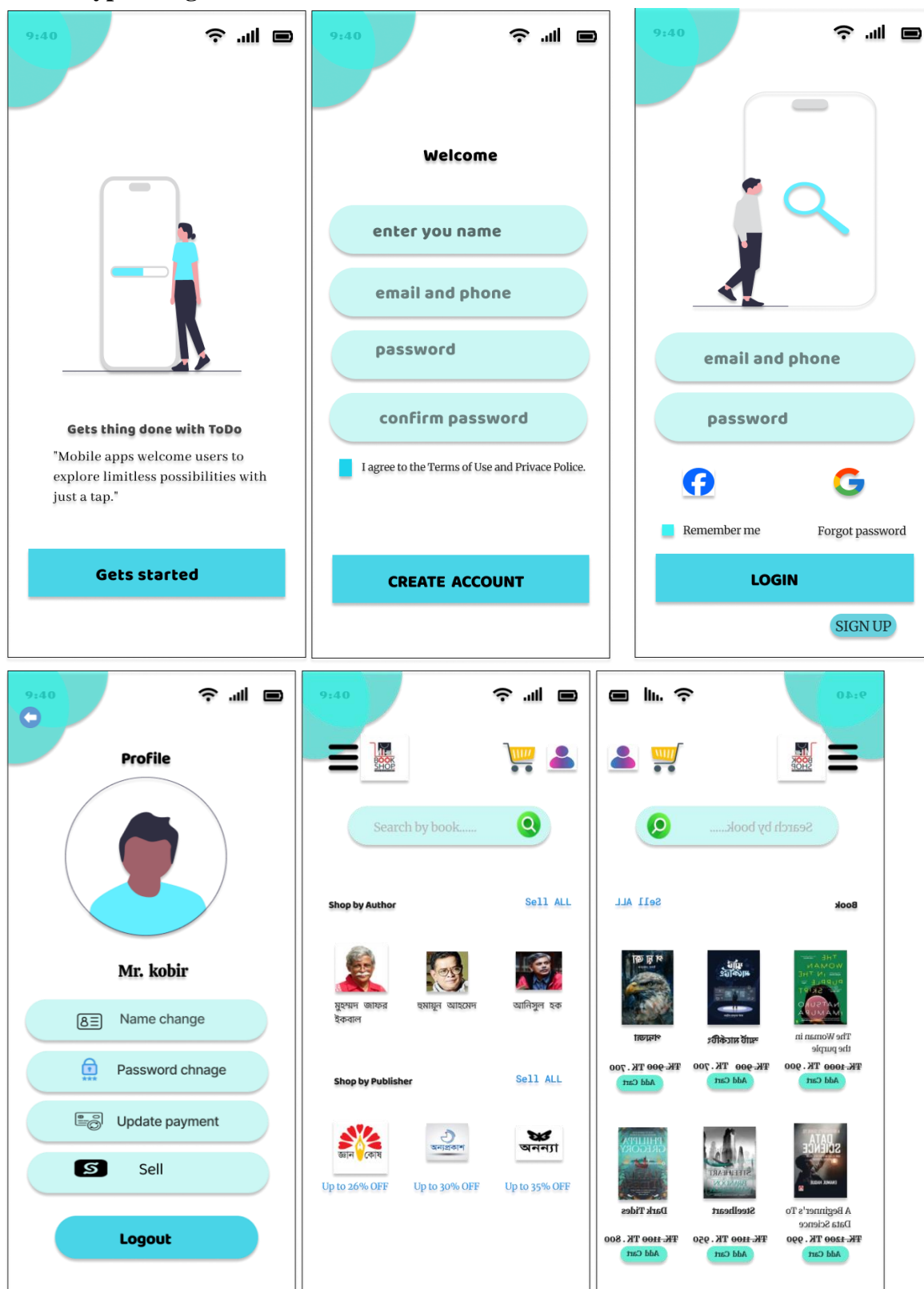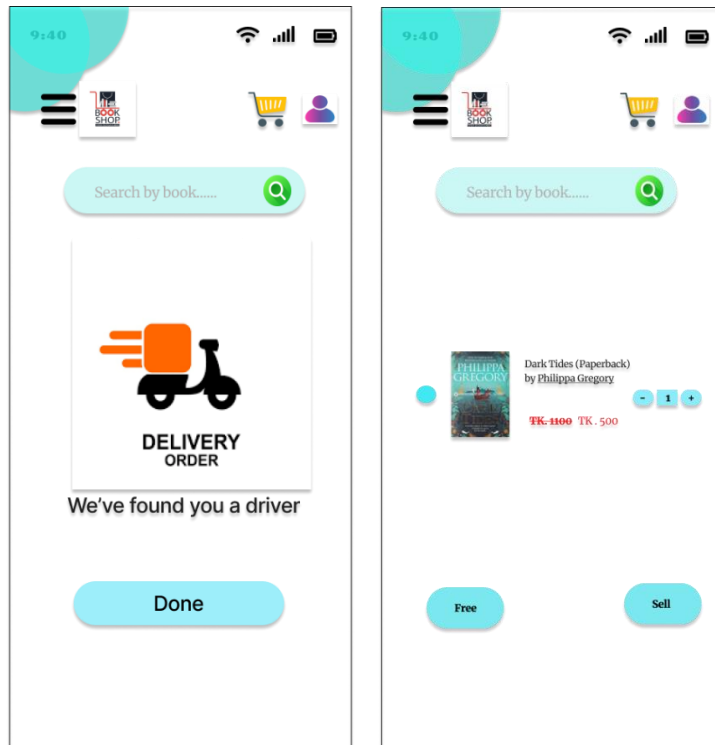
10.Class Diagram:
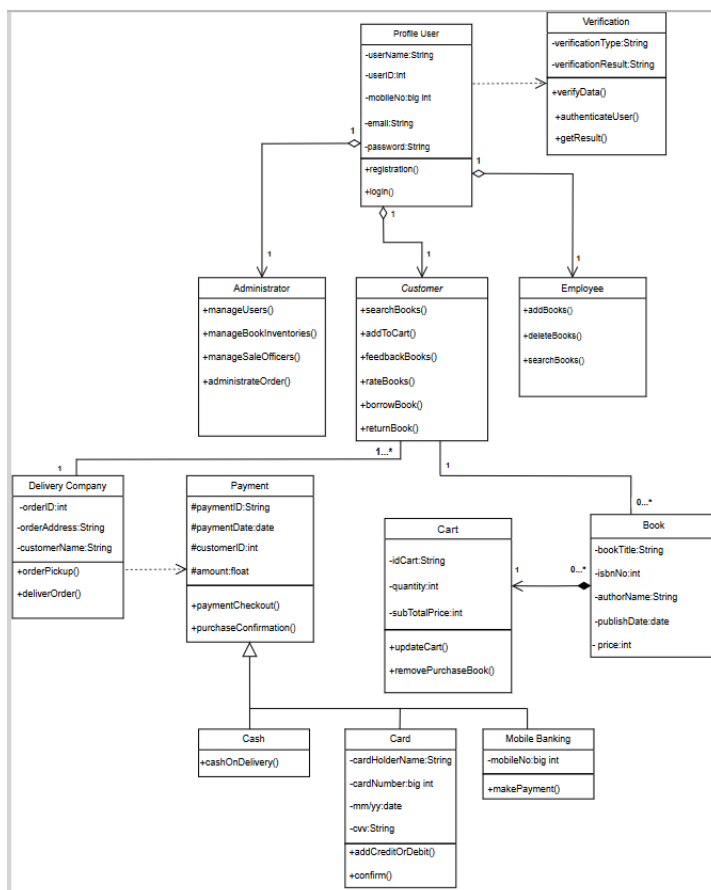
11.Activity Diagram:
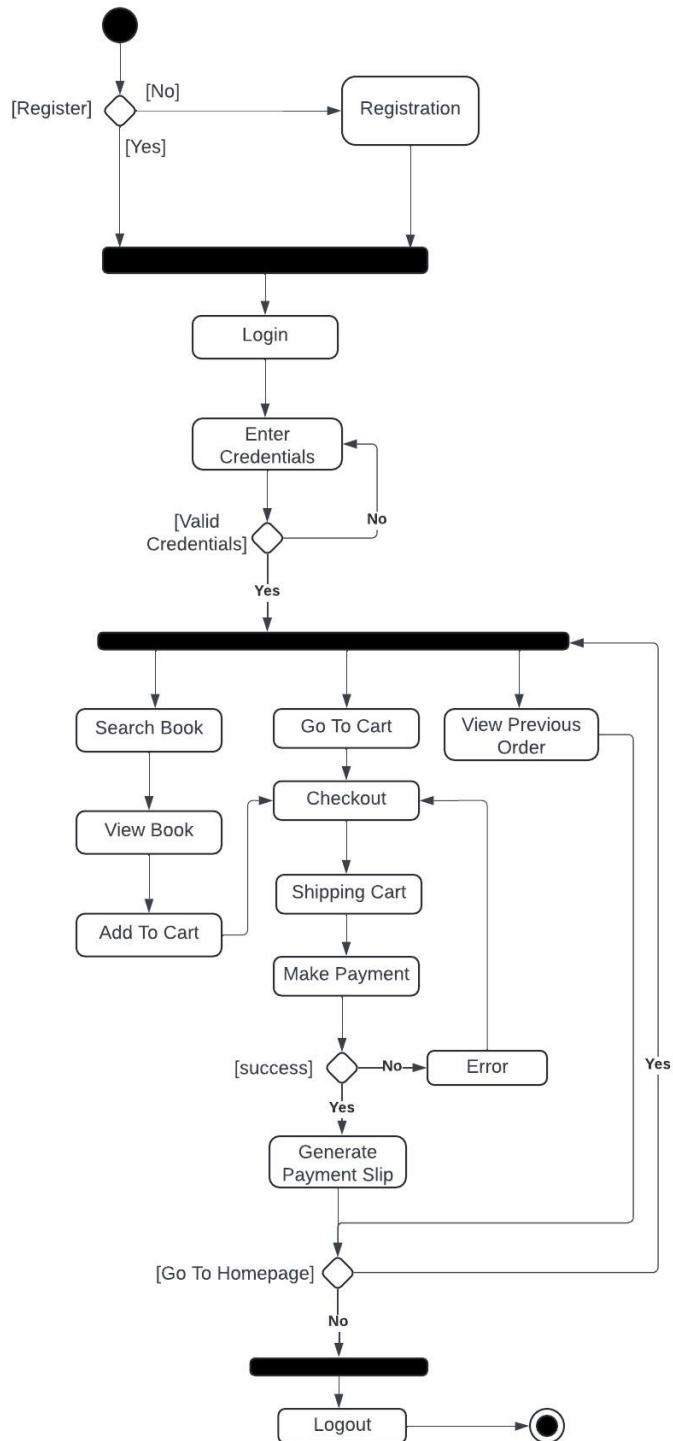
12.Deployment Diagram:
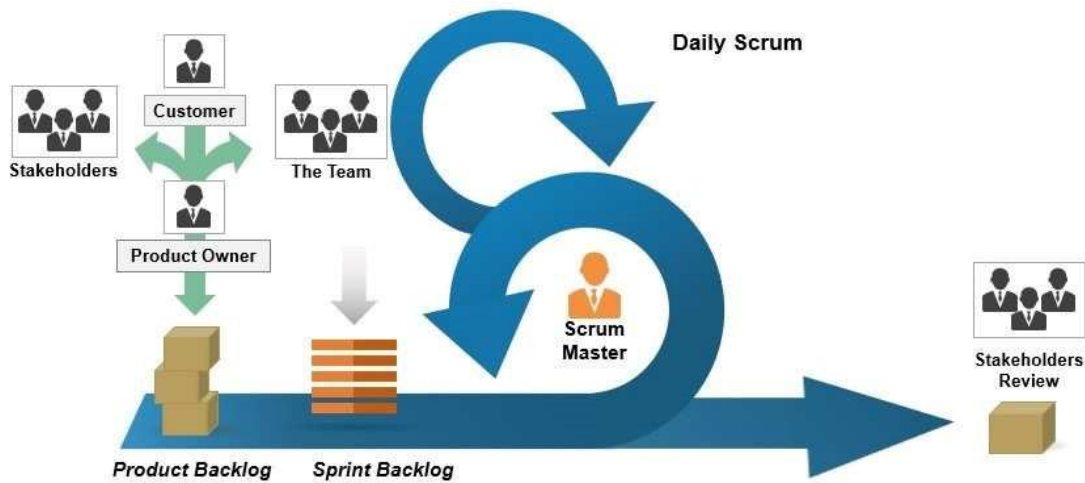
13.Test case:

Test Case ID	BS_01	Test Case Description	User Registration and Login Test Case		
Created By	Asad	Reviewed By	Tanvir	Version	3.0

QA Tester's Log	

Tester's Name	Asad	Date Tested	4-Apr-2024	Test Case (Pass/Fail/ Not Executed)	Pass

S #	Prerequisites:		S #	Test Data
1	User is not registered.		1	User Id : Tanvir
2	Internet accessible.		2	Pass : wdsea_23@#
3	Smart Phone		3	NID No: 3463478
4	Mobile Application		4	Password:$2345

Test Scenario	To verify that a user can successfully register on the online book store platform.

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to the registration page.	Site should open	As Expected	Pass
	Fill in the required information such as username, email, password, etc.	Show form	As Expected	pass
	Submit the registration form.	Successfully submitted	As Expected	pass

Test Case ID	BS_02	Test Case Description	Book Search	
Created By	Asad	Reviewed By	Tanvir	Version

QA Tester's Log	

Tester's Name	Asad	Date Tested	12-Apr-2024	Test Case (Pass/Fail/Not Executed)

S #	Prerequisites:		S #	Test Data
1	Internet access		1	Mobile : 01721459911
2	User logged in		2	Pass : 1233@#
3	User must have balance		3	NID :6788584
4			4	

Test Scenario	User is logged into the online book store website.

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not exec
1	Enter a search query into the search bar.	Related name should open	As Expected	Pass

	Click on the search button.	Start searching	As Expected	pass	
	Verify the search results page.	Show books	As Expected	pass	

Test Case ID	BU_03	Test Case Description	Add to Cart		
Created By	Faysal	Reviewed By	Asad	Version	

QA Tester's Log	

Tester's Name	Faysal	Date Tested	4-Apr-2024	Test Case (Pass/Fail/Not Executed)

S #	Prerequisites:		S #	Test Data
1	User logged in		1	User Id : Faysal

2	User profile exists.		2	Pass : Faysal_dwr@#
3			3	
4			4	

Test Scenario	User is logged into the online book store website and on the book details

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not (
1	Select the desired quantity of the book.	Site should select quantity	As Expected	Pass
	Click on the "Add to Cart" button.	Add books	As Expected	pass
	Navigate to the shopping cart page.	Customer is logged in	As Expected	pass

Test Case ID	BU_04	Test Case Description	Checkout Process	
Created By	Faysal	Reviewed By	Tanvir	Version

QA Tester's Log

Tester's Name	Faysal	Date Tested	14-Apr-2024	Test Case (Pass/Fail/Not Executed)

S #	Prerequisites:		S #	Test Data
1	User profile exists		1	User Id : Asad-uz-zaman
2	Books added		2	Pass : Asad_ew33@#
3	User logged in		3	
4			4	

Test Scenario	User has items in their shopping cart.

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspend
1	Navigate to the shopping cart page.	Site should open	As Expected	Pass
	Click on the "Proceed to Checkout" button.	Show checkout option	As Expected	pass
	Fill in the shipping and	Show shipping and payment option	As Expected	pass

	payment details.			

Test Case ID	BU_05	Test Case Description	Checkout Process		
Created By	Asad	Reviewed By	Tanvir	Version	

QA Tester's Log	

Tester's Name	Asad	Date Tested	15-Apr-2024	Test Case (Pass/Fail/Not Executed)	Pass

S #	Prerequisites:		S #	Test Data
1	User must Logged in		1	User Id : Asad-uz-zaman
2	User must have balance		2	Pass : Asad_ew33@#
3			3	
4			4	

Test Scenario	Verify valid and invalid mobile recharge action

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Go to Mobile Recharge option page.	Get a form to Mobile Recharge	As Expected	Pass
	Enter operator, MobileNo, Amount, PIN button.	Credential can be entered	As Expected	pass

	Slide to Confirm	Mobile Recharge Successfully	As Expected	pass

Test Case ID	BU_06	Test Case Description	Checkout Process		
Created By	Tanvir	Reviewed By	Asad	Version	3.0

QA Tester's Log	

Tester's Name	Tanvir	Date Tested	20-Apr-2024	Test Case (Pass/Fail/Not Executed)	Pass

S #	Prerequisites:		S #	Test Data
1	User must Logged in		1	User Id : Asad-uz-zaman
2	User must have balance		2	Pass : Asad_ew33@#
3			3	
4			4	

Test Scenario	Verify valid and invalid cash out action

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Go to add money option	Get a form to Mobile Recharge	As Expected	Pass
	Enter bank /operator	Credential can be entered	As Expected	pass
	Click Submit	Add money successfully	As Expected	pass

Test Case ID	BU_07	Test Case Description	Checkout Process		
Created By	Asad	Reviewed By	Faysal	Version	3.0

QA Tester's Log

Tester's Name	Asad	Date Tested	23-Apr-2024	Test Case (Pass/Fail/Not Executed)	Pass

S #	Prerequisites:		S #	Test Data
1	Must have a account on a number		1	User Id : Faysal kabir

2	The app must be installed on the mobile		2	Pass : w33@#34
3			3	
4			4	

Test Scenario	Verify new user registration, user registration will be successful

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Varify a valid try	Successful Reset	As Expected	Pass
	Varify validation of NID	Invalid NID No	As Expected	pass
	Varify validation of OTP	Invalid OTP	As Expected	pass

Test Case ID	BU_08	Test Case Description	Add to Cart		
Created By	Faysal	Reviewed By	Asad	Version	3.0

QA Tester's Log	

Tester's Name	Faysal	Date Tested	28-Apr-2024	Test Case (Pass/Fail/Not Executed)	Pass

S #	Prerequisites:		S #	Test Data
1	Smart Phone		1	User Id : Faysal
2	Internet Access		2	Pass : Faysal_dwr@#
3	Mobile Application		3	Nid : 4647848
4			4	

Test Scenario	Verify new user registration, user registration will be successful

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended

1	Open Mobile Application	Application should Open	As Expected	Pass
	Click Register Option	Registration Form Should Open	As Expected	pass
	Enter User Credential	Credential Can be Entered	As Expected	pass
	Click Submit Option	Registration Form Submitted	As Expected	pass

Test Case ID	BU_09	Test Case Description	Add to Cart		
Created By	Tanvir	Reviewed By	Faysal	Version	3.0

QA Tester's Log	

Tester's Name	Tanvir	Date Tested	30-Apr-2024	Test Case (Pass/Fail/Not Executed)	Pass

S #	Prerequisites:		S #	Test Data
1	Smart Phone		1	User Id : Faysal
2	Internet Access		2	Pass : Faysal_dwr@#
3	Mobile Application		3	Nid : 4647848

4		4	

Test Scenario	Verify Mobile Number and PIN for User Login, User Login will be successful

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to Mobile Application	Mobile Application should be opened	As Expected	Pass
	Enter mobile No and password	Credential can be entered	As Expected	pass
	Click Login	Customer is logged on	As Expected	pass

Test Case ID	BU_10	**Test Case Description**	Add to Cart		
Created By	Tanvir	**Reviewed By**	Asad	**Version**	3.0

QA Tester's Log	

Tester's Name	Tanvir	**Date Tested**	30-Apr-2024	**Test Case (Pass/Fail/Not Executed)**	Pass

S #	Prerequisites:		S #	Test Data
1	Account must be loged in		1	User Id : Asad
2	Internet Access		2	Pass : 456wr@#
3			3	Nid : 4647848
4			4	

Test Scenario	Verify new user registration, user registration will be successful

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Validation for update profile with valid data	Successful update	As Expected	Pass
	Verify the picture size	Excessive picture size	As Expected	pass

Test Case ID	BU_11	Test Case Description	Add to Cart		
Created By	Asad	Reviewed By	Faysal	Version	3.0

QA Tester's Log

Tester's Name	Asad	Date Tested	30-Apr-2024	Test Case (Pass/Fail/Not Executed)	Pass

S #	Prerequisites:		S #	Test Data
1	Account must be loged in		1	User Id : Faysal
2	Slide to Confirm		2	Pass : 456wr@#
3			3	Nid : 4647848
4			4	

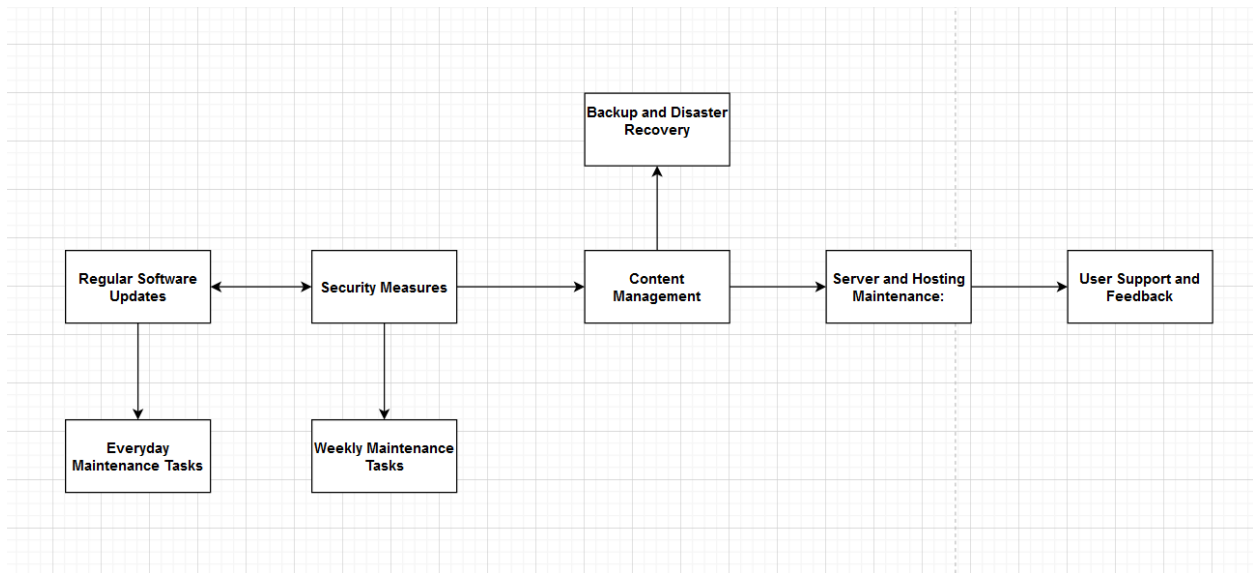| **Test Scenario**	Verify new user registration, user registration will be successful

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	User will logout	Successful update	As Expected	Pass

	Successful logout	Successful logout	As Expected	pass

14.Maintenance plan:

A maintenance plan is essential for several reasons. Regular maintenance helps prevent issues before they arise. A well-maintained system operates more efficiently. Regular updates, backups, and performance optimizations ensure that your online bookstore runs smoothly, providing a seamless experience for users and minimizing downtime. Cyber threats are constantly evolving, and maintaining the security of your online bookstore is paramount. A maintenance plan includes security measures such as software updates, security patches, and regular security audits to protect against vulnerabilities and unauthorized access. A well-maintained online bookstore provides a positive user experience. roactive maintenance is often more cost-effective than reactive fixes.

process