CSE306: Software Engineering and Information System Design Lab

PREPARE SOFTWARE REQUIREMENT SPECIFICATION (SRS) DOCUMENT

by

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Chattogram-4000, Bangladesh

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A report submitted in partial fulfillment of the requirements for the assignment of CSE306: Software Engineering and Information System Design Lab

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Abstract

The Econscious website stands as a beacon of sustainable living, offering a holistic solution to the pressing challenges posed by plastic and waste in our modern world. Rooted in the principles of responsible consumption and production, Econscious strives to redefine the way we interact with our environment. The platform seamlessly connects a local audience with recycling professionals, streamlining waste management, and promoting circular economies. Through its flexible and user-friendly interface, Econscious empowers individuals to adopt eco-friendly practices, fostering a sense of community dedicated to a greener future. With a focus on Sustainable Development Goals 11, 12, 13, and 14, the website serves as a catalyst for environmental awareness, efficient resource usage, and a collective effort toward building a sustainable, interconnected world.

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Chapter 1

Introduction

1.1 Problem Statement

Plastic's excessive use and inappropriate disposal have led to a number of related problems that have a widespread negative impact on the environment and public health. A major worry is the substantial effect plastics have on human health because they leak toxic compounds into the environment, which could be dangerous for those who are in contact with them. In addition to their negative effects on human health, plastics' manufacture and disposal greatly increases global warming by causing temperature increases and environmental instability.

Moreover, the consequences also affect water resources since inappropriate plastic disposal raises the risk of water level depletion. Communities that depend on these water sources are directly threatened by this, in addition to the disruption of aquatic ecosystems. The widespread presence of plastic garbage exacerbates pollution in the environment, having a negative impact on animals, ecosystems, and biodiversity in general. Plastics emit chemicals throughout their degradation process, which contaminates water sources and endangers both marine and terrestrial life.

Plastic waste in the soil interferes with natural fertilization processes, which means that plastic has an impact on many important areas of agriculture. This disturbance affects the core of our food systems, with far-reaching effects on soil health and agricultural output. Ultimately, the combination of these problems leads to a global scarcity of potable water, putting human populations at risk. To solve this complex issue and clear the path for a more sustainable and health-conscious future, immediate action is required.

1.2 Background

The problem of properly disposing of waste frequently becomes a time management issue for consumers in the rush of modern living. Finding suitable disposal options for discarded

products becomes difficult due to time constraints and the pressing nature of daily tasks. The issue is exacerbated by people's propensity to discard things in inappropriate locations, which wastes resources and raises environmental problems.

Presenting Econscious, a cutting-edge tool created to solve these issues and transform our approach to waste management. Econscious solves the time issue by offering a quick and easy way to recycle products by linking customers with a platform that makes this possible Recycling may be easily incorporated into regular activities by users, supporting a more sustainable lifestyle without sacrificing time management.

Additionally, Econscious stresses the significance of properly disposing of things, making sure that materials are sent through the proper recycling channels. This reduces the negative effects on the environment and simplifies the recycling process, increasing its efficacy and sustainability.

The Econscious app's emphasis on space-saving solutions is one of its main features. The program contributes to less waste accumulation by encouraging users to recycle and repurpose things, which ultimately results in better use of landfill space and a positive influence on the environment.

Furthermore, Econscious is dedicated to encouraging environmentally beneficial behaviors that reduce carbon dioxide emissions. The software actively supports a decrease in the carbon footprint connected to the manufacturing of new items by promoting material recycling and reuse.

Essentially, Econscious is more than just an app—it's a time-management tool that tackles the demands of contemporary living, promotes ethical disposal methods, maximizes available space, and actively works to minimize CO2 emissions and improve the environment.

1.3   Benefits of Application

Advantages of the Econscious App:

- **Target Local Audience**: Because it is made with the needs of the local community in mind, the app makes recycling and sustainable living relevant to the surrounding area and easily accessible.

- **Adaptability**: Econscious provides a versatile way for people to integrate recycling into their everyday life. The app adjusts to different needs, regardless of the size of the community or family, making sustainable practices more feasible.

- **Connectivity Between Consumer and Professionals**: The software acts as a smooth intermediary between those who want to recycle and experts in the field. The process is

streamlined by this direct connectivity, which also improves teamwork and communication for efficient waste management.

- **No Need to Go Outside to Find People**: With Econscious, there's no need for users to venture outside their homes or communities to connect with others interested in recycling. The app fosters a virtual community, bringing together like-minded individuals and professionals without the need for physical interaction.

- **Proper Pricing of Scrap**: One of the significant advantages of the app is its ability to provide users with accurate and fair pricing for their recycled materials. By connecting consumers with recycling professionals, Econscious ensures that individuals receive proper compensation for their contributions to sustainability, motivating continued participation

1.4 Objectives

Objectives of the estimated projects as follows.

- **Promote Sustainable Living**: Encourage users to adopt and embrace sustainable practices in their daily lives, contributing to a greener and more eco-friendly lifestyle.

- **Facilitate Efficient Waste Management**: Streamline the waste management process by providing a platform for users to recycle and re-purpose products, reducing the overall environmental impact of waste.

- **Raise Environmental Awareness**: Educate users about the detrimental effects of plastic and waste on the environment, fostering a greater understanding of the importance of responsible consumption.

- **Connect Users with Recycling Professionals**: Establish a seamless connection between users and recycling professionals, creating a collaborative ecosystem for effective waste disposal and resource recovery.

- **Optimize Resource Usage**: Contribute to the optimization of resource usage by promoting the reuse and recycling of materials, ultimately reducing the demand for new raw materials and minimizing environmental strain.

- **Provide Fair Compensation for Recycling**: Ensure that users receive proper and transparent pricing for their recycled materials, incentivizing continued participation and contribution to sustainability.

- **Build a Sustainable Community**: Foster a sense of community among users, recycling professionals, and environmentally conscious individuals, creating a network dedicated to sustainable practices and positive environmental impact.

- **Support Circular Economies**: Contribute to the development of circular economies by encouraging the recycling and re-purposing of products, closing the loop on material usage, and minimizing waste generation.

- **Measure and Display Environmental Impact**: Implement a system to track and display the environmental impact of users' recycling efforts, providing tangible evidence of their contributions to a healthier planet.

- **Enhance User Experience**: Continuously improve and innovate the app's features and functionalities to ensure a seamless and user-friendly experience, encouraging sustained engagement and participation.

1.5 Purpose

The Econscious app's functionality and purpose are in line with the Sustainable Development Goals (SDGs).

Sustainable Cities and Communities (SDG 11):

Functionality: Localized focus, encouraging waste reduction and effective resource management for cleaner urban living, directly benefiting the nearby community.

SDG 12: **Ethical Production and Consumption**

Functionality: Promotes circular economies, lowers waste levels overall, and makes it easier for people to recycle things, all of which contribute to ethical consumption and production practices.

Climate Action (SDG 13):

Functionality: By putting a strong emphasis on recycling and lowering the carbon footprint connected with the production of new products, it actively tackles concerns about climate change.

SDG 14: **Submerged Life**

Functionality: Preserves marine habitats and submerged life by encouraging proper garbage disposal and minimizing plastic and waste in water bodies.

1.6 Feature of Application

The features of the application are as follows:

Customer	Admin	Professional
User Registration	Order Management	Collaboration Opportunities
Source Segregation Waste Pickup Service	User Management	Networking
Incentives for Recycling	Product Management	Access to Resources
Product Range	CSR Project Management	Showcasing Professional Work
Product Filtering and Sorting	Communication	Exclusive Events or Webinars
Project Showcase	Customization Management	Industry Recognition
Contact Form	Analytics and Reporting	Professional Directory

Table 1.1: Feature of the application

Chapter 2

UML Diagram
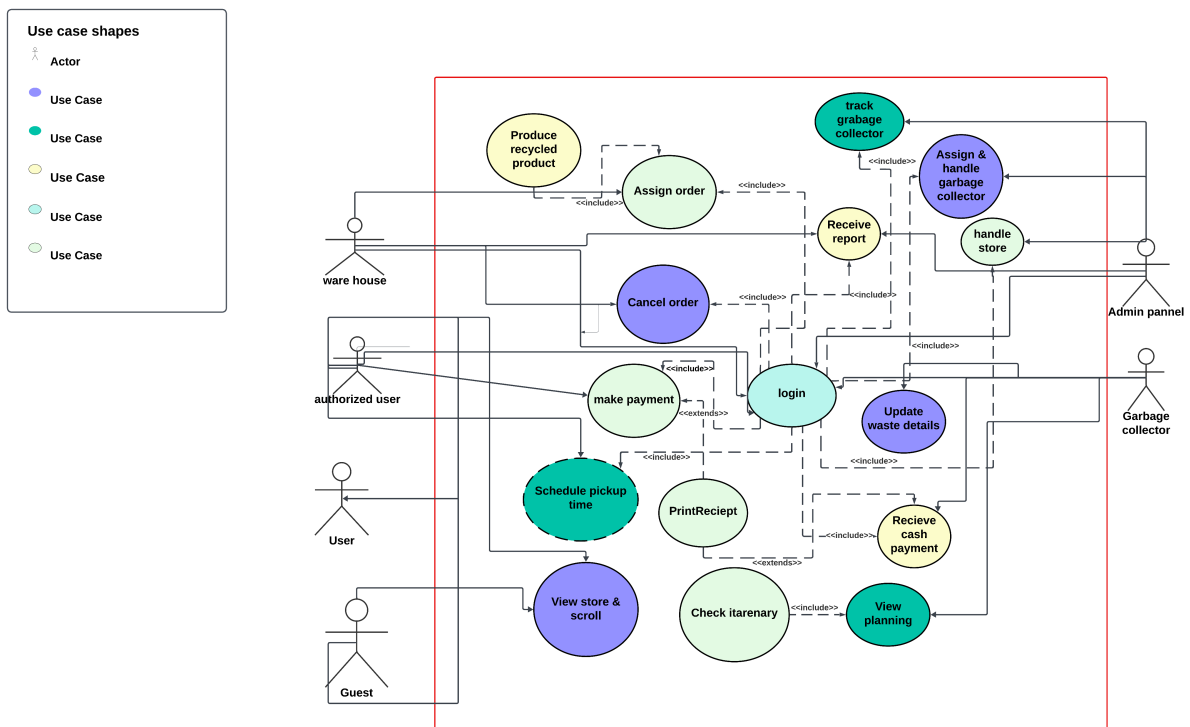
Figure 2.1: Use Case Diagram
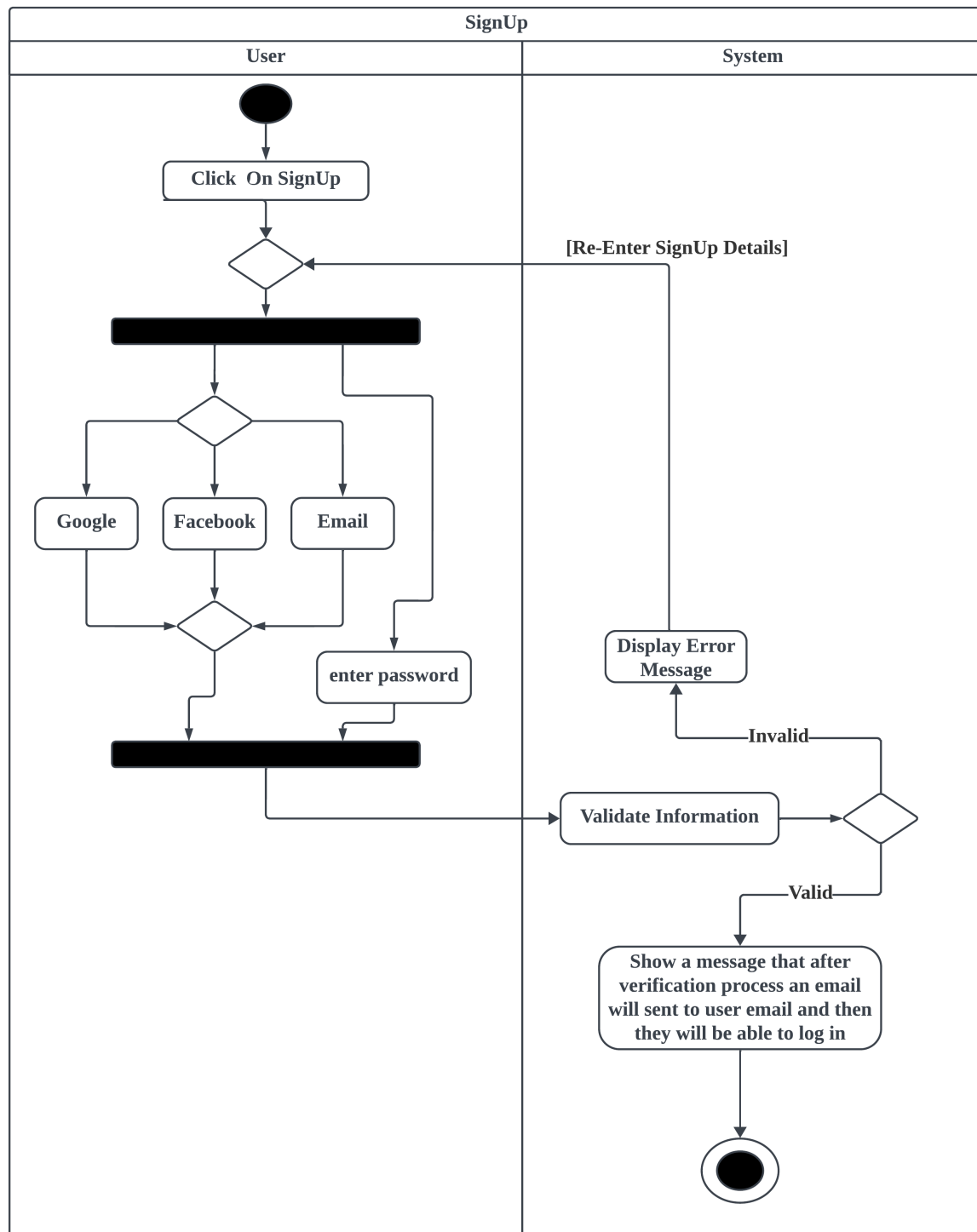
Figure 2.2: Sign Up Activity Diagram
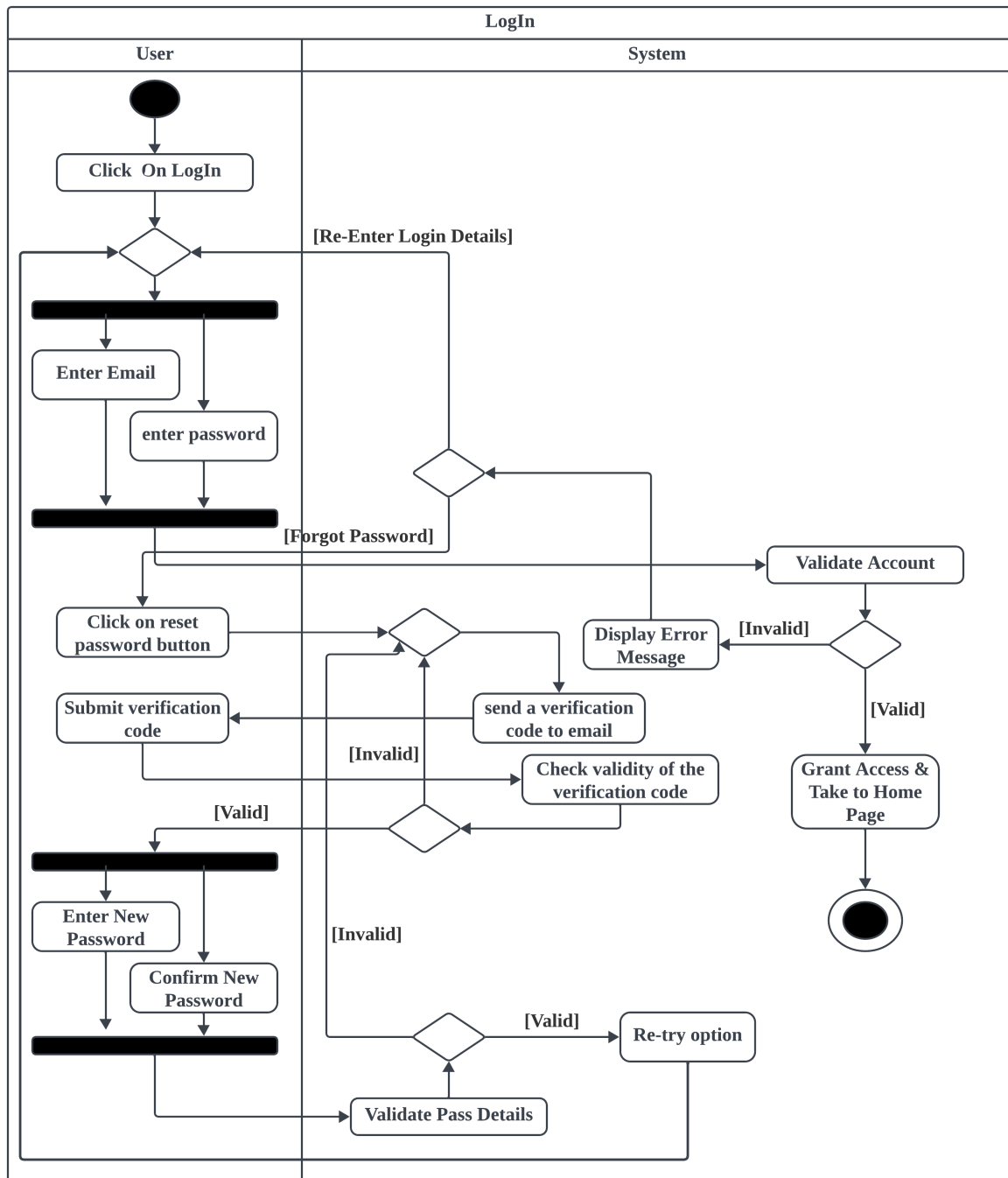
Figure 2.3: Log In Activity Diagram
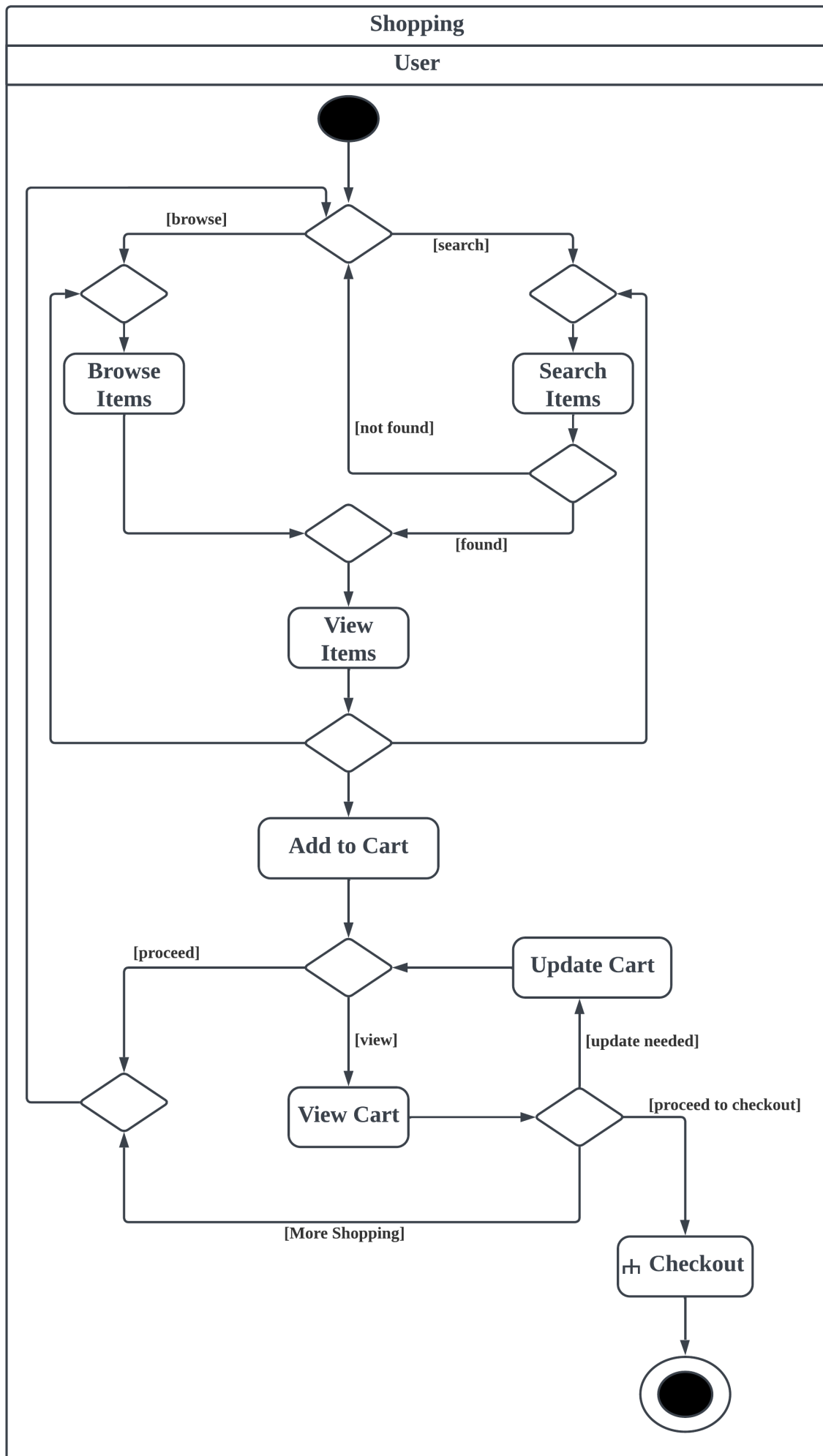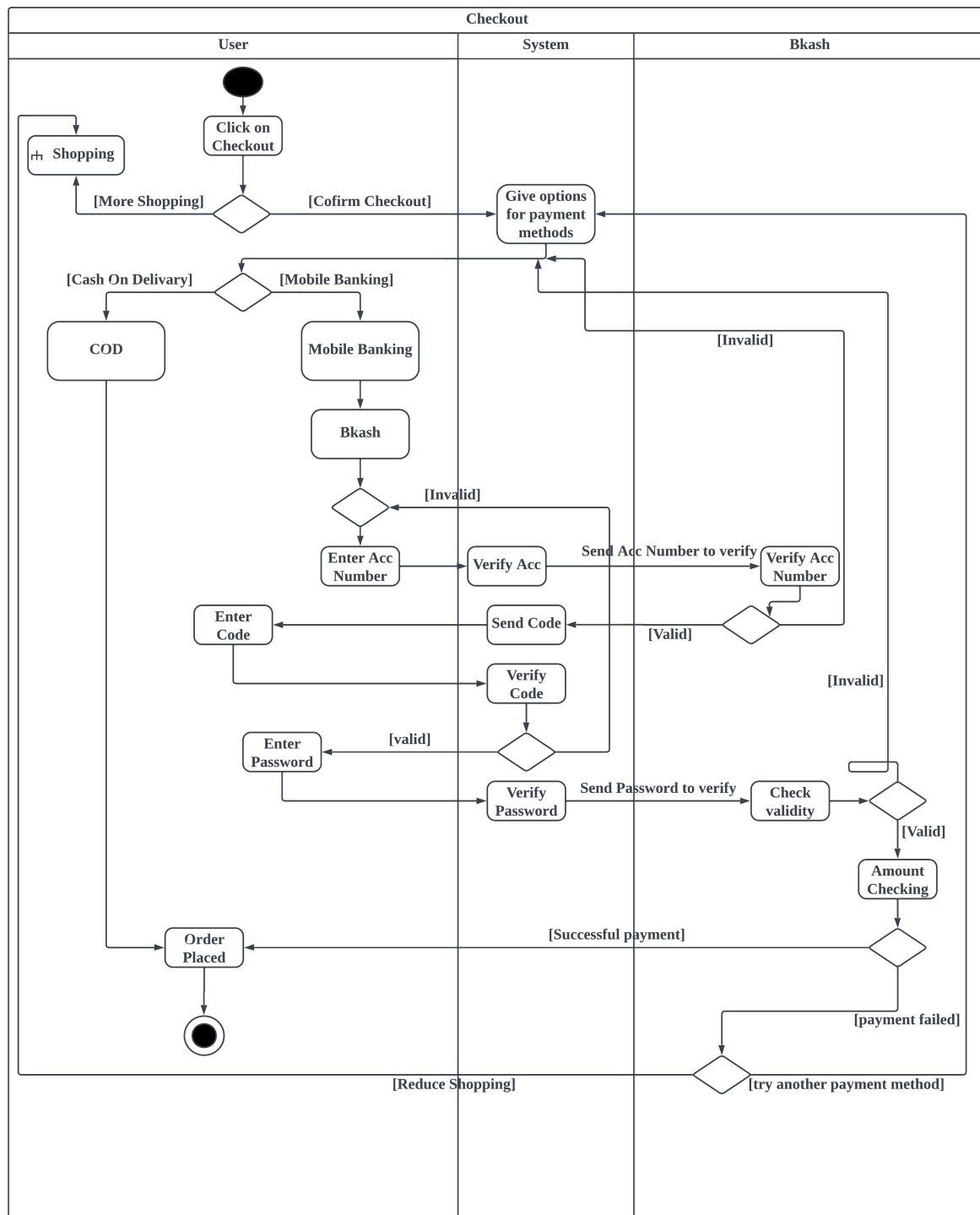
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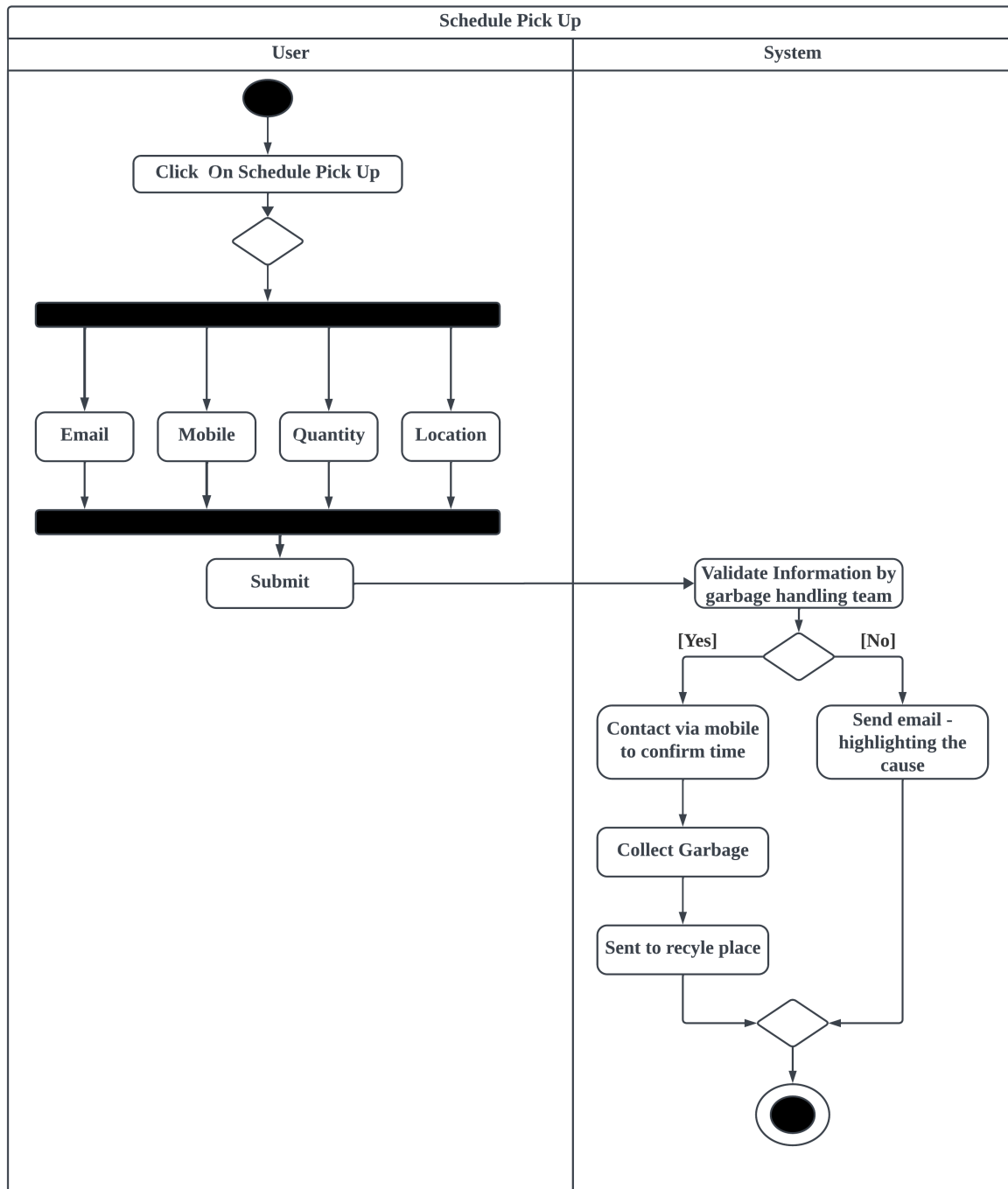
Figure 2.6: Schedule Pick Up Activity Diagram
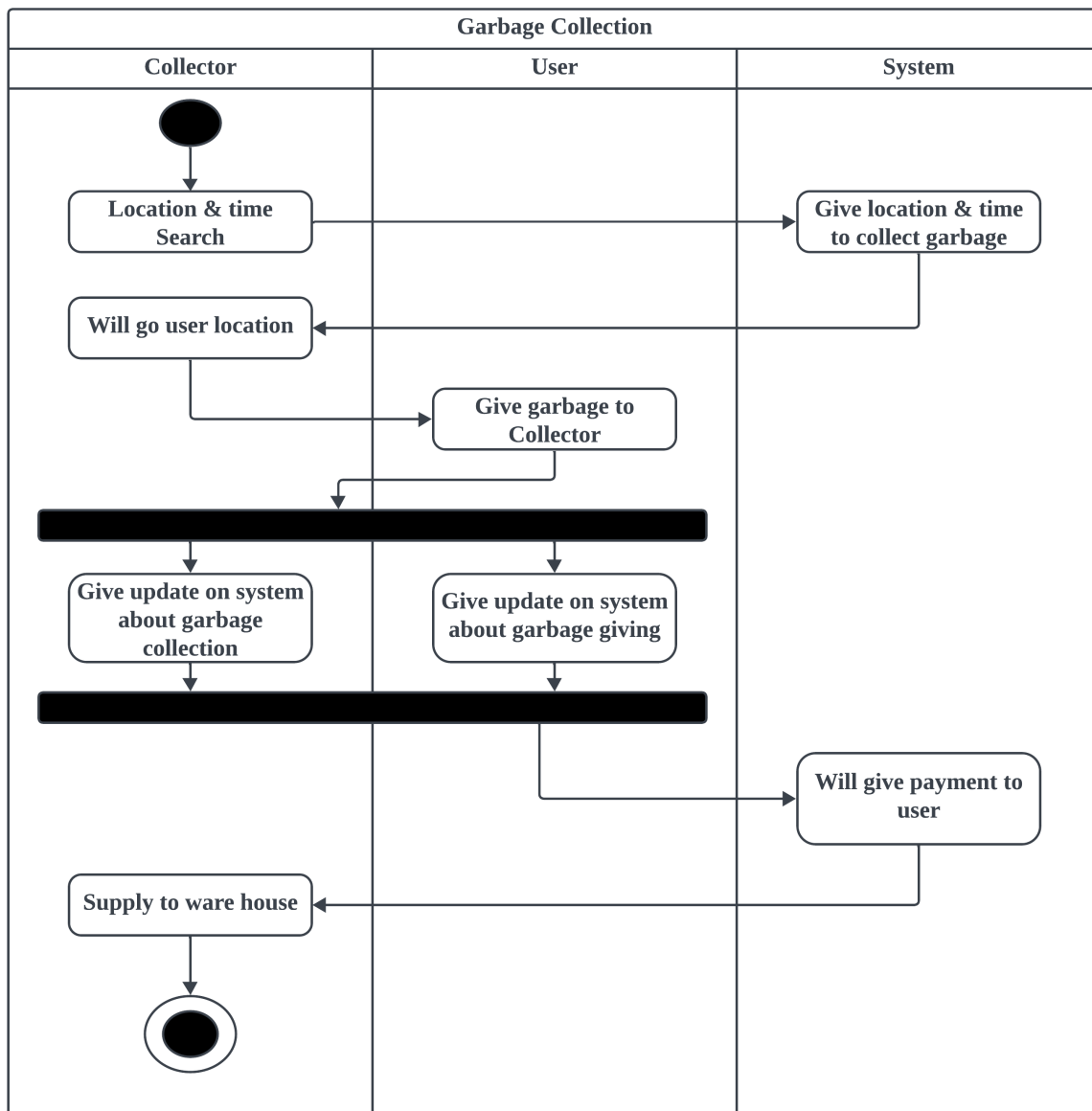
Figure 2.7: Garbage Collection Activity Diagram
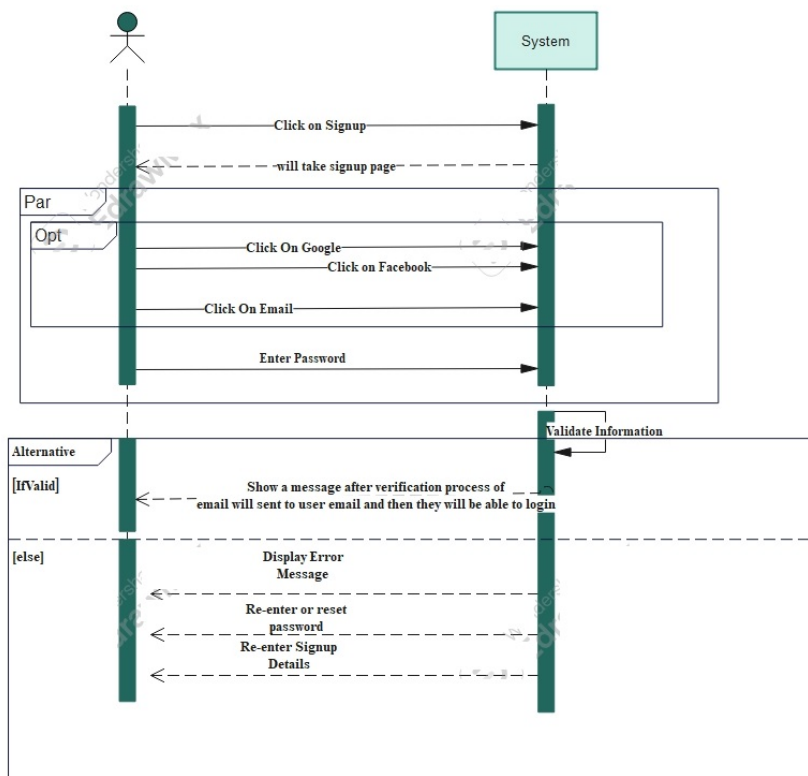
Figure 2.8: Sign Up Sequence Diagram
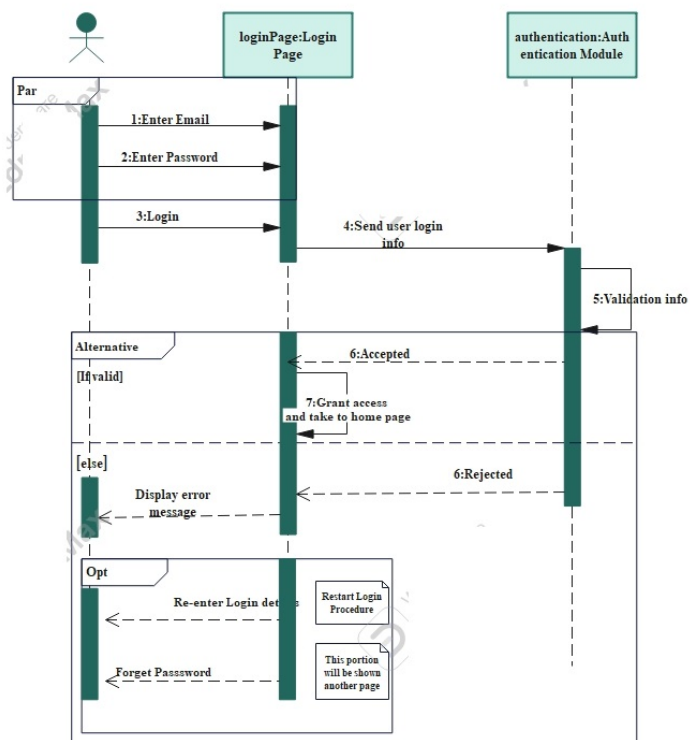
Figure 2.9: Log In Sequence Diagram
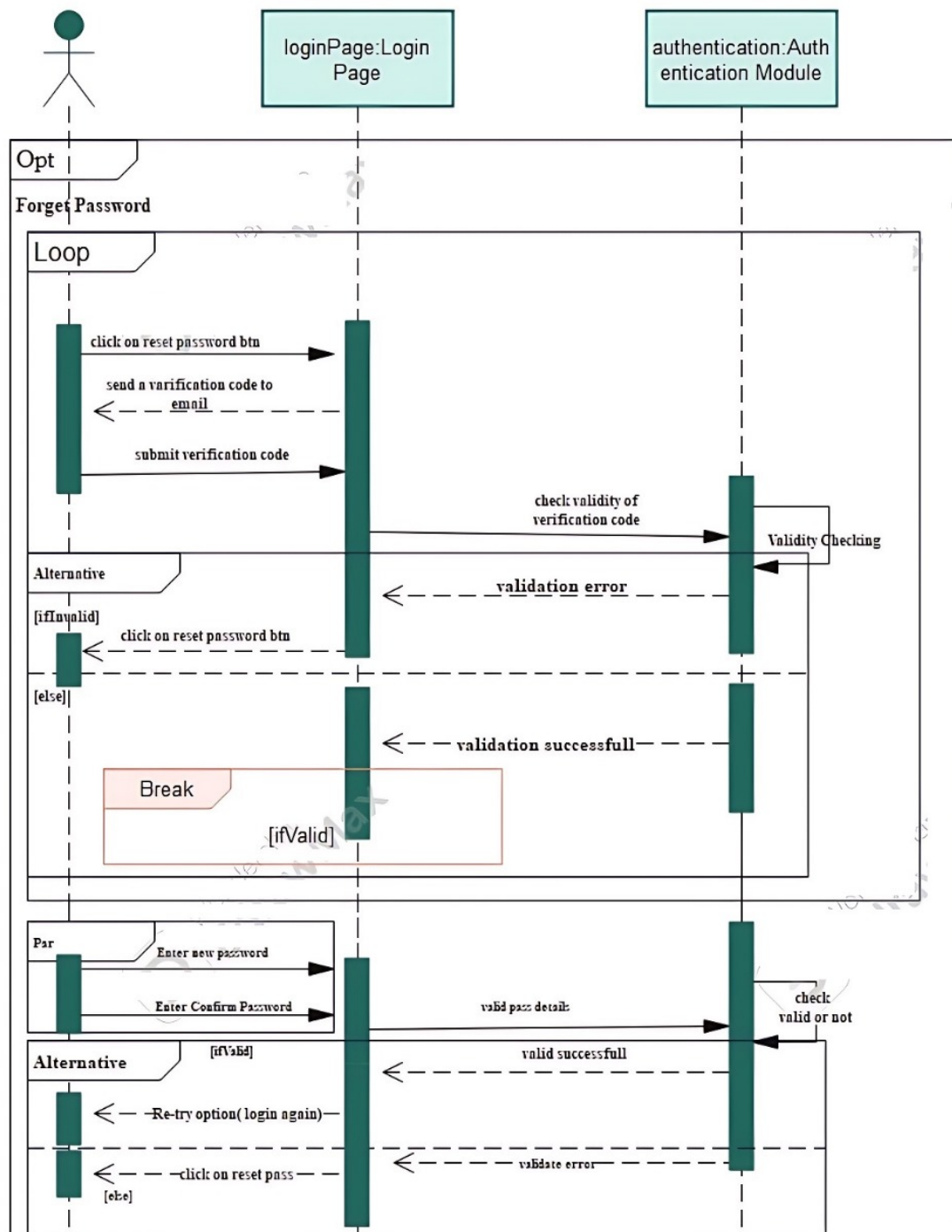
Figure 2.10: Log In Forget Password Sequence Diagram
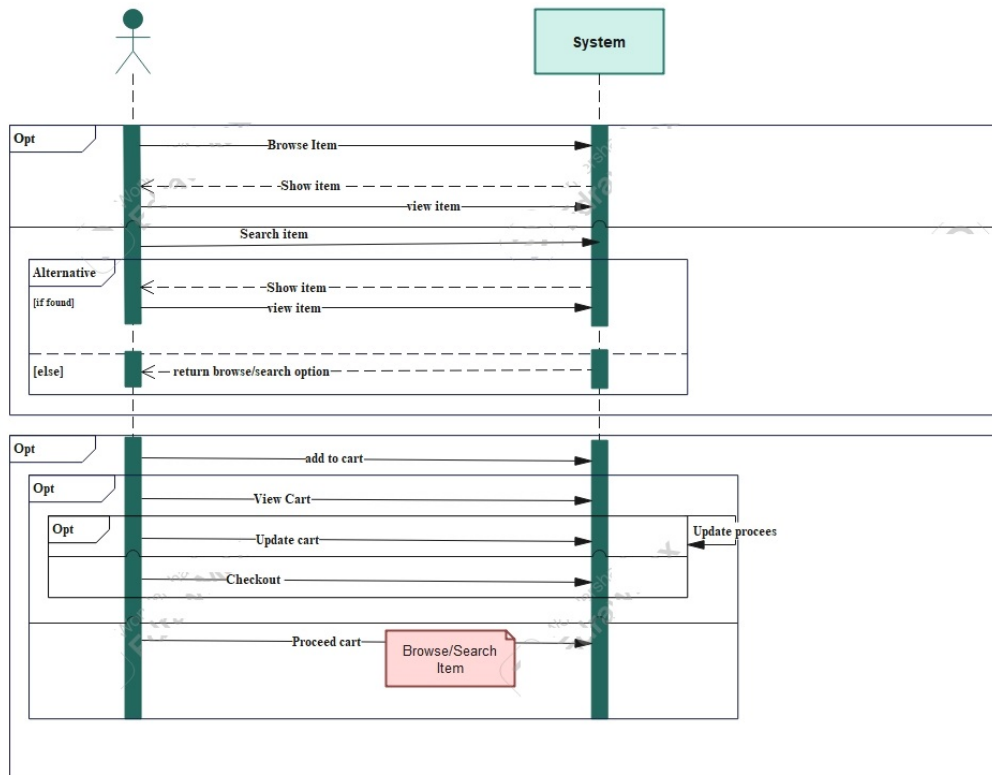
Figure 2.11: Shopping Sequence Diagram
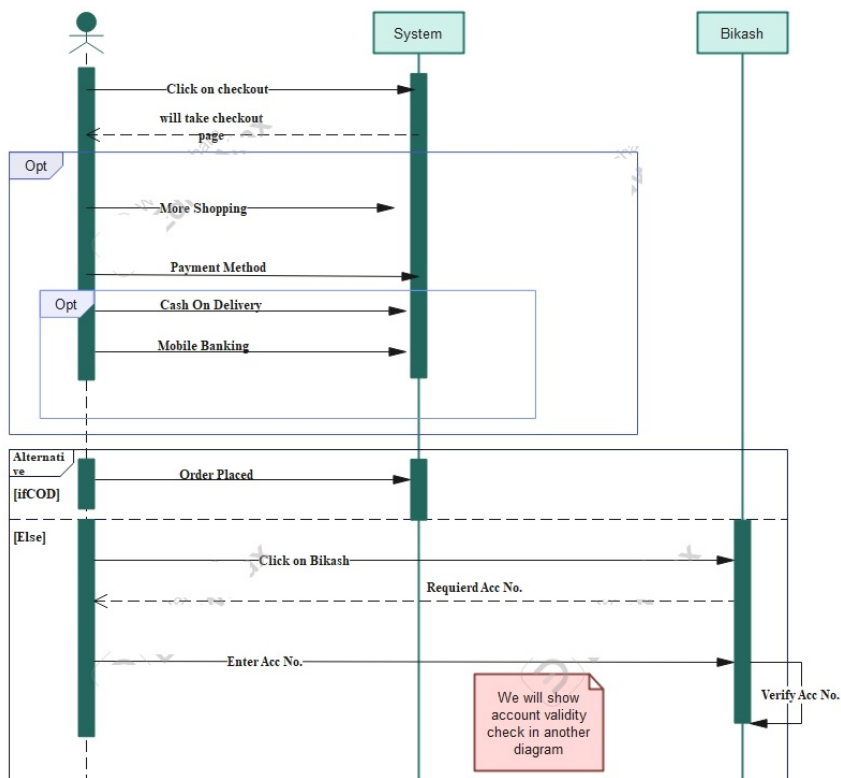
Figure 2.12: Checkout Sequence Diagram - Part : 01
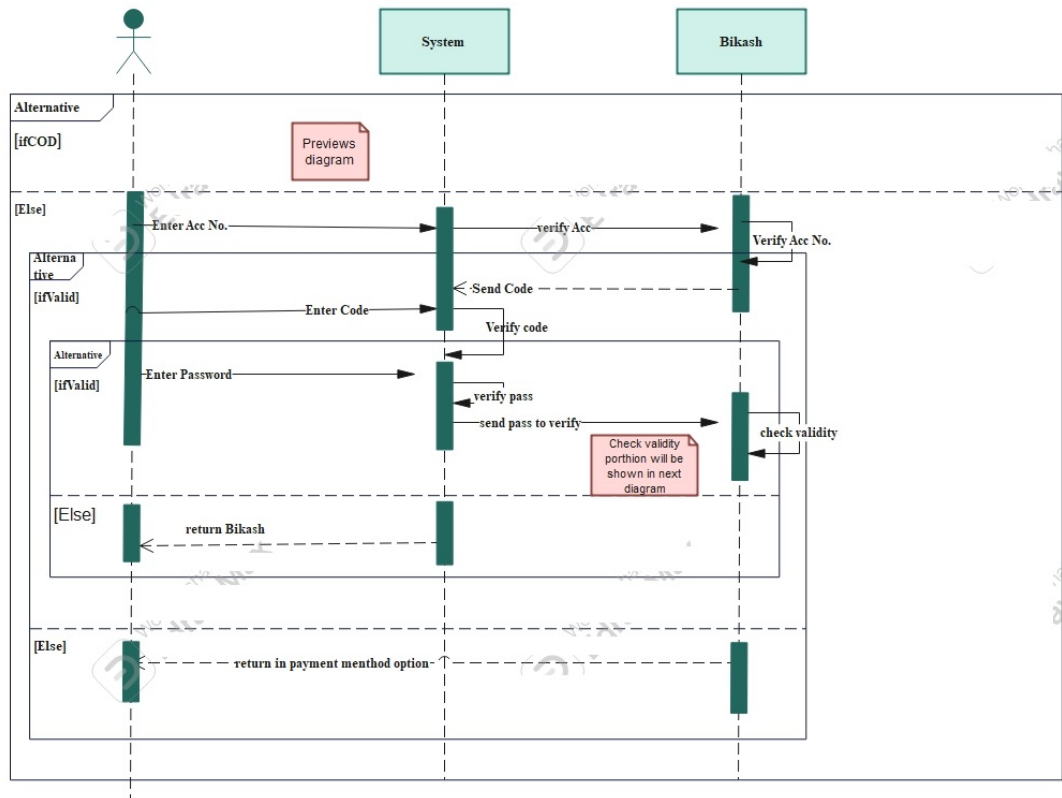
Figure 2.13: Checkout Sequence Diagram - Part : 02
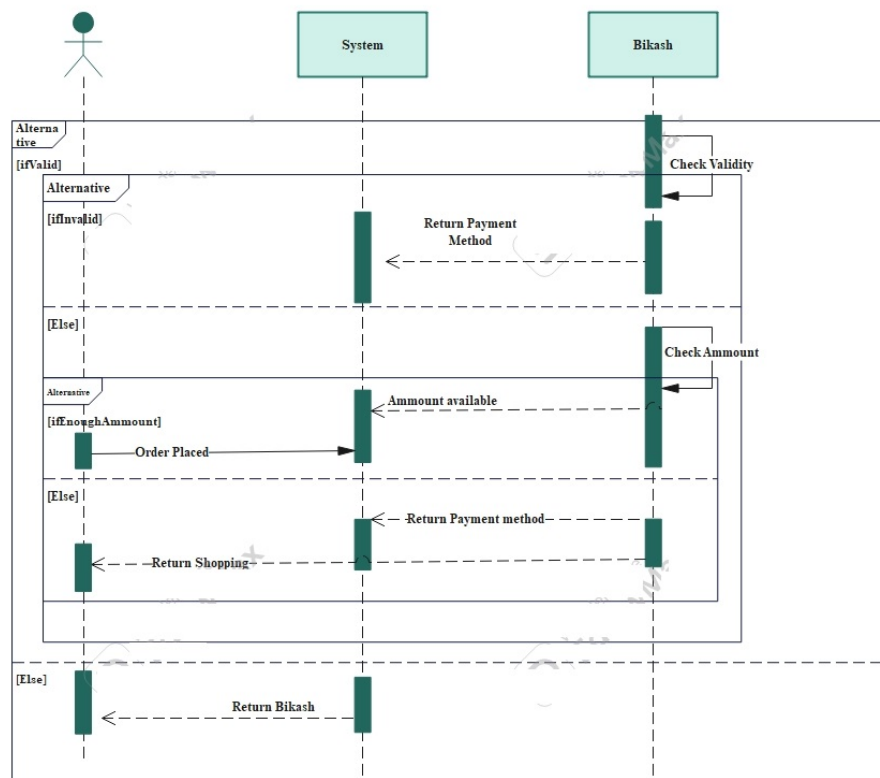
Figure 2.14: Checkout Sequence Diagram - Part : 03
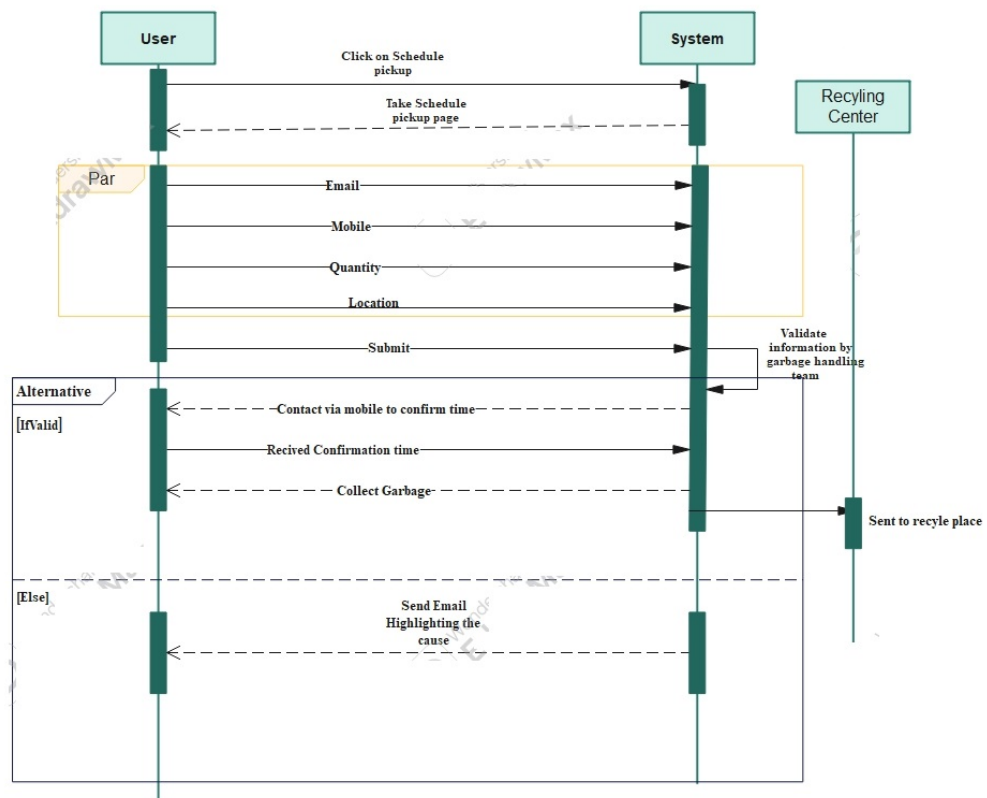
Figure 2.15: Schedule Pick Up Sequence Diagram

Chapter 3

Testing

3.1 Introduction

In our pursuit of delivering a flawless user experience and ensuring the seamless functionality of the Econscious platform, we have meticulously developed an extensive set of test cases to conduct comprehensive testing. These meticulously crafted test cases encompass a diverse array of scenarios, spanning the entire spectrum of the application's functionalities and features. From user registration and order management to waste pickup services, collaboration opportunities, and communication functionalities, each test case is meticulously designed to simulate real-world usage scenarios and interactions.

Furthermore, our testing approach goes beyond merely evaluating functional requirements; we also place a strong emphasis on assessing non-functional aspects such as usability, scalability, performance, and security. By subjecting the Econscious platform to rigorous testing across various environments and usage conditions, we aim to identify and rectify any potential bugs, glitches, or performance bottlenecks that may compromise the user experience or the overall reliability of the application.

Through this meticulous testing process, we strive to instill confidence in the reliability, stability, and effectiveness of the Econscious platform. By meticulously analyzing the results of our tests and iteratively refining the platform based on feedback and insights gleaned from testing, we are committed to delivering a robust, user-friendly, and impactful solution that empowers individuals and communities to embrace sustainable living practices and contribute to a greener, more sustainable future.

Project Name :	Econscious
Module Name :	Sign Up
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
TC_SIGN_UP_01	Successful registration	Enter valid Facebook or google or email acc and valid password	valid Facebook or google or email	1. Enter acc info	<valid Facebook or google or email>	The user is successfully registered, and a confirmation message is displayed.	
				2. Enter a valid password	<valid password>		
				3. Click "Sign Up" button			
TC_SIGN_UP_02	Existing Account Registration	Enter existing account information	valid Facebook or google or email	1. Enter acc info	<enter existing account>	The system prompts the user with a message indicating that the email is already registered.	
				2. Enter a valid password	<valid password>		
				3. Click "Sign Up" button			
TC_SIGN_UP_03	Password validation	Enter valid account but not the password, according to information	valid Facebook or google or email	1. Enter acc info	<valid acc info>	The system displays an error message indicating password requirements.	
				2. Enter a valid password	<pass. not match with specific criteria>		
				3. Click "Sign Up" button			
TC_SIGN_UP_04	Incomplete registration	leave the email field blank	valid password	1. Enter acc info		The system displays an error message for the missing email field.	
				2. Enter a valid password	<valid password>		
				3. Click "Sign Up" button			
TC_SIGN_UP_05	Incomplete registration	leave the password field blank	valid Facebook or google or email	1. Enter acc info	<valid acc. info>	The system displays an error message for the missing password field.	
				2. Enter a valid password			
				3. Click "Sign Up" button			

Figure 3.1: Test Case for Sign Up Module

Project Name :	Econscious
Module Name :	Log In
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
TC_LOG_IN_01	verify the log in	enter valid email and valid password.	need a valid email account	1. enter email	<valid email>	successful log in	home page is shown
				2. enter password	<valid password>		
				3. Click "Login" button			
TC_LOG_IN_02	verify the log in	enter valid email and invalid password	need a valid email account	1. enter email	<valid email>	a message "the email and password you entered don't match" is shown	
				2. enter password	<invalid password>		
				3. Click "Login" button			
TC_LOG_IN_03	verify the log in	enter invalid email and valid password	need a valid email account	1. enter email	<invalid email>	a message "the email and password you entered don't match" is shown	
				2. enter password	<valid password>		
				3. Click "Login" button			
TC_LOG_IN_04	verify the log in	enter invalid email and invalid password	need a valid email account	1. enter email	<invalid email>	a message "the email and password you entered don't match" is shown	
				2. enter password	<invalid password>		
				3. Click "Login" button			

Figure 3.2: Test Case for Log In Module

Project Name :	Econscious
Module Name :	View Items
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
TC_VIEW_ITEM_01	view items list	no input	no precondition	1. Navigate to the "Items" section 2. Verify the presence of a list of items	not required	User is successfully registered, and a confirmation message is displayed.	
TC_VIEW_ITEM_02	view items details	no input	no precondition	1. Select a specific item from the list 2. Click on the item to view details	no user input required, system will track the product id to find details	Detailed information about the selected item is displayed, including description, price, and availability.	
TC_VIEW_ITEM_03	Sorting item	no input	no precondition	1. View the items list 2. Use sorting options (e.g., by name, price)	no user input required	Items are sorted based on the selected criteria (e.g., alphabetical order, ascending/descending prices).	
TC_VIEW_ITEM_04	Filtering items	no input	no precondition	1. Apply filters (e.g., by category, availability) 2. View the filtered list		Only items matching the specified filters are displayed	
TC_VIEW_ITEM_05	Searching items			1. Use the search bar to search for a specific item	<item name>	The items list is filtered, showing only items containing the search term in their names or descriptions.	

Figure 3.3: Test Case for View Items Module

Project Name :	Econscious
Module Name :	Product Search
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
PS01	Verify successful search for a product by its name.	Search for a product by entering its name in the search bar.	Multiple products are available in the system.	1. Enter the name of an existing product in the search bar. 2. Click on the ""Search"" button.	1.Product Name: "Laptop".	The system should display a list of products with names containing "Laptop"	The search results show relevant products based on the entered name
PS02	Verify handling of an empty search query.	Perform a search with an empty search query.	Multiple products are available in the system.	1.Leave the search bar empty. 2.Click on the "Search" button.	1.Empty search query.	The system should display all available products since no specific search criteria are provided.	The search results show all available products
PS03	Verify successful search for a product by its category.	Search for products within a specific category.	Products are categorized into different categories.	1.Select a category from the dropdown menu. 2.Click on the "Search" button.	1. Selected Category: "Electronics"	The system should display a list of products within the selected category	The search results show products only from the selected category.
PS04	Verify handling of a non-existent product search.	Search for a product that does not exist in the system.	No product with the specified name exists.	1.Enter a non-existent product name in the search bar. 2.Click on the "Search" button.	1.Product Name: NonExistentProduc	The system should display a message indicating that no results were found.	No search results are displayed, and the user is notified of the lack of matches
PS05	Verify handling of special characters in the search query.	Search for a product using special characters in the search query	Multiple products are available in the system.	1.Enter a search query with special characters (e.g., "@#$%^"). 2.Click on the "Search" button.	1. Search Query: "@#$%^".	The system should handle special characters gracefully and display relevant results or an appropriate message.	The search results should be based on the handling of special characters.

Figure 3.4: Test Case for Product Search Module

Project Name :	Econscious
Module Name :	Category
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
TC_CATEGORY_01	User successfully navigates to a specific category.	Click on a valid category link	User is on the Shop Module homepage	1.Click on a specific category link (e.g., "Electronics").	1.Existing categories on the Shop Module homepage.	The user is redirected to the page displaying products from the selected category	User is on the category page with relevant products displayed
TC_CATEGORY_02	User attempts to navigate to an invalid category.	Click on a non-existent or invalid category link.	User is on the Shop Module homepage.	1.Click on a non-existent or invalid category link.	1.Non-existent or invalid category.	An error message is displayed, indicating that the selected category is not valid	User remains on the Shop Module homepage
TC_CATEGORY_03	User successfully filters products within a category.	Select a valid filter option within the category.	User is on a category page with multiple products.	1.Select a filter option (e.g., price range, brand) within the category.	1.Products within the selected category. 2.Filter option: Price range (e.g., $20 - $50).	The products within the selected category are filtered based on the chosen criteria	Displayed products match the selected filter criteria
TC_CATEGORY_04	User attempts to filter products with an invalid filter option.	Select an invalid filter option within the category	User is on a category page with multiple products	1.Select an invalid or non-existent filter option.	1.Products within the selected category. 2.Invalid filter option.	An error message is displayed, indicating that the selected filter option is not valid	Products remain unchanged without applying the invalid filter
TC_CATEGORY_05	User attempts to view products from a category with no items.	Click on a category with no products	User is on the Shop Module homepage	1.Click on a category that currently has no products.	1.Category with no products.	An informative message is displayed, indicating that the selected category currently has no items.	User remains on the Shop Module homepage.

Figure 3.5: Test Case for Product Category Module

Project Name :	Econscious
Module Name :	Product Filter
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
TC_FILTER_SORT_01	User successfully applies a filter to view products in a specific category.	Apply a valid category filter.	User is on the Shop Module.	1. Select a category filter (e.g., ""Electronics"").	1.Category selected: Electronics.	Only products in the Electronics category are displayed.	Product list shows only Electronics category items.
TC_FILTER_SORT_02	User attempts to apply an invalid filter option.	Apply an invalid filter option	User is on the Shop Module.	1.Select an invalid filter option (e.g., a category that does not exist).	1.Invalid filter selected.	An error message is displayed, indicating that the selected filter option is invalid.	Product list remains unchanged
TC_FILTER_SORT_03	User successfully applies sorting to view products in ascending order of price.	Apply a valid sorting option	User is on the Shop Module	1.Select the "Sort by Price: Low to High" option.	1.Sorting option selected: Low to High.	Products are displayed in ascending order of price	Product list shows items sorted by price in ascending order
TC_FILTER_SORT_04	User attempts to apply an invalid sorting option.	Apply an invalid sorting option.	User is on the Shop Module	1.Select an invalid sorting option (e.g., a sorting option that does not exist).	1.Invalid sorting option selected.	An error message is displayed, indicating that the selected sorting option is invalid.	Product list remains unchanged
TC_FILTER_SORT_05	User successfully applies a filter and sorting option simultaneously.	Apply a valid category filter and sorting option	User is on the Shop Module.	1.Select a category filter (e.g., "Clothing"). 2.Select the "Sort by Price: High to Low" option	1.Category selected: Clothing. 2.Sorting option selected: High to Low.	Only products in the Clothing category are displayed, sorted by price in descending order	Product list shows only Clothing category items, sorted by price in descending order

Figure 3.6: Test Case for Product Filter Module

Project Name :	Econscious
Module Name :	Product Tracking
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
PT_TC_01	Verify successful tracking of a product with a valid tracking ID.	Enter a valid tracking ID and track the product	Product is available for tracking.	1. Navigate to the product tracking page. 2.Enter a valid tracking ID. 3.Click on the "Track" button.	1.Tracking ID: ABC123	System displays the current status and location of the tracked product.	Product is successfully tracked
PT_TC_02	Verify error message for tracking with an invalid tracking ID.	Enter an invalid tracking ID and attempt to track a product.	Product is available for tracking	1.Navigate to the product tracking page. 2.Enter an invalid tracking ID. 3.Click on the "Track" button.	1.Tracking ID: XYZ789	System displays an error message indicating an invalid tracking ID	Product remains untracked
PT_TC_03	Verify error message for tracking with an empty tracking ID.	Attempt to track a product without entering a tracking ID.	Product is available for tracking.	1.Navigate to the product tracking page. 2.Leave the tracking ID field blank. 3.Click on the "Track" button.	1. Tracking ID: (empty)	System displays an error message indicating a required field	Product remains untracked
PT_TC_04	Verify error message for tracking with a null tracking ID.	Attempt to track a product with a null tracking ID.	Product is available for tracking.	1.Navigate to the product tracking page. 2.Enter a null value in the tracking ID field. 3.Click on the "Track" button	1.Tracking ID: null	System displays an error message indicating an invalid tracking ID	Product remains untracked
PT_TC_05	Verify error message for tracking a non-existent product.	Enter a valid tracking ID for a non-existent product.	Product is not available for tracking.	1.Navigate to the product tracking page. 2.Enter a valid tracking ID for a non-existent product. 3.Click on the "Track" button.	1.Tracking ID: 999999	System displays an error message indicating that the product is not found	Product remains untracked

Figure 3.7: Test Case for Product Tracking Module

Project Name :	Econscious
Module Name :	Add to Cart
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
TC_CA_01	User successfully adds an available item to the cart.	Add available product to the cart.	User is on the product details page with available stock.	1. Click on Add to Cart button for an available product.	1.Product with available stock.	The selected product is added to the user's shopping cart, and a confirmation message is displayed.	Product is added to the shopping cart, and the cart quantity is updated
TC_CA_02	User attempts to add an out-of-stock item to the cart.	Add out-of-stock product to the cart.	Product is marked as out of stock.	1.Click on the "Add to Cart" button for an out-of-stock product.	1.Out-of-stock product.	An error message is displayed, indicating that the selected product is currently out of stock and cannot be added to the cart.	User remains on the product details page
TC_CA_03	User adds a limited-quantity item to the cart within available stock.	Add limited-quantity product to the cart within available stock	Limited-quantity product is available with a stock of, for example, 5 units.	1.Click on the "Add to Cart" button for the limited-quantity product.	1.Limited-quantity product with available stock.	The selected quantity of the limited-quantity product is added to the user's shopping cart, and a confirmation message is displayed.	Cart reflects the added quantity, and the product is in the cart
				2.Choose a quantity within the available stock (e.g., 3 units).	2.Quantity: 3 units.		
TC_CA_04	User attempts to add a negative quantity of a product to the cart.	Add product to the cart with a negative quantity	User is on the product details page	1.Click on the "Add to Cart" button for a product.	1.Any product.	An error message is displayed, indicating that the quantity must be a positive integer.	Cart remains unchanged
				2.Set the quantity to -1.	2.Quantity: -1.		
TC_CA_05	User adds a product to the cart with a quantity exceeding available stock.	Add product to the cart with quantity exceeding available stock	User is on the product details page.	1.Click on the "Add to Cart" button for a product.	1.Any product	An error message is displayed, indicating that the selected quantity exceeds the available stock.	Cart remains unchanged
				2.Choose a quantity exceeding the available stock.	2.Quantity exceeding available stock (e.g., stock available: 5, quantity selected: 7)		

Figure 3.8: Test Case for Add to Cart Module

Project Name :	Econscious
Module Name :	Cart Update
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
TC_CUpdate _01	User successfully updates the quantity of an item in the cart.	Update quantity to a valid positive value.	User has items in the shopping cart.	"1. Navigate to the shopping cart."	1.Existing items in the cart.	The quantity of the selected item is updated to 4, and the total price is recalculated accordingly. A confirmation message is displayed.	Cart reflects the updated quantity and total price.
				"2. Change the quantity of a selected item to 4."	2.Product X with quantity 2.		
				3.Click on the "Update Cart" or similar button.			
TC_CUpdate _02	User attempts to update the quantity of an item to a negative value.	Update quantity to - 1	User has items in the shopping cart.	1.Navigate to the shopping cart.	1.Existing items in the cart.	An error message is displayed, indicating that the quantity must be a positive integer.	Cart remains unchanged
				2.Set the quantity of a selected item to -1.	2.Product Y with quantity 3.		
				3.Click on the "Update Cart" or similar button.			
TC_CUpdate _03	User updates the quantity of an item to a value within the available stock.	Update quantity to within available stock (e.g., 8 for a product with stock of 10).	User has items in the shopping cart, and the product has a stock of 10 units.	1.Navigate to the shopping cart.	1.Existing items in the cart.	The selected quantity of the item is updated to 8, and the total price is recalculated accordingly. A confirmation message is displayed	Cart reflects the updated quantity and total price
				2.Set the quantity of a selected item to 8.	2.Product Z with quantity 3.		
				3.Click on the "Update Cart" or similar button.			
TC_CUpdate _04	User attempts to update the quantity of an item to a value exceeding the available stock.	Update quantity to exceed available stock (e.g., 12 for a product with stock of 10)	User has items in the shopping cart, and the product has a stock of 10 units	1.Navigate to the shopping cart.	1.Existing items in the cart.	An error message is displayed, indicating that the selected quantity exceeds the available stock	Cart remains unchanged
				2.Set the quantity of a selected item to 12.	2.Product A with quantity.		
				3.Click on the "Update Cart" or similar button.			

Figure 3.9: Test Case for Cart Update Module

Project Name :	Econscious
Module Name :	Empty Cart Handling
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
TC_EC_01	User successfully empties the cart.	Empty the cart successfully.	User has items in the shopping cart.	1.Navigate to the shopping cart. 2.Click on the "Empty Cart" or similar button.	1.Existing items in the cart.	The shopping cart is cleared, and a confirmation message is displayed.	Cart is empty, and the confirmation message is displayed.
TC_EC_02	User attempts to empty an already empty cart.	Attempt to empty an empty cart.	User has no items in the shopping cart.	1.Navigate to the shopping cart. 2.Click on the "Empty Cart" or similar button.	1.Empty cart.	An informative message is displayed, indicating that the cart is already empty.	Cart remains empty.
TC_EC_03	User cancels the action of emptying the cart	Cancel the action of emptying the cart.	User has items in the shopping cart.	1.Navigate to the shopping cart. 2.Click on the "Empty Cart" or similar button. 3. Choose the ""Cancel"" option in the confirmation prompt.	1.Existing items in the cart.	The cart remains unchanged, and no items are removed.	Cart remains with existing items.
TC_EC_04	User attempts to add items to the cart after emptying it.	Add items to the cart after it's emptied	User has emptied the cart.	1.Empty the cart. 2.Add a new item to the cart.	1.Empty cart initially, then a new item added.	The new item is successfully added to the cart after it was emptied.	Cart contains only the newly added item.
TC_EC_05	User attempts to proceed to checkout with an empty cart.	Attempt to proceed to checkout with an empty cart.	User has emptied the cart.	1.Empty the cart. 2.Click on the "Proceed to Checkout" button.	1.Empty cart.	An error message is displayed, indicating that the cart is empty, and the user cannot proceed to checkout.	User remains on the cart page.

Figure 3.10: Test Case for Empty Cart Handling Module

Project Name :	Econscious
Module Name :	Credit Card Payment
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
CC001	Verify successful processing of a valid credit card transaction	Process a transaction with a valid credit card	User is logged in and on the credit card processing page.	1.Enter valid credit card details (number, expiration date, CVV) 2.Enter a valid transaction amount. 3.Click on the "Process Transaction" button.	1.Credit Card Number: 4111111111111111, Expiry: 12/25, CVV: 123, Transaction Amount: $100.	The transaction is successfully processed	Transaction details are recorded, and the user receives a confirmation
CC002	Verify handling of an expired credit card.	Attempt to process a transaction with an expired credit card.	User is logged in and on the credit card processing page.	1.Enter credit card details with an expired expiration date. 2.Enter a valid transaction amount. 3.Click on the "Process Transaction" button.	1.Credit Card Number: 5555555555554444, Expiry: 01/20, CVV: 789, Transaction Amount: $50.	The system should reject the transaction and display an error message about the expired card	No transaction is processed, and the user is notified of the error
CC003	Verify handling of insufficient funds.	Attempt to process a transaction with insufficient funds.	User is logged in and on the credit card processing page.	1.Enter credit card details with a valid expiration date and CVV. 2.Enter an amount greater than the available credit limit. 3.Click on the "Process Transaction" button.	1.Credit Card Number: 5105105105105100, Expiry: 06/23, CVV: 456, Transaction Amount: $500.	The system should reject the transaction and display an error message about insufficient funds.	No transaction is processed, and the user is notified of the error.
CC004	Verify handling of an invalid credit card number	Attempt to process a transaction with an invalid credit card number.	User is logged in and on the credit card processing page.	1.Enter an invalid credit card number. 2.Enter a valid expiration date and CVV. 3.Enter a valid transaction amount.	1.Credit Card Number: 1234567812345670, Expiry: 09/22, CVV: 789, Transaction Amount: $75.	The system should reject the transaction and display an error message about the invalid card number.	No transaction is processed, and the user is notified of the error.
CC005	Verify handling of a transaction with a declined credit card.	Attempt to process a transaction with a credit card that has been declined	Attempt to process a transaction with a credit card that has been declined.	1.Enter a valid credit card number, expiration date, and CVV. 2.Enter a valid transaction amount. 3.Click on the "Process Transaction" button.	1.Credit Card Number: 6011000990139424, Expiry: 03/24, CVV: 123, Transaction Amount: $120.	The system should reject the transaction and display an error message about the declined card	No transaction is processed, and the user is notified of the error.

Figure 3.11: Test Case for Credit Card Payment Module

Project Name :	Econscious
Module Name :	Order Management
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
TC_OMS_01	View Order Details	no input	user has placed an order	1. Log in to user account 2. Navigate to the "Order history" Section 3. Click on an order		order details are displayed correctly	
TC_OMS_02	Track Order Shipment	no input	user has a shipped order	1. Log in to user account 2. Navigate to the "Order history" Section 3. Click on a shipped order		shipment tracking information is displayed	
TC_OMS_03	Cancel Order	no input	user has placed an order	1. Log in to user account 2. Navigate to the "Order history" Section 3. Click on an order 4. Click on "cancel order"		order status is updated to "Cancelled"	
TC_OMS_04	View Order Invoice	no input	user has placed an order	1. Log in to user account 2. Navigate to the "Order history" Section 3. Click on an order 4. Click on "view invoice"		invoice details are displayed correctly	
TC_OMS_05	Refund Process	no input	order has been cancelled	1. Log in to user account 2. Navigate to the "Order history" Section 3. Click on a cancelled order 4. Initiate refund process		refund is processed successfully, and user is notified	
TC_OMS_06	Search Orders	enter order id	user has placed multiple orders	1. Log in to user account 2. Navigate to the "Order history" Section 3. Use the search functionality to find a specific order	<enter order id>	the correct order is displayed in the search result	

Figure 3.12: Test Case for Order Management Module

Project Name :	Econscious
Module Name :	Refund Cash Procedure
Reference Document :	N/A
Created By :	Elevate Team
Date of Creation :	24/01/2024
Date of Review :	3/02/2024

Test Case ID	Test Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expected Result	Post Condition
RC001	Verify successful refund processing.	Process a refund for a valid transaction.	A completed transaction is available for refund.	1.Select the transaction to be refunded. 2.Click on the "Refund" button. 3.Enter the refund amount.	1.Transaction ID: ABC123, Refund Amount: $50.	The refund is processed successfully, and the transaction status is updated to refunded.	Transaction status is marked as refunded, and the refund amount is reflected in the system.
RC002	Verify handling of a refund for a non-existent transaction.	Attempt to process a refund for a transaction that does not exist.	No transaction with the specified ID exists.	1.Enter a non-existent transaction ID. 2.Click on the "Refund" button.	1.Transaction ID: XYZ789, Refund Amount: $30.	The system should display an error message indicating that the transaction does not exist.	No refund is processed, and the user is notified of the error.
RC003	Verify successful cancellation of an order.	Cancel an order before it is shipped.	An order is placed but not yet shipped.	1.Navigate to the order details page. 2.Click on the "Cancel Order" button 3.Confirm the cancellation.	1.Order ID: ORD456.	The order is successfully canceled, and the status is updated to canceled.	Order status is marked as canceled, and no further processing occurs.
RC004	Verify handling of cancellation for a shipped order.	Attempt to cancel an order that has already been shipped.	An order is placed and marked as shipped.	1.Navigate to the order details page. 2.Click on the "Cancel Order" button 3.Confirm the cancellation.	1.Order ID: SHP789.	The system should display an error message indicating that a shipped order cannot be canceled.	No cancellation is processed, and the user is notified of the error.
RC005	Verify handling of a refund for an already refunded transaction.	Attempt to process a refund for a transaction that has already been refunded.	A transaction is already marked as refunded.	1.Select the refunded transaction. 2.Click on the "Refund" button. 3.Enter the refund amount.	1. Transaction ID: REF123, Refund Amount: $20.	The system should display an error message indicating that the transaction has already been refunded.	No additional refund is processed, and the user is notified of the error.

Figure 3.13: Test Case for Refund Cash Procedure Module

Chapter 4

Conclusions

4.1 Conclusions

Econscious emerges as a transformative force amidst the formidable challenges posed by widespread plastic pollution and unsustainable consumption patterns. Its holistic approach to addressing these issues not only offers practical solutions but also cultivates a profound shift in societal attitudes towards responsible environmental stewardship.

At its core, Econscious embodies the ethos of sustainable development, seamlessly integrating principles of responsible consumption and production into the fabric of everyday life. By prioritizing the local community and facilitating direct engagement between consumers and recycling professionals, Econscious transcends the traditional boundaries of waste management, forging a dynamic ecosystem of collaboration and collective action.

Through its user-friendly interface and innovative features, Econscious empowers individuals to embrace eco-friendly practices without compromising on the demands of modern living. From simplifying the recycling process to incentivizing participation through fair compensation, Econscious effectively bridges the gap between intention and action, inspiring tangible contributions towards a greener future.

Moreover, Econscious's steadfast commitment to Sustainable Development Goals 11, 12, 13, and 14 underscores its broader impact on global sustainability efforts. By promoting sustainable urban living, ethical production and consumption practices, climate action, and marine conservation, Econscious catalyzes positive change on both local and global scales.

As we confront the urgent imperative of safeguarding our planet for future generations, Econscious emerges as a beacon of hope and possibility. Its innovative approach not only addresses the immediate challenges of plastic pollution and resource depletion but also fosters a deeper sense of environmental awareness and responsibility within society.

4.2   Future Prospects of Our Work

Looking ahead, the future prospects for Econscious are incredibly promising, as our project continues to evolve and expand its impact on sustainable living and environmental conservation. As we strive to further integrate cutting-edge technologies and innovative solutions into our platform, we anticipate even greater engagement and participation from individuals, communities, and recycling professionals alike. By leveraging data analytics and machine learning algorithms, we aim to enhance the effectiveness and efficiency of waste management processes, optimizing resource usage and reducing environmental strain. Additionally, we envision forging strategic partnerships with governmental bodies, NGOs, and corporate entities to amplify our reach and influence, fostering a global network of sustainability champions committed to building a greener, more resilient planet. Furthermore, as public awareness and demand for eco-friendly practices continue to grow, we anticipate exponential growth in user adoption and community engagement, solidifying Econscious's position as a leader in the sustainable living movement. With unwavering dedication and a steadfast commitment to our mission, we are confident that Econscious will play a pivotal role in shaping a brighter, more sustainable future for generations to come.

References