The University Of Technology

Software Engineering Analysis And Design Project

CMP2019

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Chapter 1

Executive Overview

The Personal Clothing Management System (PCM) will be a regional web place marketplace allowing further connectivity between clothing outlets/suppliers and the customers who choose to order such items themselves with increased clarity and ease of access. It will be used in conjunction with the internet and local area connections to improve the connectivity between potential customers and theirs stores and allows the retailer to keep track of their inventory.

The **buyer** objectives for the PCM are to:

- Provide a large and varied selection of items.
- Enables them to find specific items tailored to their desired brand.
- Enables them to view the clothing material that each item is made of.
- Enables them to search through, identify and mark down for items that they desire.
- Increase the ease of access for ordering clothing items.

    - Access to stores inventory through the internet allowing customers to view products before ordering
    - Allows for the creation of their store orders for store pick up, saving time.

The **seller** objectives for the PCM are to:

- Provides a system to increase the customer base and provide an avenue for potential customers.
- Enables the sorting and listing of items based on their brand and clothing material.
- Increase the ease of access for ordering said clothes.
    - Access to stores inventory through the internet allowing customers to view products before ordering
    - Allows for the creation of their store orders for store pick up, saving time.
- Reduces risk by having a personal management system tailed to their specific needs.
- Enables them to have a complete and dedicated financial record system.

    - Details on previous purchases made by customers are recorded and stored for use and review.
    - A complete financial database that generates the total monthly report on income made by the company.

- Enables them to keep track of their entire stock of inventory.

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The **PCMC** objectives for the PCM are to:

- Minimize the costs of providing a marketplace compared to a physical marketplace by maximizing automation and virtual components thereby lowering the physical labor cost.
- Increase the income by increasing the number of sellers (i.e., merchants, retails, manufacturers) paying the fees for the application services.

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Version		Date	Description	Author
0.1		21/1/2022	Conceptualization of project	Jordan Murray Chadrick Martin Chad Schroeter Taje Thomas Ajaunie Brown
0.2		28/1/2022	Executive Summary added to the project Revision History added to the project	Jordan Murray Taje Thomas
0.3		4/2/2022	Introduction added to the project Overview added to the project References added to the project Definition of the System added to the project Business Goal added to the project	Jordan Murray Chadrick Martin Chad Schroeter Taje Thomas Ajaunie Brown

0.4		11/2/2022	Business Objectives added to the project The context of the system or application added to the project Summary Description of the capabilities of the system added to the project Identification of the subsystems added to the project	Chadrick Martin Chad Schroeter Chad Schroeter Ajaunie Brown
0.5		18/2/2022	Use Case Diagrams added to the project Use Case Descriptions	Jordan Murray Chadrick Martin
0.6		25/2/2022	Activity Diagrams added to the project	Jordan Murray Chadrick Martin Chad Schroeter Taje Thomas Ajaunie Brown

0.7		4/3/2022	Sequence Diagrams added to the project	Jordan Murray Chadrick Martin Chad Schroeter Taje Thomas Ajaunie Brown
0.8		11/3/2022	Domain Model Class Diagram added to the document	Jordan Murray Chadrick Martin Chad Schroeter
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1.0		25/3/2022	Architectural Design (Technology and Application) added to the project User Interface added to the project	Jordan Murray Chadrick Martin Chad Schroeter Taje Thomas Ajaunie Brown
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			Reliability added to the project	Ajaunie Brown

Chapter 1

Introduction: SD , SO , IA , Ref and S. Overview

Introduction

This section introduces the system requirements specification (SRS) for the Personal Clothing Management (PCM) system to its readers and potential interests.

Specification Definition

This specification documents the system-level requirements for the PCM system.

Specification Objectives

The objectives of this specification of the PCM are to:

- Provie a system overview of the PCM including definitions, goals, objectives, context, and major capabilities.
- To formally specify its associated:
  - Functional requirements.
  - Data requirements.
  - Quality requirements.
  - Constraints.

Intended Audiences

The intended audiences of stakeholders for this specification of the PCM include:

- **Users,** who are any private individuals, small businesses, or retails that take part in the sale held in PCM
  - Buyers, who will use the PCM to attempt to buy or track one or more items being sold on the website, provided by PCM.
  - Sellers, who will use the PCM to place one or more items up for sale on the site, track the financial records of the past sales, and view the inventory of items in their stock.
- **Personal Clothing Management Company (PCMC) Employees:**
  - Managers.
  - Customer Representatives.
  - Accountants, who performs accounting processes for the purchases of the PCM system.
  - User Support Agents, who provides a human interaction for the PCM to its users and buyers.

References

This specification references or compiles with the following documents:

Amazon.com. (2019). *Software Engineering (10th Edition): Ian Sommerville: 9780133943030: Amazon.com: Books*. [online] Available at: https://www.amazon.com/Software-Engineering-10th-Ian-Sommerville/dp/0133943038.

Daivee (n.d.). *Responsive Web Design Guidelines for IEEE Sites*. [online] IEEE Brand Experience. Available at: https://brand-experience.ieee.org/guidelines/digital/mobileapp-and-responsive-design-guidelines/responsive-design/.

Specification Overview

This specification is organized into the following sections:

- ***Introduction***, which introduces the specification for the PCM to its readers.
- ***System Overview***, provides a brief description of the PCM including its definition, business goals, business objectives, context, and capabilities.
- ***Functional Requirements***, specifies the functional system requirements with the use of a use case model consisting of each external's use cases and use case paths
- ***Data Requirements***, specifies the system data requirements of the required data components.
- ***Quality Requirements***, which specifies the required system quality factors.
- ***Constraints***, which documents required architecture, design, and implementation constraints on the PCM.

Chapter 2

Definition of The System or Application

Personal Clothing Management System Overview

This section provides the high-level description of the Personal Clothing Management (PCM) system including its definition, primary business goal, objectives, context and capabilities.

Definition

The Personal Clothing Management (PCM) system will be a local web-based marketplace allowing for small retails and clothing companies to buy and sell various clothing or apparel-based items to various customers.

Business Goal

The business goal of the Personal Clothing Management (PCM) system is to use the internet-based web services to improve the outreach that small clothing retailers have to better allow for the buying and selling of their items.

Business Objectives

The business objectives of the PCM are to provide the following business benefits to its buyers, sellers and owners.

Buyer Benefits

The **PCM** will:

- Provide a large and varied selection of items.
- Enables them to find specific items tailored to their desired brand.
- Enables them to view the clothing material that each item is made of. Enables them to search through, identify and mark down for items that they desire.
- Increase the ease of access for ordering clothing items.
    - Access to stores inventory through the internet allowing customers to view products before ordering
    - Allows for the creation of their store orders for store pick up, saving time.

Seller Business Benefits

The **PCM** will:

- Provides a system to increase the customer base and provide an avenue for potential customers.
- Enables the sorting and listing of items based on their brand and clothing material.
- Increase the ease of access for ordering said clothes.
    - Access to stores inventory through the internet allowing customers to view products before ordering
    - Allows for the creation of their store orders for store pick up, saving time.
- Reduces risk by having a personal management system tailed to their specific needs.
- Enables them to have a complete and dedicated financial record system.
        - Details on previous purchases made by customers are recorded and stored for use and review.

        - A complete financial database that generates the total monthly report on income made by the company.

- Enables them to keep track of their entire stock of inventory.

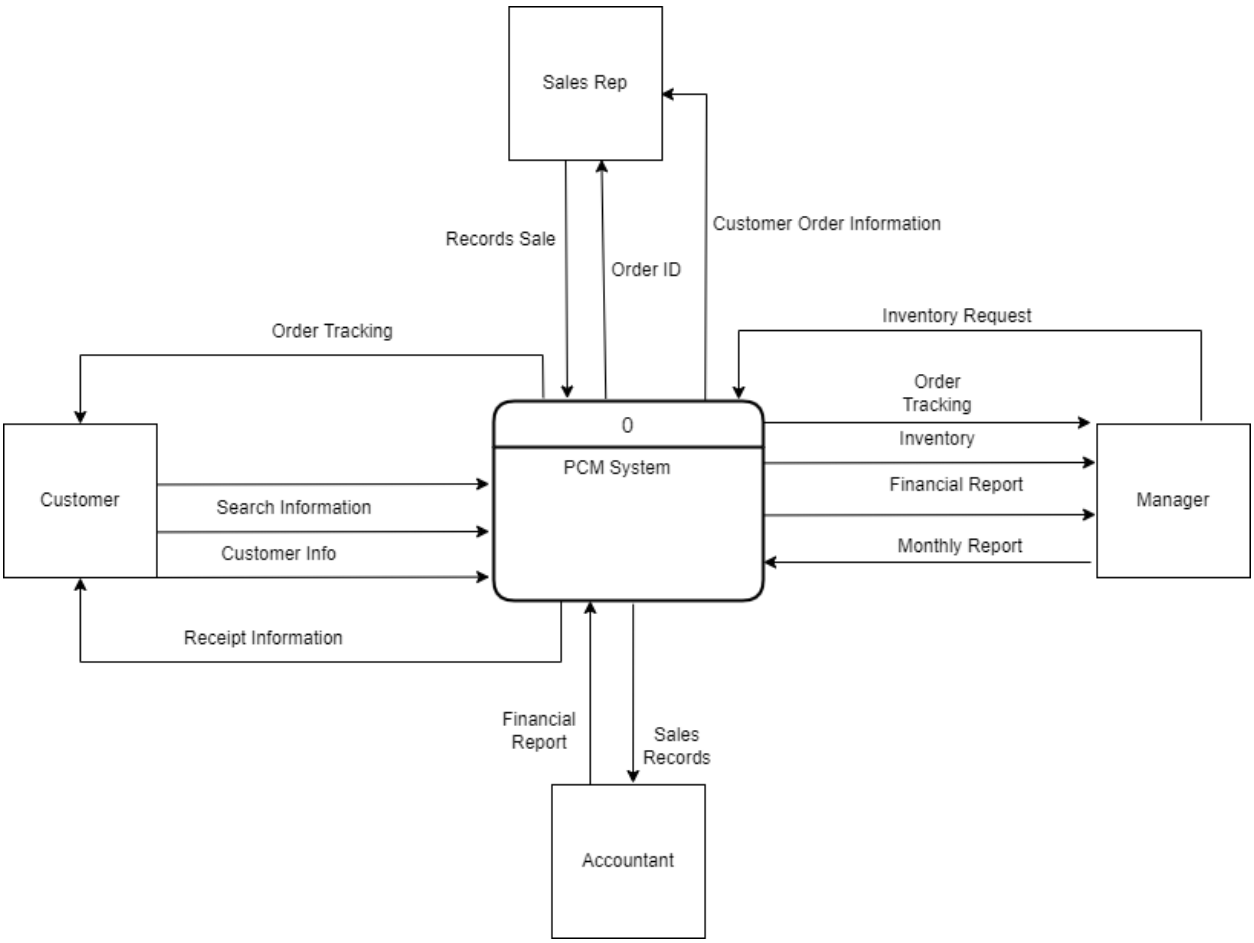
Marketplace Business Benefits

The **PCM** will:

- Minimize the costs of providing a marketplace compared to a physical marketplace by maximizing automation and virtual components thereby lowering the physical labor cost.
- Increase the income by increasing the number of sellers (i.e., merchants, retails, manufacturers) paying the fees for the application services.

Context Of the PCM System

This section documents the context of the PCM in terms of the significant externals with which it interacts with on a whole. The following displays the PCM context diagram.



External Hardware

The PCM interacts with the following external hardware:

- **Client Hardware:**
  - **User Clients,** which include smartphones, personal computers and desktops to view and make purchases on the site.
  - **Employee Workstation,** which include desktop computers used by said employees to preform their required tasks and duties.
- **Networks:**
  - **Internet,** is the global network used for the interaction and communication between customers, users, employees and the PCM system itself.
  - **Local Area Network,** is the internal network connection used for the communication between employees of the company.

External Roles

The PCM interacts with the following client roles:

- **Accountants**, who are employees of the retail store or company that preforms the accounting functions with the use of PCM.
- **Managers**, who handles the overview of the financial report and records of sales generated and to review the inventory that they have in stock.
- **Sales Representatives**, who handles the sales and purchases made with the customer.
- **Users,** individuals which buy items on the PCM:
    - Customers, who are users which view and purchase items using the PCM.

External Software

The system interacts with the following software:

- Browser, is a software communication tool that is used by all of the employees (i., managers, sales representative, accountants) which is used to allow for the communication over the local network of the PCM system.

External Systems

The PCM interacts with the following external systems:

- Authorization/ Verification Gateway, which is a system that processes and verifies both employee authorization and credit/debit card purchases.

The Personal Clothing Management (PCM) Capabilities

This section provides the capabilities of the PCM system. A table will be displayed with each user and their interactions with the system in the form of Use Cases.

Actor	Use Case	Use Case Description	Related Actors	Related Use Case
Customer	Browse Items	Customer browses for items on the retailer's website they might desire to purchase	-	-
Customer	Adds item to Shopping Cart	Customers select their desired item or items and add them to a cart to save them or have a record of them.	-	-
Customer	Review Shopping Cart	Customer confirms selected item/items in the shopping cart. They can add and/or delete items to/from their cart.	-	-

Customer	Checkout Items	Customers confirm the selected items in the shopping cart, enters their billing and shipping address and proceeds to select their preferred method of payment for the items. customer will be given a receipt.	-	-
Customer	Track their order	Customers can track their order by entering the receipt or reference number given to them after their purchase has been confirmed	-	-
Customer	Pick up items	Customers have the option of going to the retailer's brick and mortar store	Sales Rep	The sales representative processes the order and hands the

		to receive their ordered item/items		order to the customer
Managers	Check inventory	Checking the total number of items available for each category of product (Stock Count)	Sales Rep	Checking the total number of items available for each category of product (Stock Count)
Managers	Check inventory	Checking the total number of items available for each category of product (Stock Count)	CEO	Checking the total number of items available for each category of product (Stock Count)
Managers	Review sales	Review sale history of sold items.	Marketer	Creates promotional campaigns based on the popularity of items
Managers	Track number of orders?	Tracks the total number of orders made for each article of clothing.	Accountant	

Managers	Generate end of month/week report	Compile the sale history and create a monthly/weekly report.	Accountant	To help the manager to create a monthly/weekly report
Managers	Prompt for more items	Reordering of items that are out of stock.	-	-
Sales Rep	Facilitate the sale between a customer and the store	Gives the order information to the delivery person for drop off.	Customer	Creates a transaction using a method of payment such as a debit/credit card or cash
Sales Rep	Receive the customer's order	Receives the notification of a customer placing their order and the related information.	Customer	Confirms Order
Sales Rep	Prepare the required items	Prepares and gathers the customers required items	-	-

Sales Rep	Record sale	Records the record that a sale with the customer was done successfully.	-	-
Accountant	Keep and interpret financial records	To keep and interpret financial records	Manager	To work along with the accountant to give them the necessary details needed to calculate wages and item sales.

Identification of Subsystems:

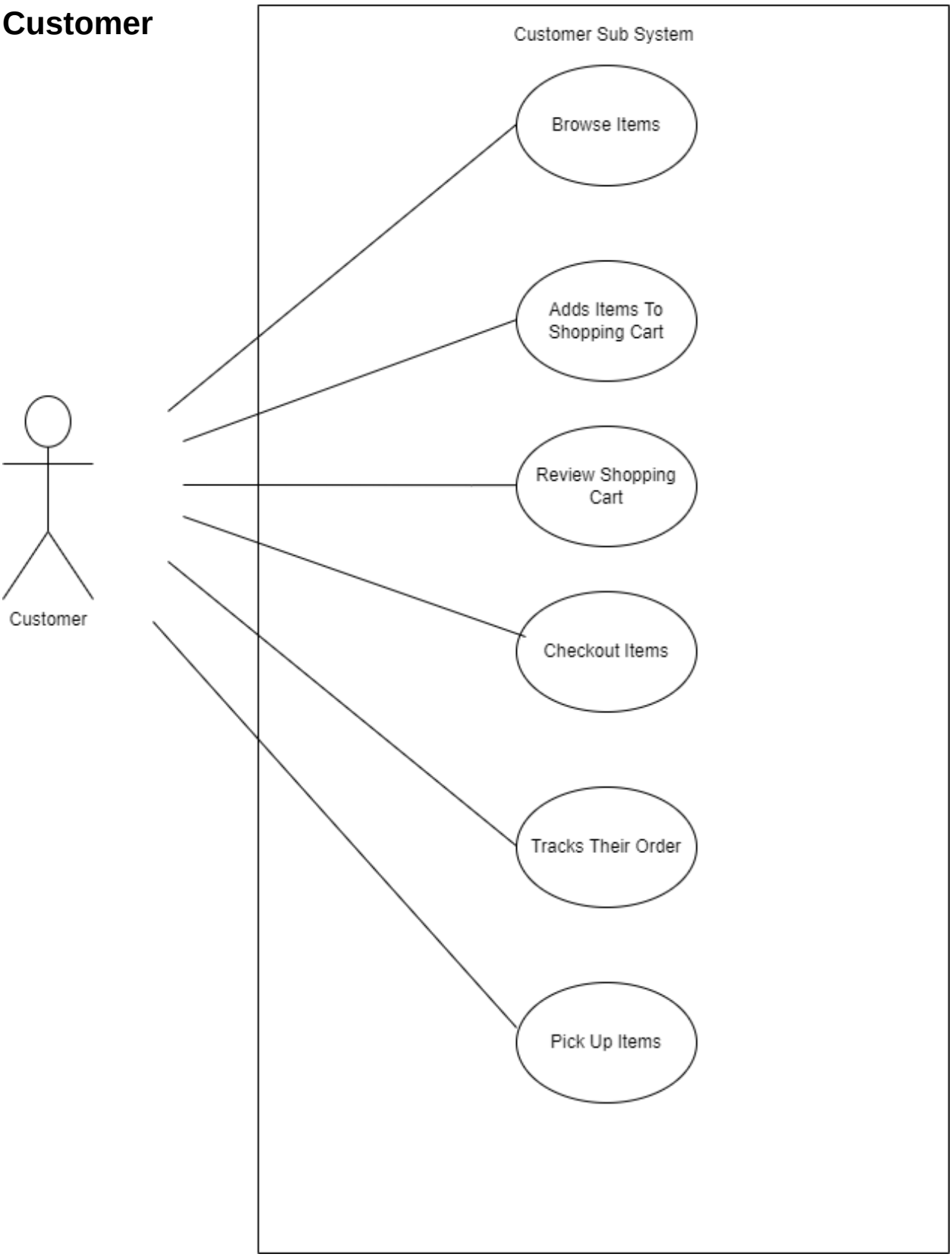
- Authorization/ Verification Gateway, which is a system that processes and verifies both employee authorization and credit/debit card purchases.

Chapter 3

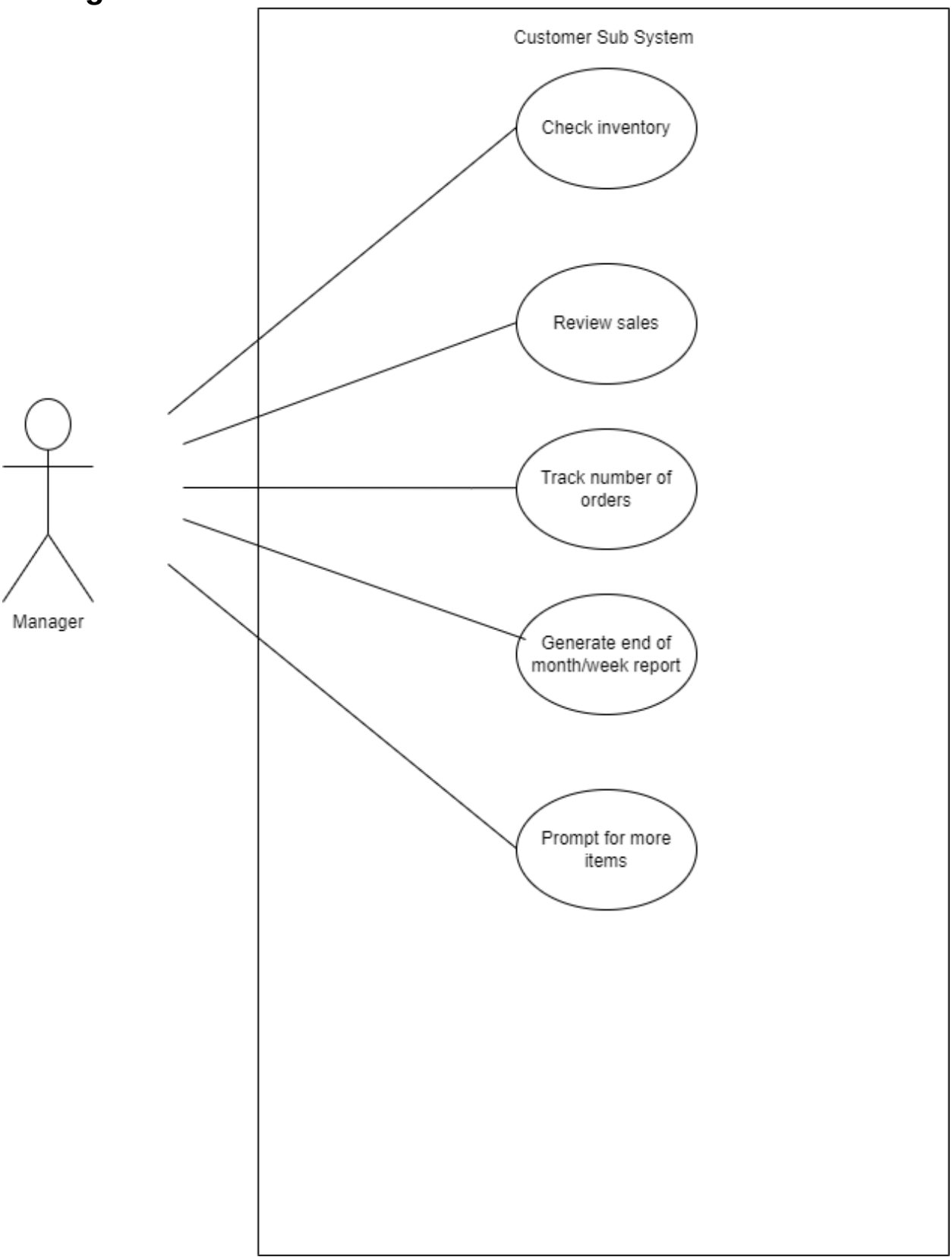
The following section will contain Use Case Diagrams, Descriptions, Activity Diagrams and Sequence Diagrams for all the following actors interacting with the system.

Use Case Diagrams

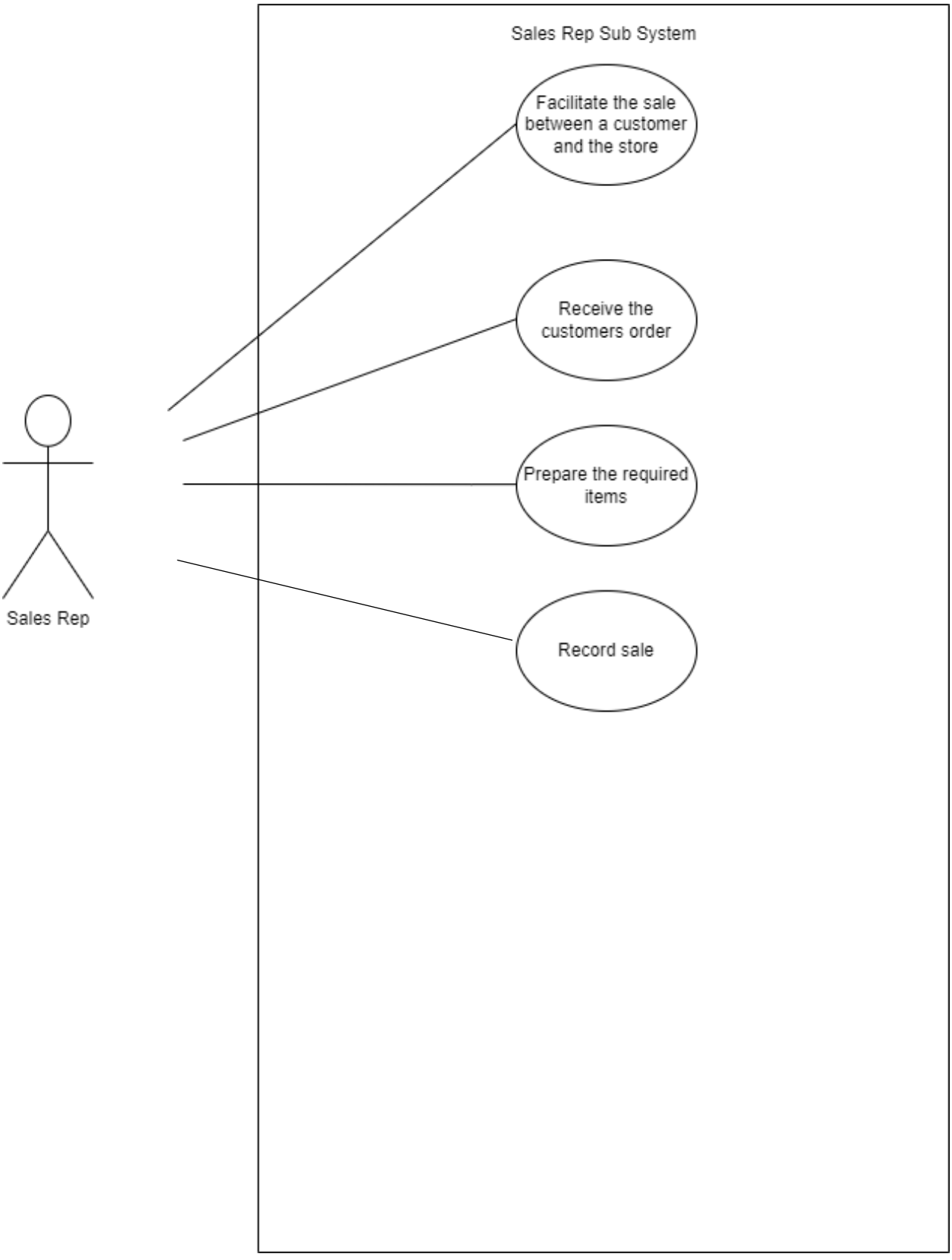
Customer


Customer Sub System
Browse Items
Adds Items To Shopping Cart
Review Shopping Cart
Checkout Items
Tracks Their Order
Pick Up Items
Customer

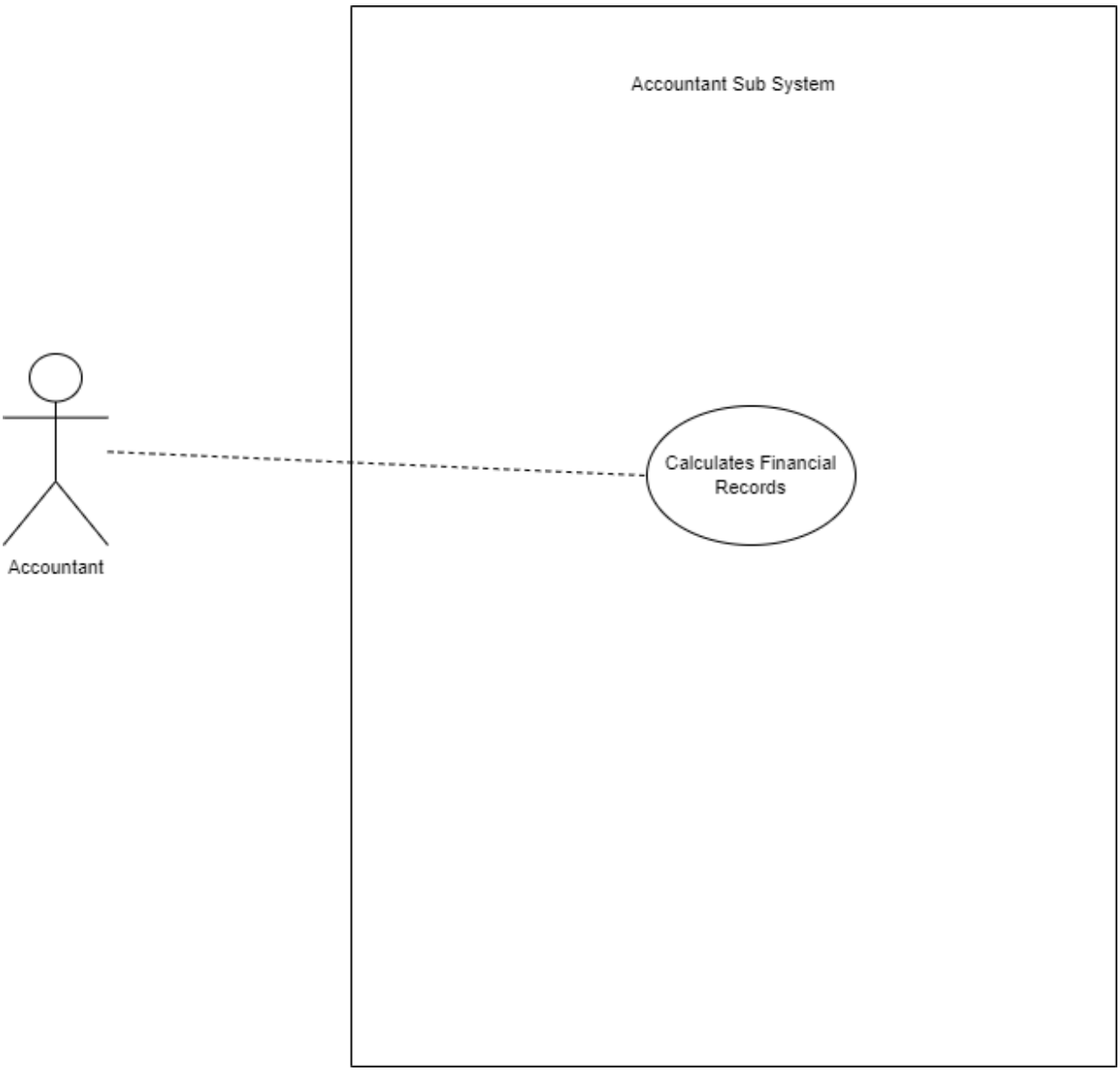
Manager


Customer Sub System
Check inventory
Review sales
Track number of orders
Generate end of month/week report
Prompt for more items
Manager

Sales Representative



Accountant


Accountant Sub System
Calculates Financial Records
Accountant

Customer Use Case Descriptions

Author (s): **Jordan Murray** **Date:** **04/10/2022** **Version:** **0.11**

Use case name:	**Browse Items**	
Scenario:	**Customer is interested in viewing items that are for sale on the particular website**	
Triggering event:	**Customer is interested in a potential item/ or is interested in browsing potential items**	
Brief description:	**Customer browses for items on the retailer's website they might desire to purchase**	
Actors:	**Customer**	
Related use cases:	-	
Stakeholders:	**Managers, Accountants, Sales Rep**	
Preconditions:	**Customer must exist**	
Postconditions:	**Customer sees the list of items that are desired**	
Flow of activities:	Actor	System
	1. Access the Website	1.1 Displays main page of website 1.2 Displays main page background 1.3 Displays welcoming message
	2. Clicks on the Browse Category/ search Items Bar	2.1 Prompts the user to pick between the search bar function or View category option. 2.2 If search bar is selected prompts the user to enter desired item name 2.3 If Category Item is chosen, displays all clothing items based on category
	3. Scrolls through displayed items	3.1 If search option was selected, displays the chosen item entered. 3.2 If Category was chosen, item page will move through all items based on the category. 3.3 List will continue moving down
Exception conditions	**User is not interested in viewing or browsing any items.**	

Author (s): **Jordan Murray** **Date:** **04/10/2022**

Version: **0.11**

Use case name:	**Adds item to Shopping Cart**	
Scenario:	**Customer is adding desired items that they want to purchase to the shopping cart**	
Triggering event:	**Customer has found their desired item that they want to purchase and is adding it to the list of items to be purchased**	
Brief description:	**Customers select their desired item or items and add them to a cart to save them or have a record of them**	
Actors:	**Customer**	
Related use cases:	-	
Stakeholders:	**Managers, Accountants, Sales Rep**	
Preconditions:	**Customer must exist** **Website must exist and run properly** **Customer has found desired shopping items**	
Postconditions:	**Customer sees the list of items that they have chosen in their shopping cart**	
Flow of activities:	Actor	System
	1. Finds desired item	1.1 Displays Items list
	2. Clicks on the item page to view full description	2.1 Accepts input from user to see full item description 2.2 Displays full page information about the item
	3. Clicks the Add Item to Shopping Cart option.	3.1 Finds the items product number/ID 3.2 Stores the items information in a generated shopping list for that specific customer.
Exception conditions	**User is not interested in viewing or browsing any items.** **User has not added an item to the shopping cart.**	

Author (s): **Jordan Murray** **Date:** **04/10/2022** **Version: 0.11**

Use case name:	**Review Shopping Cart**	
Scenario:	**Customer is reviewing their shopping cart and the items in it before clicking the confirm purchase option**	
Triggering event:	**Customer is finished browsing and has placed all desired items in a shopping and is making a final review of their items**	
Brief description:	**Customer confirms selected item/items in the shopping cart. They can add and/or delete items to/from their cart.**	
Actors:	**Customer**	
Related use cases:	-	
Stakeholders:	**Managers, Accountants, Sales Rep**	
Preconditions:	**Customer must exist** **Customer has placed all desired items in their shopping cart**	
Postconditions:	**Customer sees their finalized list of items in their shopping cart.**	
Flow of activities:	Actor	System
	1. Checks their shopping cart	1.1 Displays the users shopping cart page 1.2 Displays the list of items that user has selected for checkout.
	2. Scrolls through items placed in the shopping cart	2.1 Displays the full list and scrolls the page down for the user, placing a delete option beneath each item. 2.2 If the delete option is chosen, system removes the item from the cart. 2.3 If the add option is chosen, system returns back to the previous page, so more items can be added
Exception conditions	**User is not interested in reviewing their shopping cart**	

Author (s): **Jordan Murray** **Date:** **04/10/2022** **Version: 0.11**

Use case name:	**Checkout Items**	
Scenario:	**Customer has reviewed their shopping cart and is now confirming their purchase**	
Triggering event:	**Customer has finished reviewing their shopping cart and is now confirming the purchase of their items.**	
Brief description:	**Customers has finished reviewing their items and is now purchasing the items. After giving the relevant user information (Name, Address, Billing Info), the purchase is confirmed and a receipt is generated**	
Actors:	**Customer**	
Related use cases:	-	
Stakeholders:	**Managers, Accountants, Sales Rep**	
Preconditions:	**Customer must exist** **Customer must click the confirm purchase button**	
Postconditions:	**Customer receives the receipt for their order**	
Flow of activities:	Actor	System
	1. Clicks the confirm purchase option	1.1 Accepts input on purchase confirmation. 1.2 Notes the product information of all items in the shopping cart. 1.3 Prompts the user to enter all relevant information for the purchase
	2. Inputs all relevant purchase information	2.1 Accepts input from user and stores the customer information 2.2 Displays full order page with product information and user billing information. 2.3 Prompts the user to select finalize purchase
	3. Clicks the finalize purchase option.	3.1 Accepts input from the user. 3.2 Checks is banking information is legitimate and then confirmation the purchase with funds. 3.3 Generate a receipt form with all the order information for the user.
Exception conditions	**User has invalid banking information.** **User does not want to confirm the purchase of item.**	

Author (s): **Jordan Murray** **Date:** **04/10/2022**

Version: **0.11**

Use case name:	**Tracks their order**	
Scenario:	**Customer is tracking their order that was placed.**	
Triggering event:	**Customer has confirmed and finalized their purchase and want to view their order progress.**	
Brief description:	**Customer has confirmed and finalized their purchase and want to view their order progress by clicking the Track Order button. The system will then search for the order information and displays its progress to the user**	
Actors:	**Customer**	
Related use cases:	-	
Stakeholders:	**Managers, Accountants, Sales Rep**	
Preconditions:	**Customer must exist** **Customer must click the track orders** **Customer must have finalized their purchase**	
Postconditions:	**Customer receives a report detailing how much progress the order has made.**	
Flow of activities:	Actor	System
	1. Clicks the Track Orders button.	1.1 Accepts input from the user 1.2 Prompts the user to enter the Order Id that they have on their receipt.
	2 Enters the Order Id	2.1 System searches the database for the relevant Order Id 2.2 Once found, system retrieves the order information and progress and displays it to the user.
	3 Clicks the confirm button.	3.1 System closes the report page.
Exception conditions	**User does not have the correct Order Id of their purchase.**	

Author (s): **Jordan Murray** **Date:** **04/10/2022**

Version: **0.11**

Use case name:	**Pick Up Items**	
Scenario:	**Customer is receiving the order that they placed.**	
Triggering event:	**Customer is going to the retail store to receive their clothing package.**	
Brief description:	**Customer has gone to the retail store to pick up their completed order that they had previously placed.**	
Actors:	**Customer**	
Related use cases:	-	
Stakeholders:	**Managers, Accountants, Sales Rep**	
Preconditions:	**Customer must exist** **Customer must have their receipt number or order ID.**	
Postconditions:	**Customer receives their clothing package.**	
Flow of activities:	**Actor**	**System**
	1. User gives the sales representative their order ID./receipt number.	1.1 Accepts input from the user 1.2 Searches the database for the order ID or receipt number matching the one that is given. 1.3 If found, displays order description and requests confirmation. 1.4 If not found, displays invalid order.
	2 User confirms the order	2.1 Accepts input from the user. 2.2 If confirmed, marks the order as "Picked Up" and removes it from the current orders list. 2.3 If not confirmed, order is skipped and is marked as, "Not Picked Up"
	3 User receives package and leaves store.	
Exception conditions	**User does not have the correct Order Id of their purchase.** **User does not have their receipt number of their purchase.**	

Manager

Author (s): Chadrick Martin **Date:** **04/10/2022**
Version: **0.11**

Use case name:	**Check Inventory**	
Scenario:	**Manager checks inventory to see quantity of stock in inventory**	
Triggering event:	**Low amount of stock in inventory**	
Brief description:	Manager checks inventory on a day-to-day basis to ensure there is enough stock in inventory	
Actors:	**Manager**	
Related use cases:	-	
Stakeholders:	Customer, Accountants, Sales Rep	
Preconditions:	**Customer must exist**	
Postconditions:		
Flow of activities:	**Actor**	**System**
	1. Login to Website	1.1 Displays main page of website 1.2 Displays main page background 1.3 Manager login to website 1.4 Displays welcoming message for manager
	2. Checks inventory	2.1 Prompts the Manager to pick between the search bar function or View category option. 2.2 Manager checks the amount of stock is in the inventory
	3. Update inventory	3.1 If there is a low amount of stock in inventory, Manager restocks 3.2 Manager corresponds with supplier to get more products 3.3 Manager orders more products
Exception conditions	**2.1 If there is no need to restock**	

Author (s): Chadrick Martin **Date:** **04/10/2022**

Version: **0.11**

Use case name:	**Review sales**	
Scenario:	**Manager is reviewing all the items that were purchased by customer**	
Triggering event:	**Manager review sales because there was an error in purchase or manager needs to check purchases**	
Brief description:	**Manager review sales to see if sales are meeting expectations, does not meet expectation or needs improvement**	
Actors:	**Manager**	
Related use cases:	-	
Stakeholders:	Customer, Accountants, Sales Rep	
Preconditions:	**Customer must exist** **Sales must be made** **Website must exist and run properly**	
Postconditions:	**Customer makes purchases on the system**	
Flow of activities:	**Actor**	**System**
	1. Error was made in purchase	1.1 Displays customer purchase list 1.2 If customer made an error in purchase, Manager gives customer a refund for product.
	2. Clicks on the sales page to view full description	2.1 Allows the manager to enter information to see the entire sales description. 2.2 Displays full page information about the sales
	3. Check to see if profit was made	3.1 Manager reviews sales to know if profit was made
Exception conditions	**There is no refund needed.** **There was no purchase made.**	

Author (s): Chadrick Martin **Date:** **04/10/2022**

Version: **0.11**

Use case name:	**Track number of orders**	
Scenario:	**Customer no longer wants a product and needs a refund**	
Triggering event:	**Customer is finished browsing and has purchase item but desires for an item to be refunded**	
Brief description:	Manager confirm the number of sales and to track order if refund is to be made	
Actors:	**Manager**	
Related use cases:	-	
Stakeholders:	Customer, Accountants, Sales Rep	
Preconditions:	**Customer must exist, website must exist and run properly, Customer has made purchase**	
Postconditions:	**Customer makes purchases on the system**	
Flow of activities:	**Actor**	**System**
	1. Access the Website	1.1 Displays main page of website 1.2 Displays main page background 1.3 Manager login to website 1.4 Displays welcoming message for manager
	2. Track orders	2.1 Manager tracks the number of orders that has been made on system 2.2. If there is refund to be made, manager tracks the order and give refund
Exception conditions	**Manager is not interested in tracking orders.**	

Author (s): Chadrick Martin **Date:** **04/10/2022**

Version: **0.11**

Use case name:	**Generate end of month/week report**	
Scenario:	**Manager creates monthly/weekly report to see if profit is made**	
Triggering event:	**At the end of each month a report is being made to check company status**	
Brief description:	At the end of each month/week a report is being made to check the status of the company to see if a profit is being made or the company needs improvements.	
Actors:	**Manager**	
Related use cases:	-	
Stakeholders:	Customer, Accountants, Sales Rep	
Preconditions:	**Customer must exist, website must exist and run properly, Customer has made purchase.**	
Postconditions:	**Customer makes purchases on the system**	
Flow of activities:	**Actor**	**System**
	1. Access the Website	1.1 Displays main page of website 1.2 Displays main page background 1.3 Manager login to website 1.4 Displays welcoming message for manager
	2. Generate monthly/weekly report	2.1 Manager goes into system sales to generate monthly report 2.2. Manager gets all the information needed to run monthly report. 2.3 Manager runs monthly report
	3. Inspect findings	3.1 Manager reviews monthly report to know the status of the company 3.2 If a loss was made the manager reviews report and makes the necessary changes. 3.3 If a profit was made, the manager closes monthly report.
Exception conditions	**There were no sales for that month**	

Author (s): Chadrick Martin **Manager Date: 04/10/2022**
Version: 0.11

Use case name:	**Prompt for more items**	
Scenario:	**Manager checks inventory to restock items**	
Triggering event:	**Manager checks inventory and sees that inventory is low**	
Brief description:	Manager prompt the system for more items because inventory is running low on items and needs to be restocked.	
Actors:	**Manager**	
Related use cases:	-	
Stakeholders:	Customer, Accountants, Sales Rep	
Preconditions:	**Inventory must exist, website must exist and run properly, stocks must be low**	
Postconditions:	**Customer makes purchases on the system**	
Flow of activities:	**Actor**	**System**
	1. Access the Website	1.1 Displays main page of website 1.2 Displays main page background 1.3 Manager login to website 1.4 Displays welcoming message for manager
	2. Checks inventory	2.1 Manager checks the inventory to see the amount of stock 2.2 If the inventory is low, the system prompts manage to add more items. 2.3 If the inventory is not low the manager exits the system
	3. Adds more items	3.1 If the inventory is low, the system prompts manage to add more items. 3.2 The manager orders more items and adds them to the system. 3.3
Exception conditions	**Manager is not interested in tracking orders.**	

Accountant

Author (s): **Jordan Murray** **Date:** **04/10/2022**
Version: **0.11**

Use case name:	**Calculates Financial Report**	
Scenario:	**Accountant is calculating the financial report with the sales records.**	
Triggering event:	**Accountant is forming the financial reports for the week/month.**	
Brief description:	**The accountant is taking the sales records done for the retail store and is compiling and calculating the financial report**	
Actors:	**Accountant**	
Related use cases:	-	
Stakeholders:	**Managers, Sales Rep**	
Preconditions:	**Accountant must exist** **Sales records must exist** **Financial report must exist**	
Postconditions:	**The accountant has updated the financial report**	
Flow of activities:	**Actor**	**System**
	1. User pulled up the sales records for the store	1.1 Accepts input from the user 1.2 System searches and displays all the relevant sales records for the week.
	2. User calculates the weekly financial report	2.1 System receives the calculations from the user. 2.2 System adds and compiles the data the calculated sales records to the financial report
	3. User updates the financial report and declares it as "Updated"	3.1 System accepts input. 3.2 System updates the main financial report form. 3.3 System marks the file as updated.
Exception conditions	**The sales records are corrupted** **The sales records are invalid** **The financial report is corrupted**	

Sales Representative

Author (s): **Jordan Murray** **Date:** **04/10/2022**
Version: **0.11**

Use case name:	**Receives Customers Order**	
Scenario:	**Sales Representatives is receiving the customer's order.**	
Triggering event:	**A customer has placed an order online through the application.**	
Brief description:	**The sales representative receives the notification that a customer has placed an order on the site and the system is prompting the representative to facilitate it**	
Actors:	**Sales Representative**	
Related use cases:	Confirms Order	
Stakeholders:	**Managers, Accountants, Sales Rep, Customer**	
Preconditions:	**Customer must exist** **Customer has placed an order** **Sales Representative must exist**	
Postconditions:	**The sales representative has created a sale record for the customer**	
Flow of activities:	**Actor**	**System**
	1. Opens the prompt seeing the customer order.	1.1 Accepts input from the user 1.2 Displays the order information that the customer has placed
	2. Verifies the order and accepts the order.	2.1 System stores the order information of the customer 2.2 System calculates the cost of the order. 2.3 System creates a sale record of the order. 2.4 System displays the receipt of the order.
	3. User sends the receipt to the customer and closes record	3.1 Sends receipt information to the customer. 3.2 Closes sales record
Exception conditions	**Customer does not have the proper billing information**	

Author (s): **Jordan Murray** **Date:** **04/10/2022**

Version: **0.11**

Use case name:	**Records Sale**	
Scenario:	**Sales Representatives is recording the sales record.**	
Triggering event:	**A customer has placed an order online through the application and the order has been accepted.**	
Brief description:	**The sales representative has received and confirmed the order of the customer and is storing the sales record of the order into the financial system**	
Actors:	**Sales Representative**	
Related use cases:		
Stakeholders:	**Managers, Accountants, Sales Rep, Customer**	
Preconditions:	**Customer must exist** **Customer has placed an order** **Sales Representative must exist**	
Postconditions:	**The sales representative created and stored the sale record for the customer into the financial file.**	
Flow of activities:	**Actor**	**System**
	1. Inputs the sales record into the financial report	1.1 Accepts input from the user 1.2 System enters the financial record file of the database. 1.3 Prompts the user to verify the input information.
	2. Verifies the sales record in the financial report	2.1 System stores the verified information into the financial information file. 2.2 System generates a sales record ID for the order that was placed.
Exception conditions	**The financial record is not stored into the file**	

Author (s): **Jordan Murray** **Date:** **04/10/2022**

Version: **0.11**

Use case name:	**Prepares the required Items**	
Scenario:	**Sales Representatives is preparing the customer's order for pickup.**	
Triggering event:	**A customer is on their way to pick up the item**	
Brief description:	**The sales representative is preparing the customer's order of items for pick up at the store**	
Actors:	**Sales Representative**	
Related use cases:	Pick Up Items	
Stakeholders:	**Managers, Accountants, Sales Rep, Customer**	
Preconditions:	**Customer must exist** **Customer has placed an order** **Sales Representative must exist** **Customer is picking up their order**	
Postconditions:	**The sales representative has given the customer their order**	
Flow of activities:	**Actor**	**System**
	1. User has pulled up the order information	1.1 Accepts input from the user 1.2 System searches through the database for the customer's order that matches the customer's order ID. 1.3 System displays the order information to the user.
	2. User prepares the customer's order.	2.1 System marks the order information as "Displayed".
	3. User marks the order as "Picked Up"	3.1 System accepts input. 3.2 System marks the order as "Picked Up" and completed in the system's database
Exception conditions	**Customer does not have the proper order ID information**	

Author (s): **Jordan Murray** **Date:** **04/10/2022**

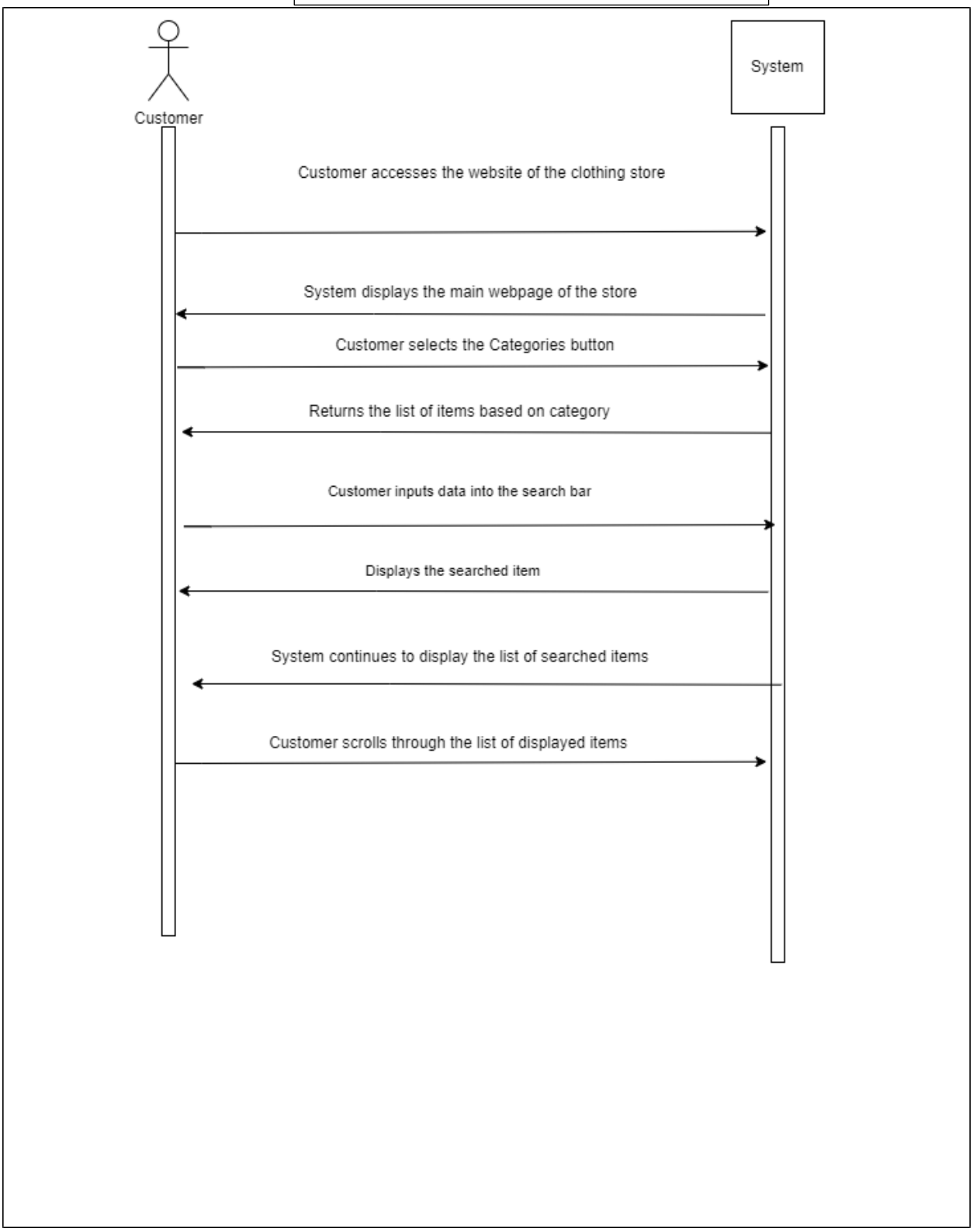
Version: **0.11**

Use case name:	**Facilitate the sale between customer and the store**	
Scenario:	**Sales Representatives is notifying the order information for the delivery drop off**	
Triggering event:	**A customer has placed an order.**	
Brief description:	**The sales representative is preparing the customer's order of items for the delivery person.**	
Actors:	**Sales Representative**	
Related use cases:	Confirms Order	
Stakeholders:	**Managers, Accountants, Sales Rep, Customer**	
Preconditions:	**Customer must exist** **Customer has placed an order** **Sales Representative must exist** **Customer is requesting the order to be dropped off**	
Postconditions:	**The sales representative has passed off the necessary information**	
Flow of activities:	**Actor**	**System**
	1. User has pulled up the order information	1.4 Accepts input from the user 1.5 System searches through the database for the customer's order that matches the customer's order ID. 1.6 System displays the order information to the user.
	2. User prepares the customer's order.	2.2 System marks the order information as "Displayed".
	3. User gives the order to the delivery personnel.	3.1 System accepts input. 3.2 System marks the order as "Passes to Delivery"
Exception conditions	**Customer does not have the proper order ID information**	

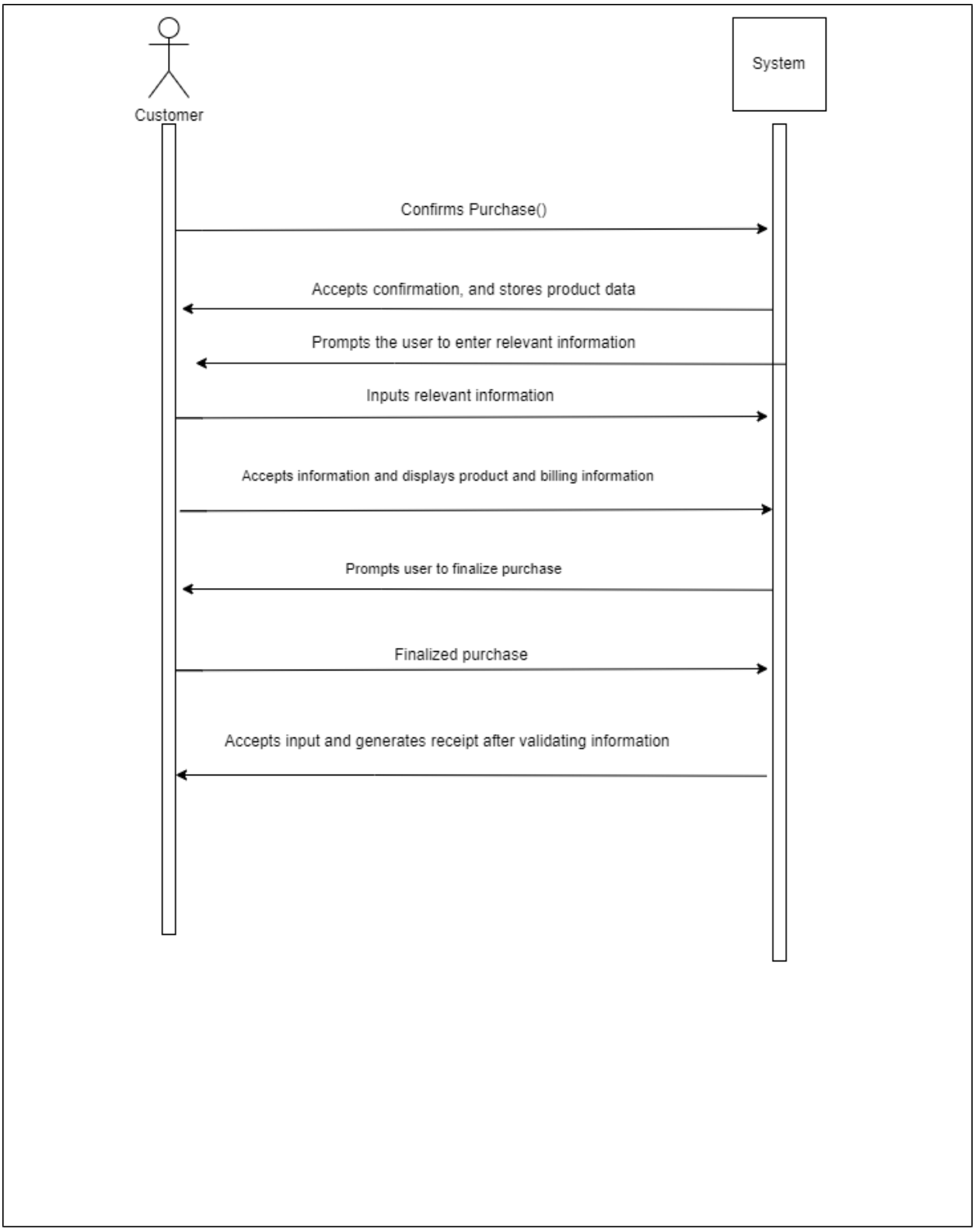
Activity Diagrams

The following details the systems activity diagrams.

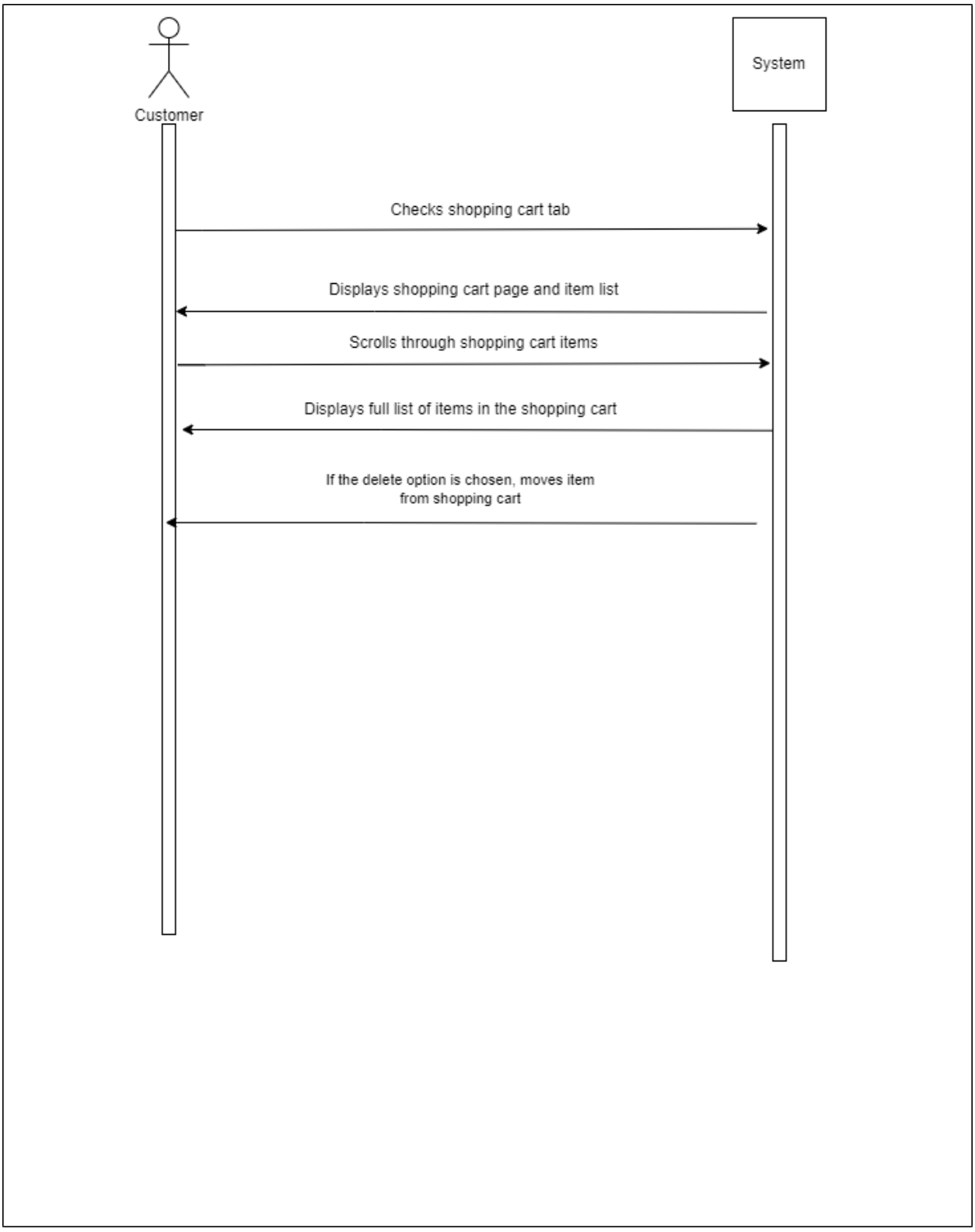
Actor: Customer Use Case: Browse Items



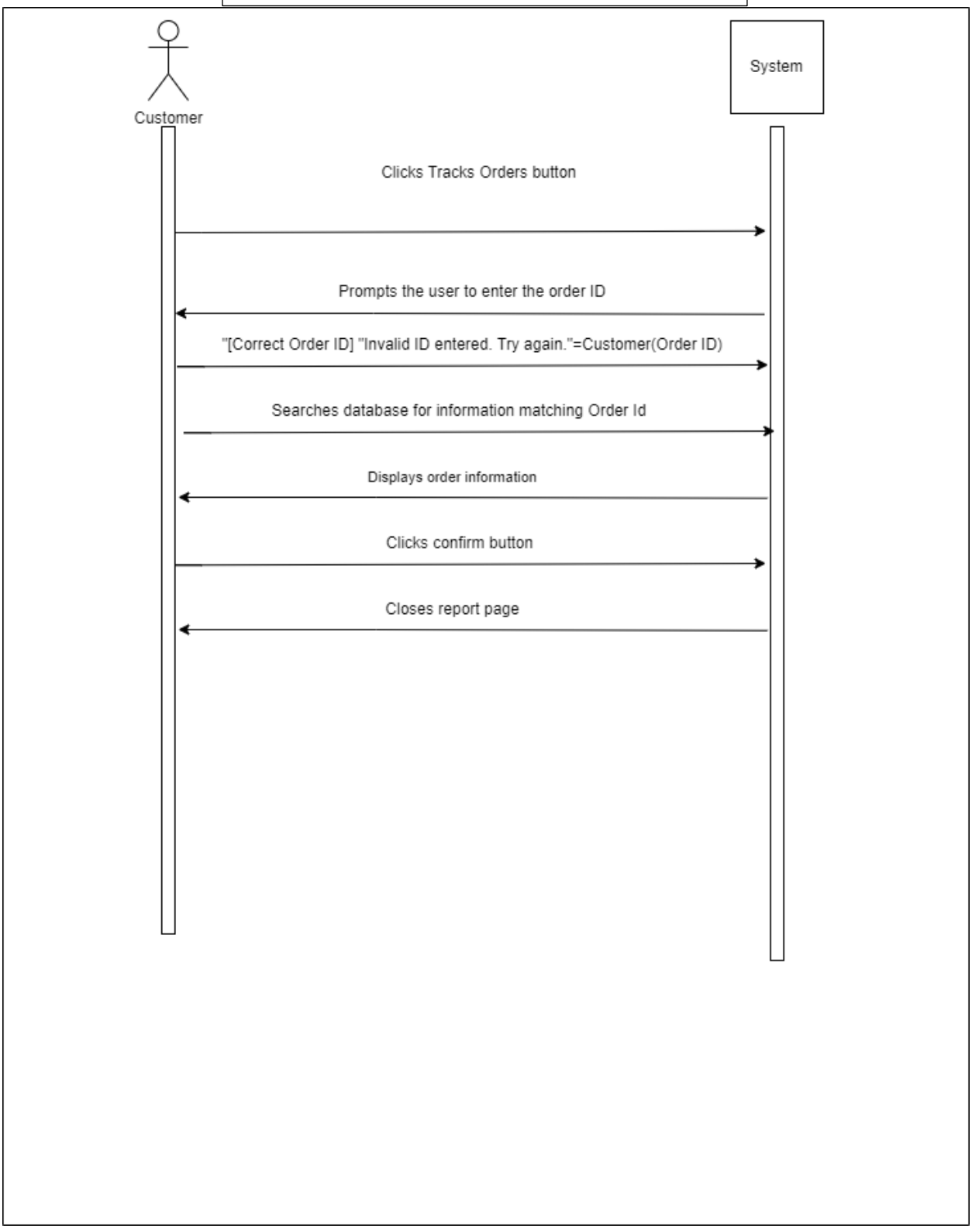
Actor: Customer Use Case: Checkout Items



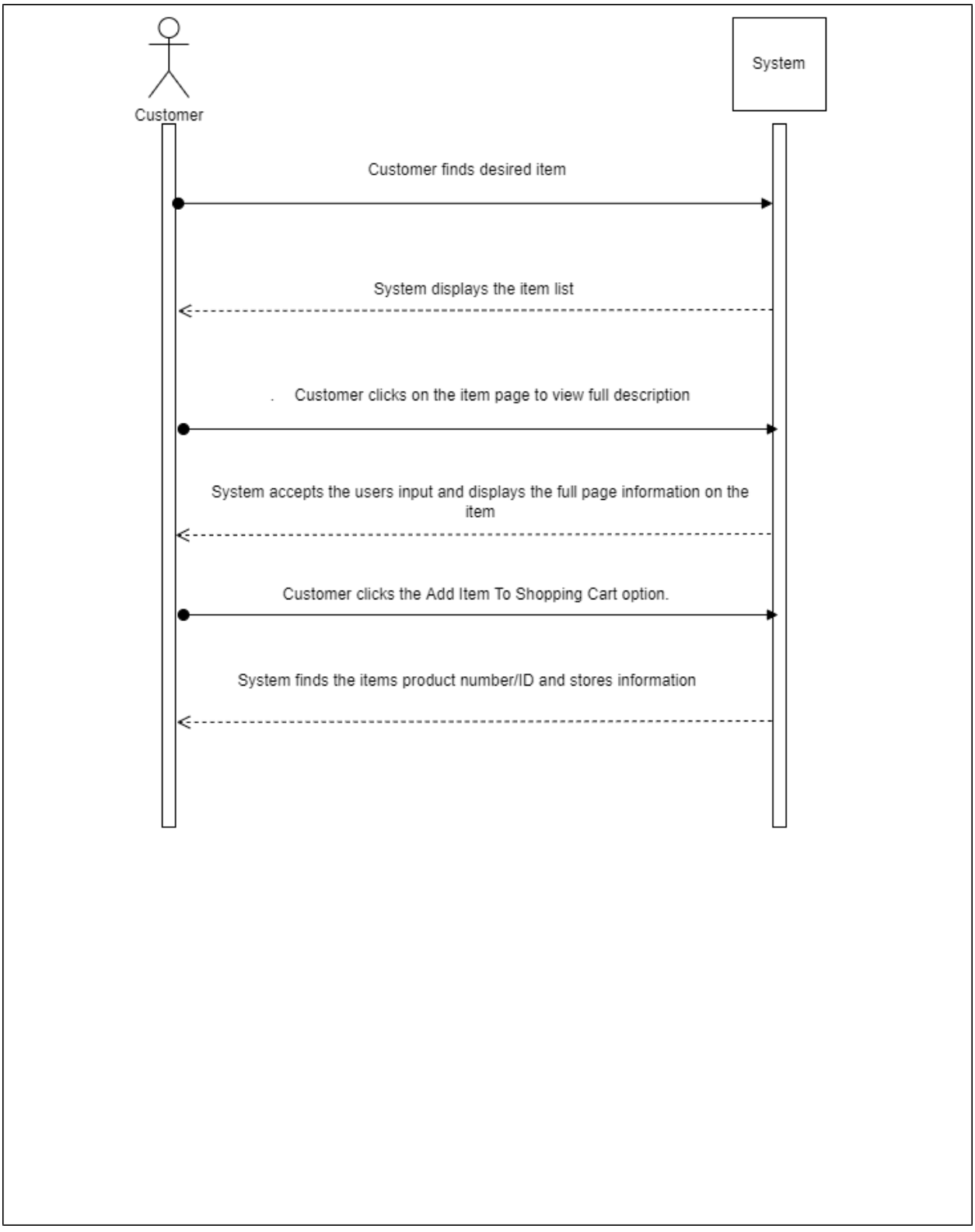
Actor: Customer Use Case: Review items



Actor: Customer Use Case: Track their Orders



Actor: Customer Use Case: Add Items to Cart



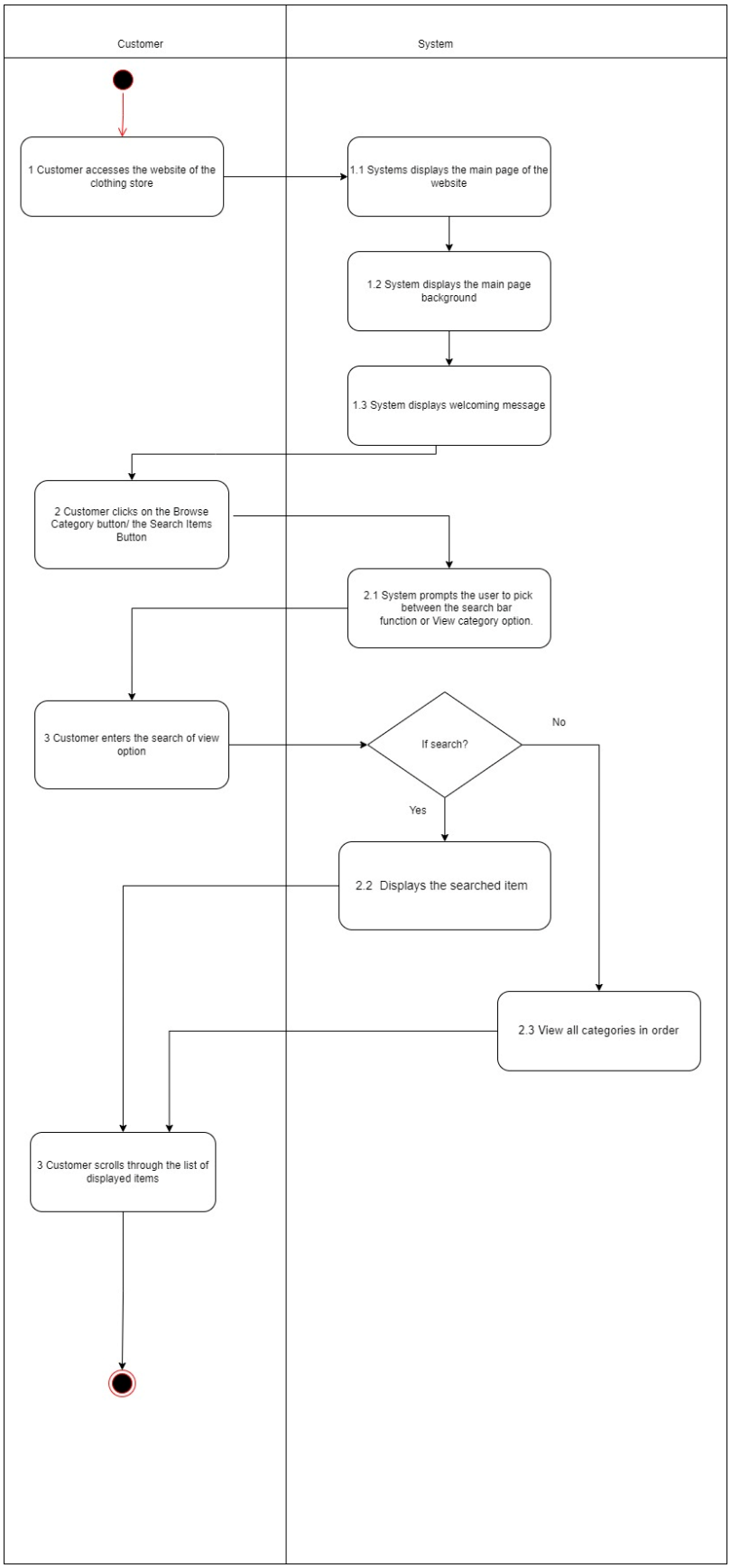
Sequence Diagrams

The following details the systems sequence diagrams.

Actor:
Customer

Use Case:

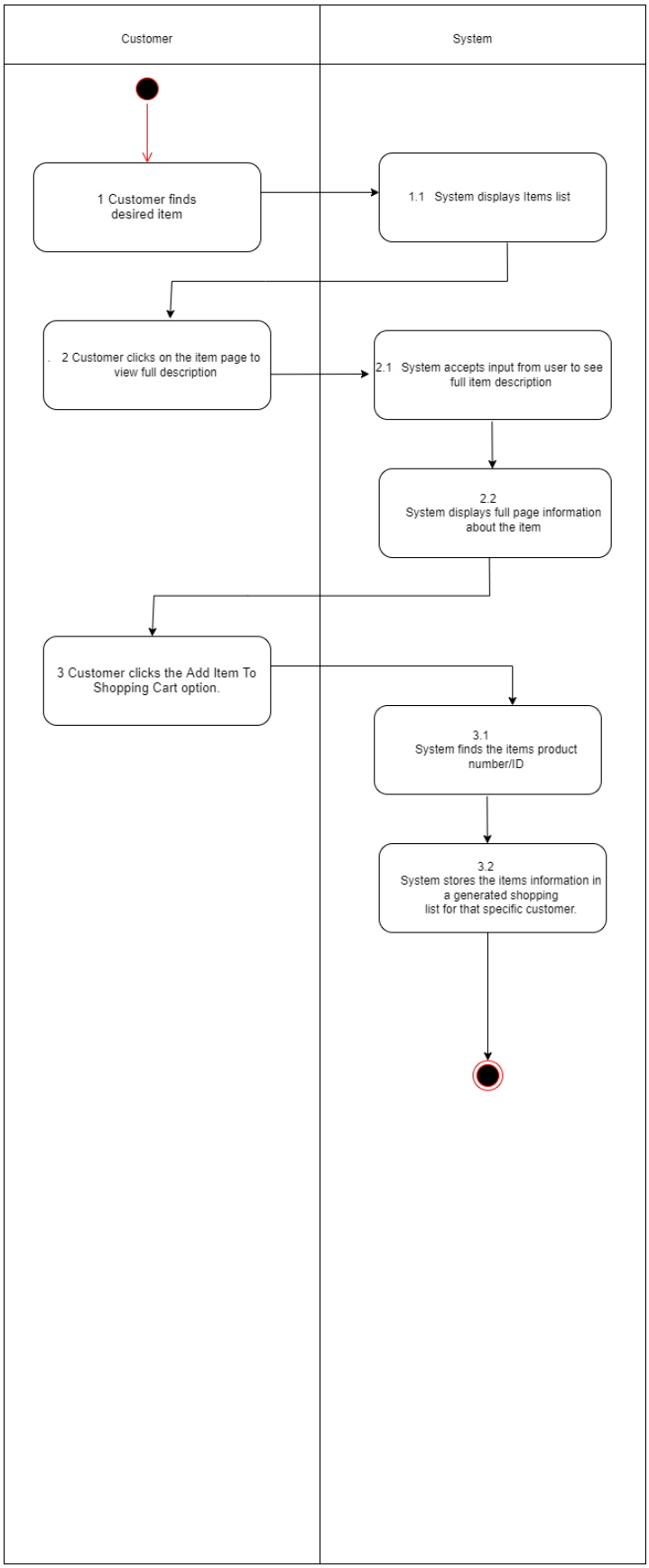
Browse Items



Actor:
Customer

Use Case:

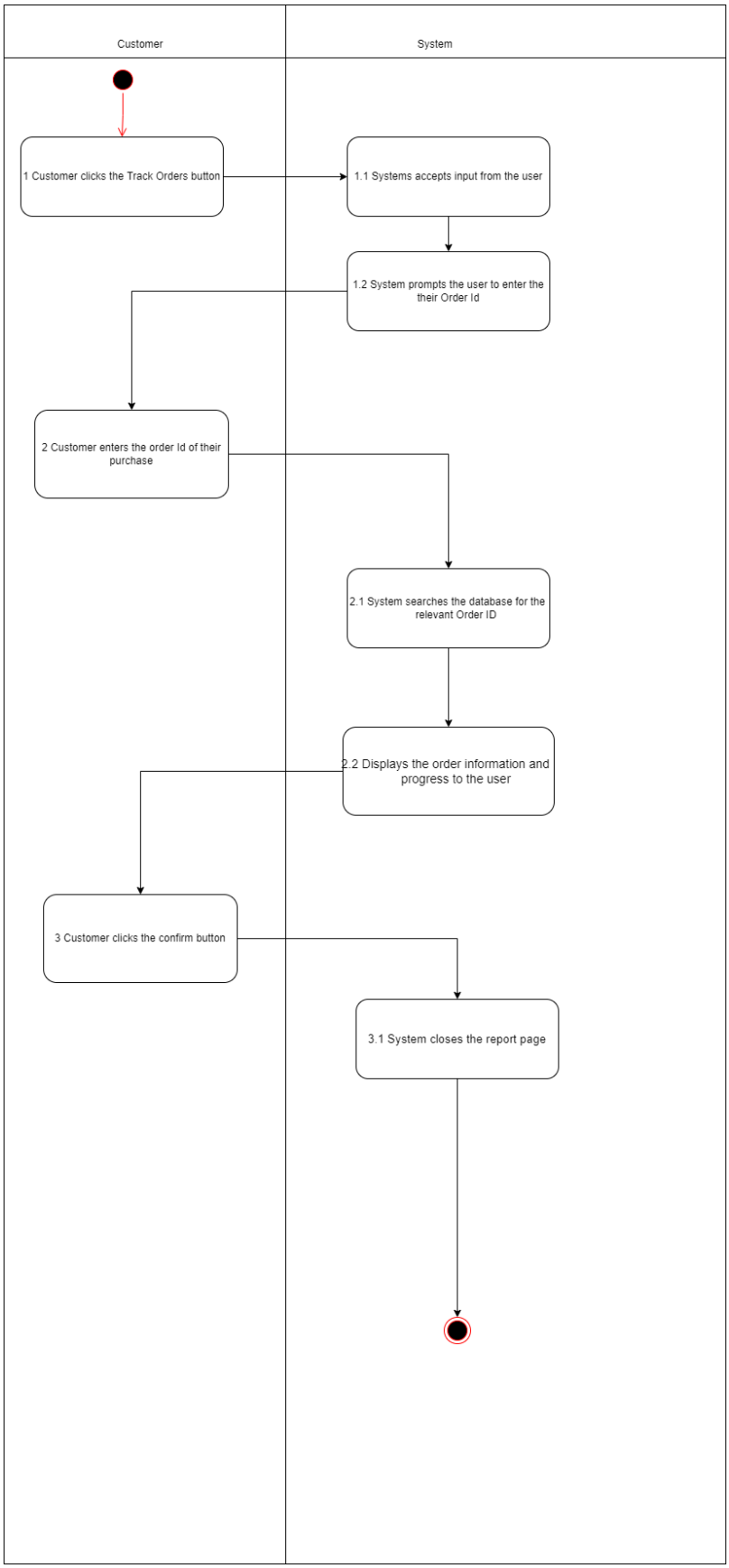
Add Items To Shopping Cart



Actor:
Customer

Use Case:

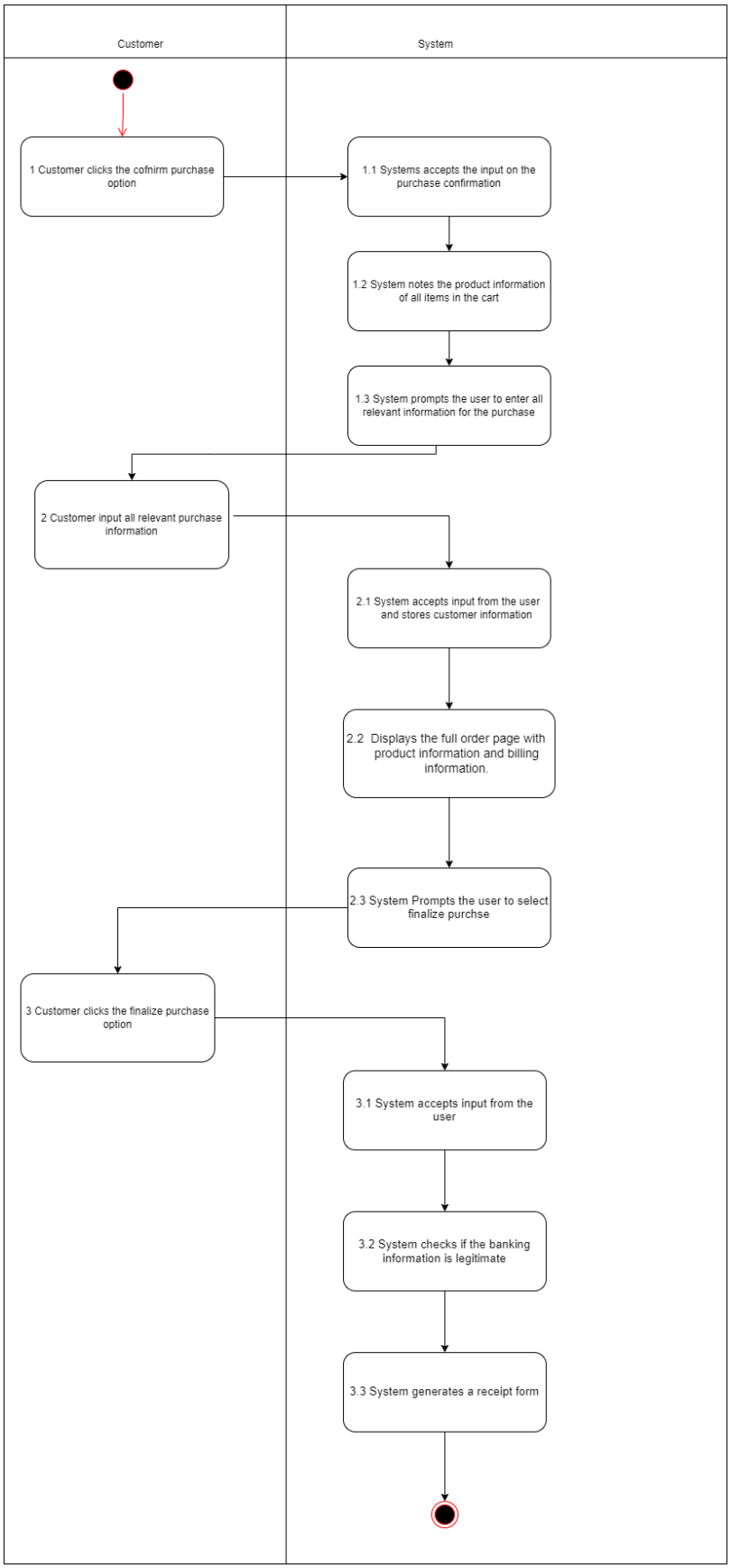
Tracks their order



Actor:
Customer

Use Case:

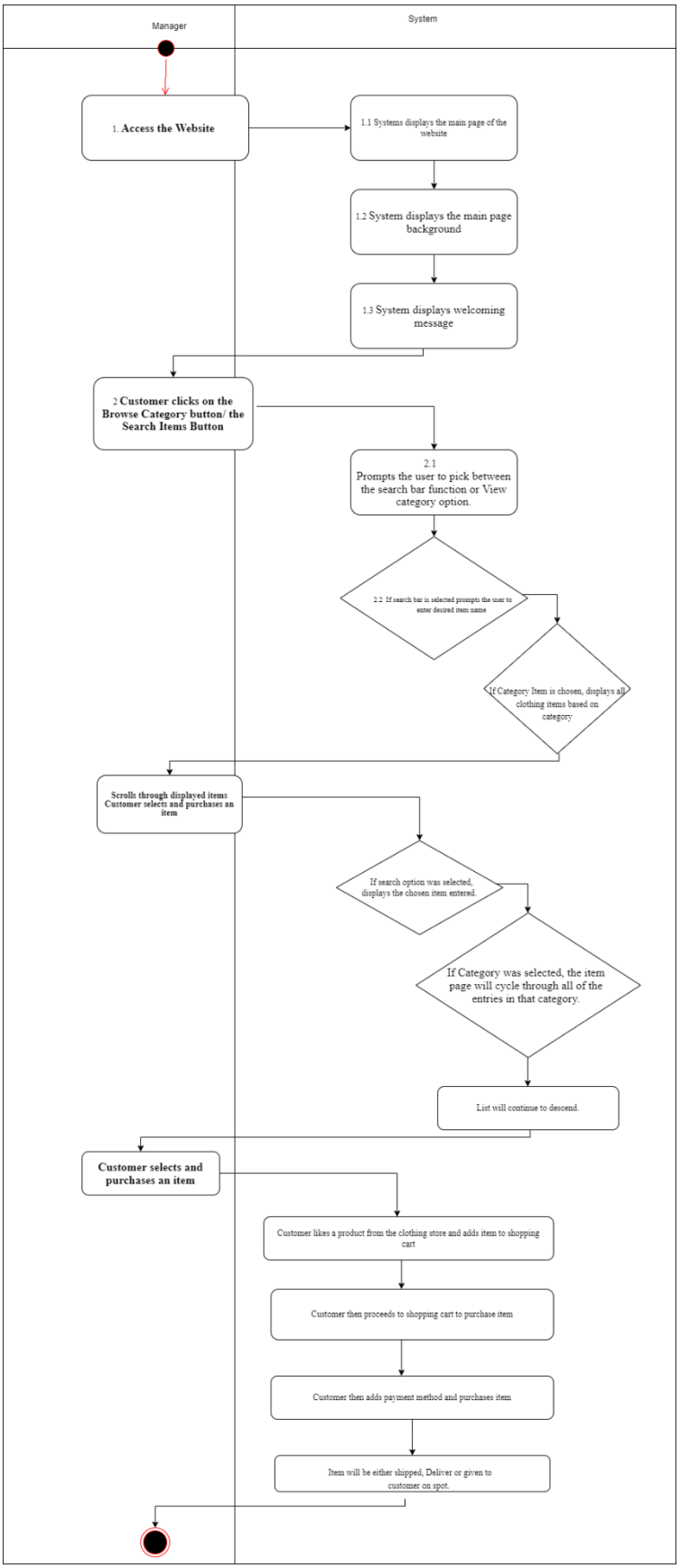
Checkout Items



Actor: Manager

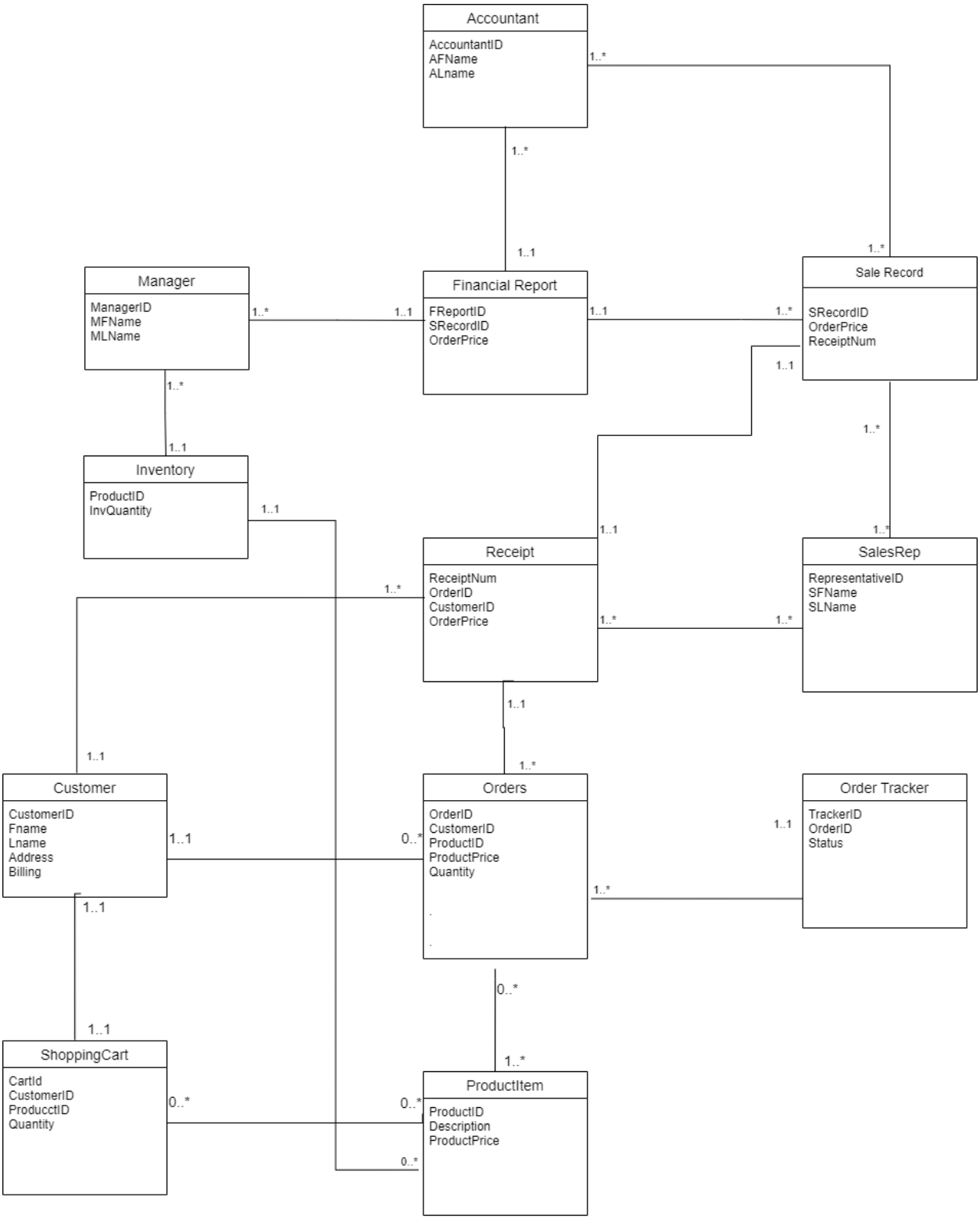
Use Case:

Manage Items



Chapter 4

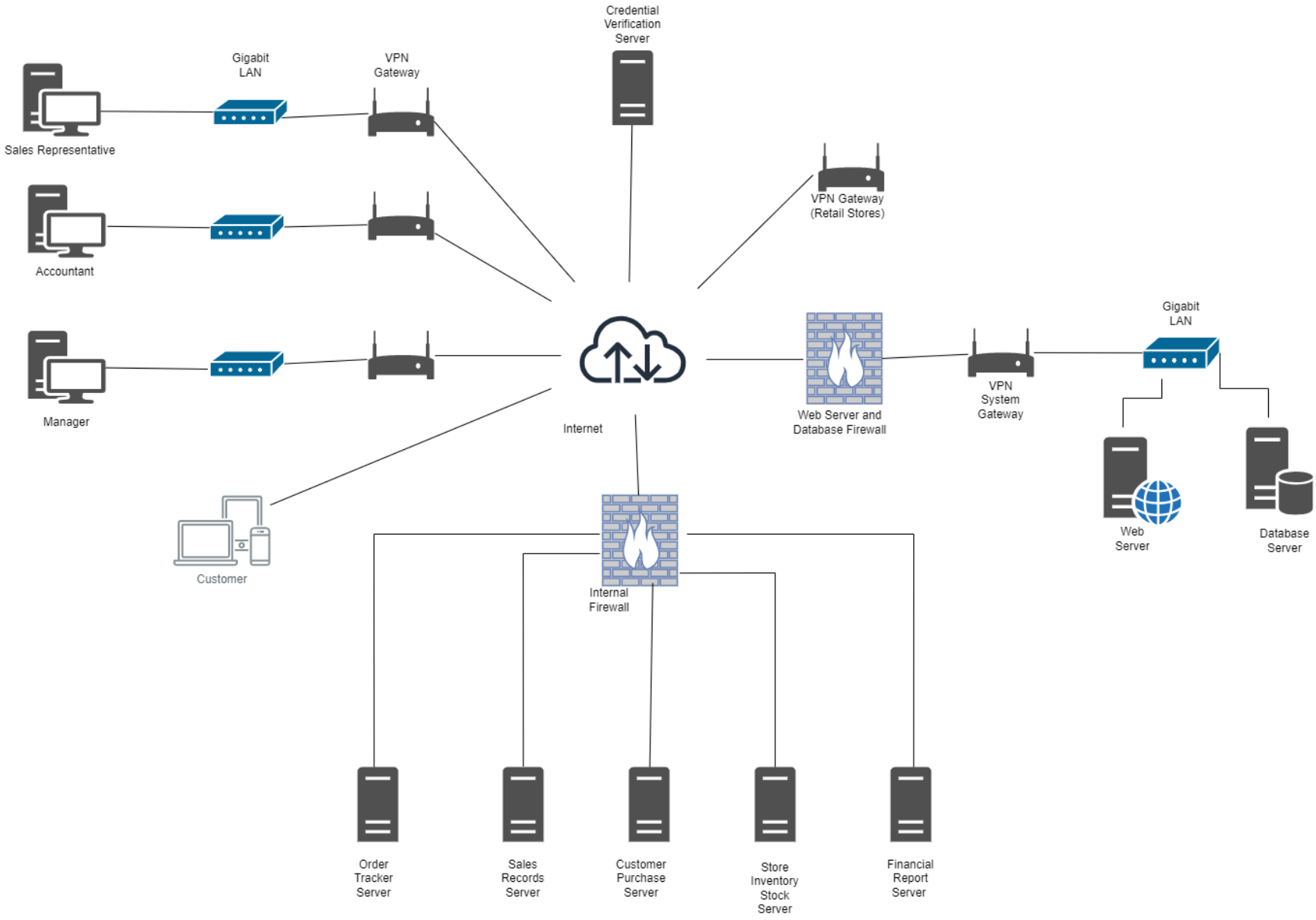
Domain Model Class Diagram

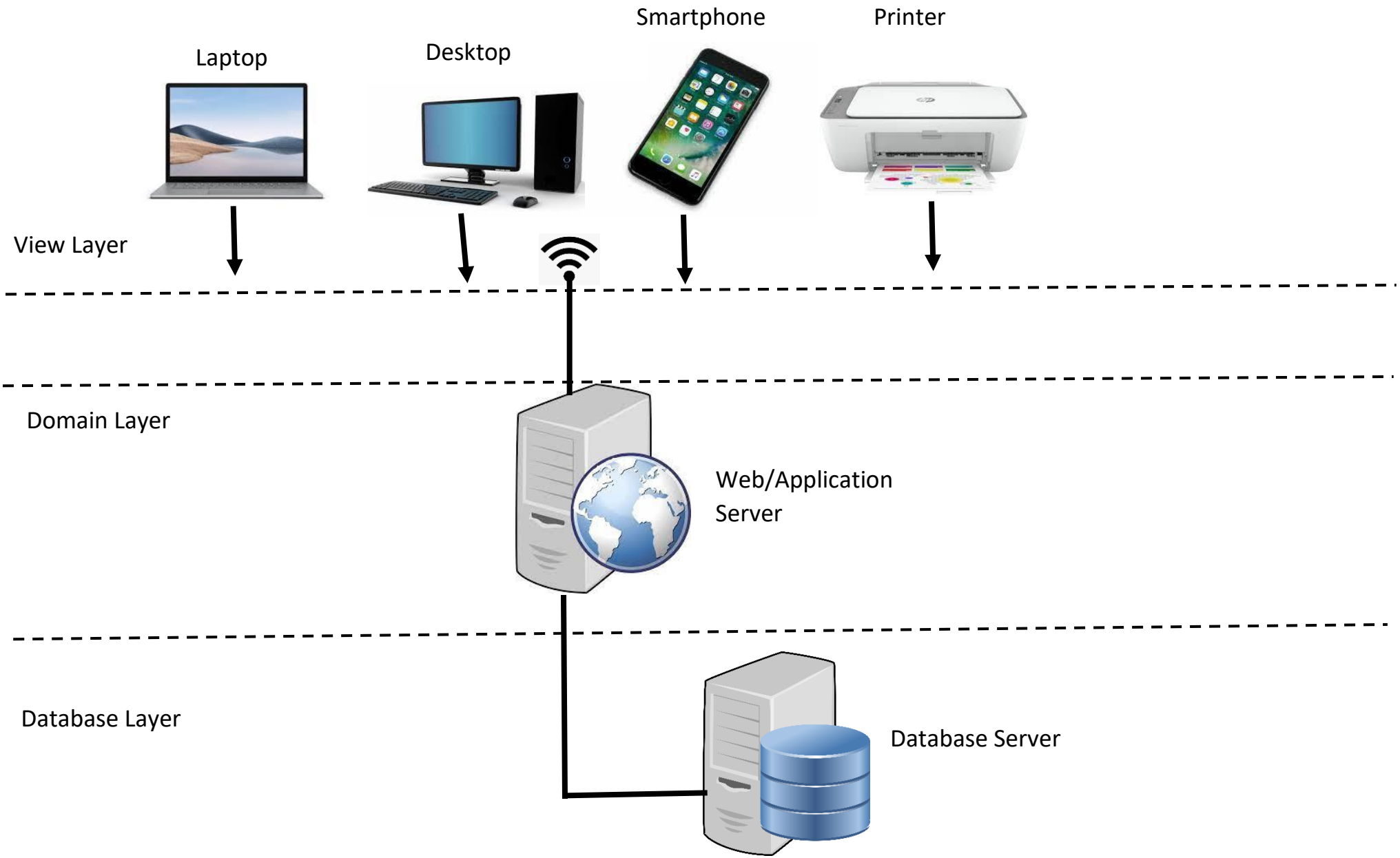

Accountant
AccountantID
AFName
ALname
Manager
ManagerID
MFName
MLName
Financial Report
FReportID
SRecordID
OrderPrice
Sale Record
SRecordID
OrderPrice
ReceiptNum
Inventory
ProductID
InvQuantity
Receipt
ReceiptNum
OrderID
CustomerID
OrderPrice
SalesRep
RepresentativeID
SFName
SLName
Customer
CustomerID
Fname
Lname
Address
Billing
Orders
OrderID
CustomerID
ProductID
ProductPrice
Quantity
Order Tracker
TrackerID
OrderID
Status
ShoppingCart
CartId
CustomerID
ProducctID
Quantity
ProductItem
ProductID
Description
ProductPrice
1..*
1..1
0..*

Database Design (3NF)

Table	Attribute
Customer	**CustomerID**, Fname, Lname, Address, Billing,
Shopping Cart	**CartId**, *CustomerID, ProducctID, ProductPrice, Quantity*
Product Item	**ProductID**, Description, ProductPrice
Orders	**OrderID,** *CustomerID, ProductID, ProductPrice, Qunatity*
Order Tracker	**TrackerID**, *OrderID,* Status
Receipt	**ReceiptNum,** *OrderID,CustomerID,OrderPrice*
SalesRep	**RepresentativeID**, SFName, SLName
Sale Record	**SRecordID**, *OrderPrice, ReceiptNum*
Financial Report	**FReportID**, *SRecordID, OrderPrice*
Manager	**ManagerID,** MFName, MLName
Accountant	**AccountantID**, AFName, ALname
Inventory	**ProductID+InvQuantity**

Architecture Diagrams (Technology and Application)




Laptop
Desktop
Smartphone
Printer
View Layer
Domain Layer
Web/Application
Server
Database Layer
Database Server

Architecture Description

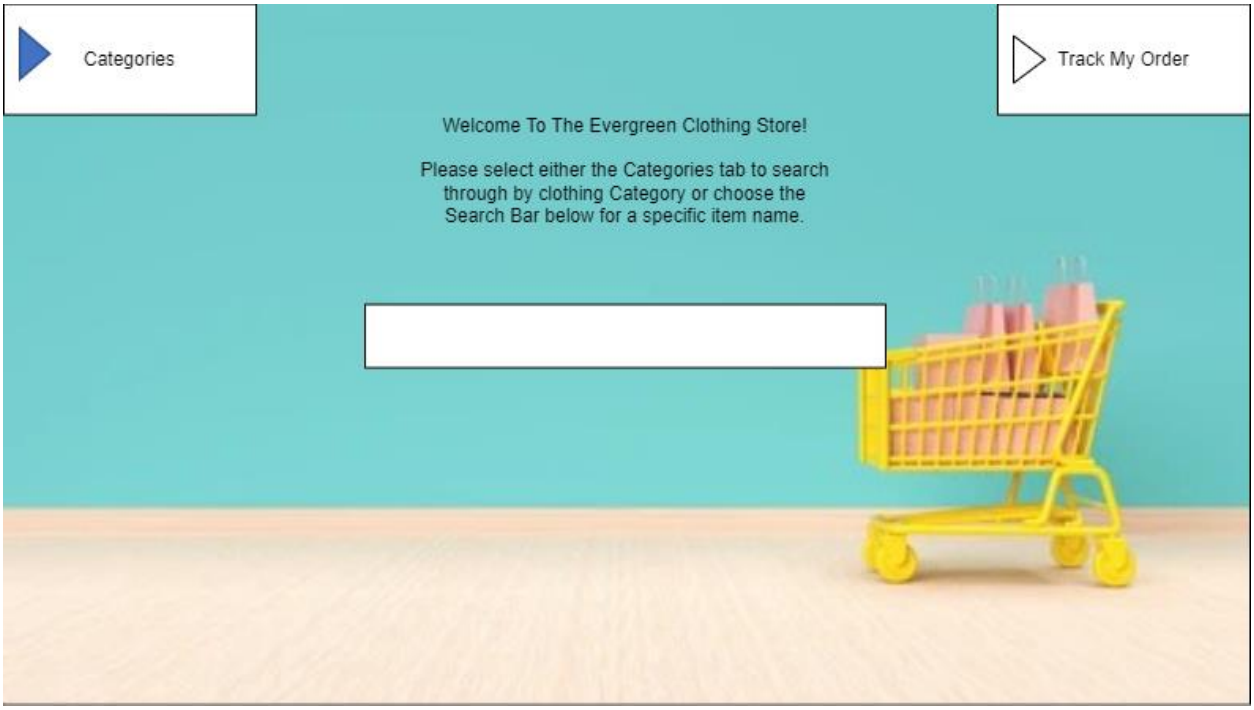
Users of the application such as the Customer, Manager, Accountant and Sales Representative would connect their devices to the application as seen in the View layer. The Customer would connect using either their laptop, desktop or smartphone device while the Manager, Accountant and Sales Representative would connect using a desktop. These devices would be connected the Application/Web server as seen in the domain layer. This Application/Web server would then be connected to the following Database server located in the database layer.

User Interface

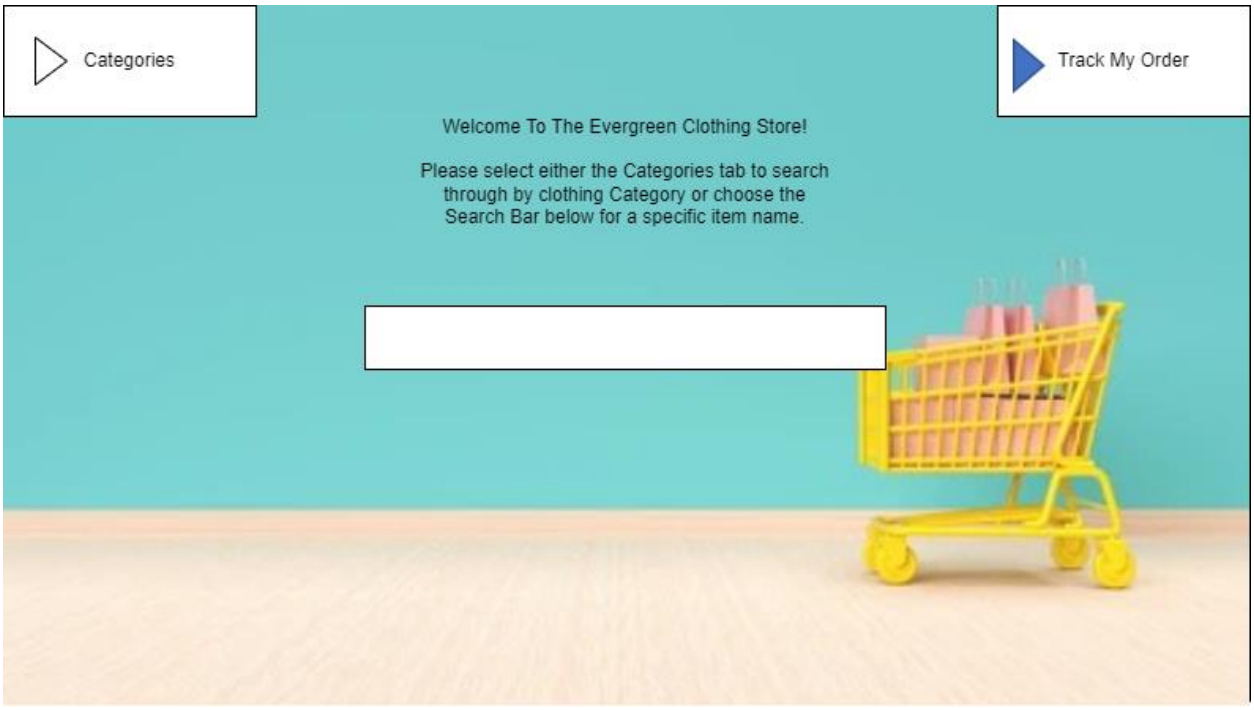
The following details 10 examples of the UI Design in action,

1. The base layout of the welcoming page. Displays the welcoming message and its three main features. The Categories Tab, the Track My Orders Tab and the default Search bar

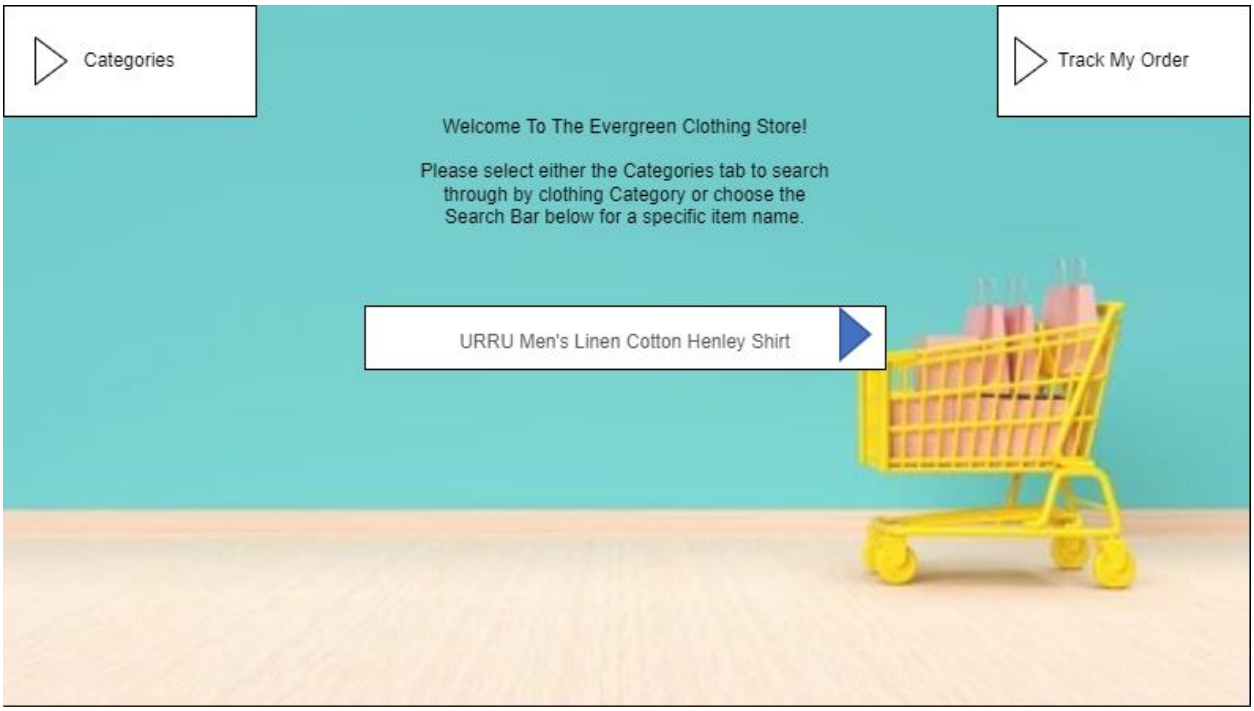
2 The user has selected the Categories Tab, resulting in a change of the arrow to blue, showing a response to the action.



3 The user has selected the Track My Order tab, resulting in a change of the arrow to blue, showing a response to the action.

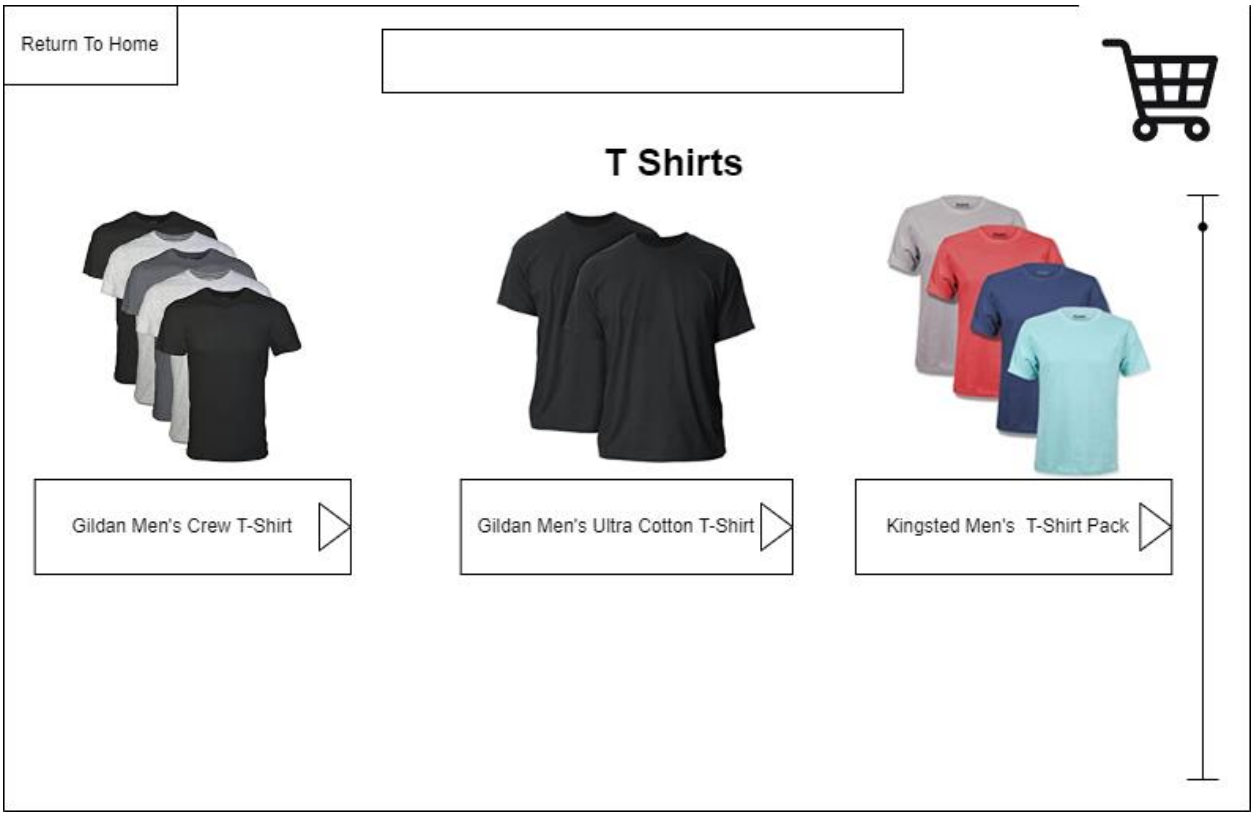


4 The user has typed in the name of the clothing item that they wish to search for into the Search Bar. The word has been entered and the arrow has been changed to blue, showing that the user has selected to search for this item.



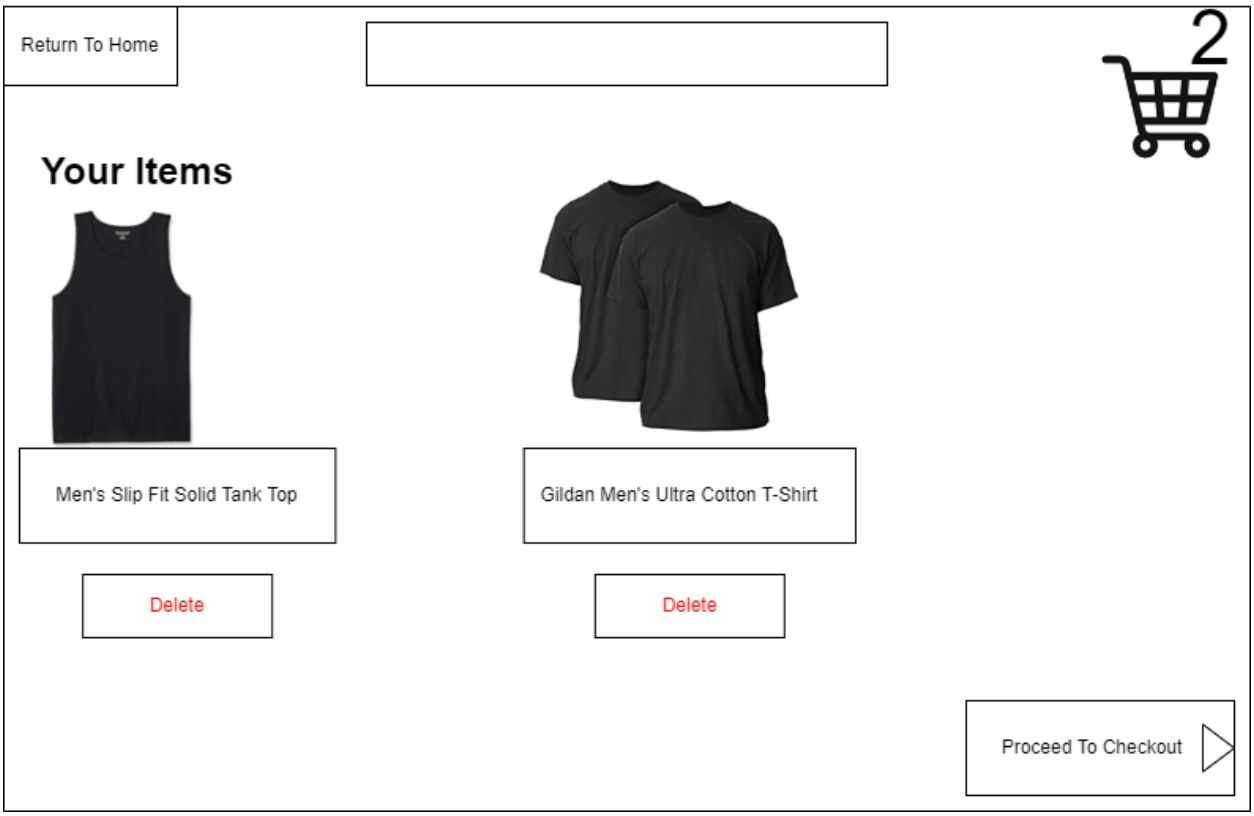
5 The user is taken the store page for the item that they previously searched for. Here the description of the item is displayed. A Return to Home tab has been added if the user wishes to return to the homepage and a shopping cart icon has been added for items to be placed in.

6 The user had previously selected the Categories tab and the site is now displaying The clothing items by category starting with the T Shirts category.

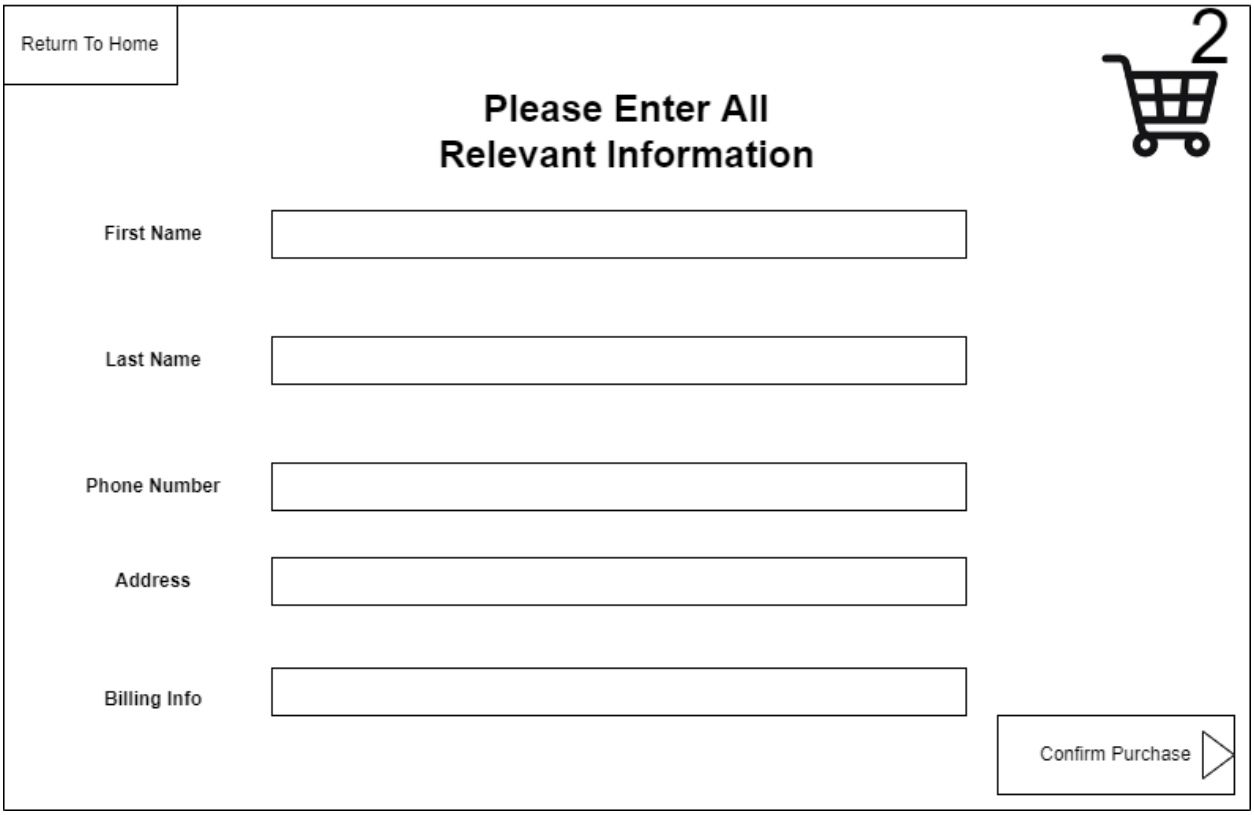


7 The User has scrolled down on the page moving into the Tank Tops category of the store page, the cursor on the right signifying the movement.

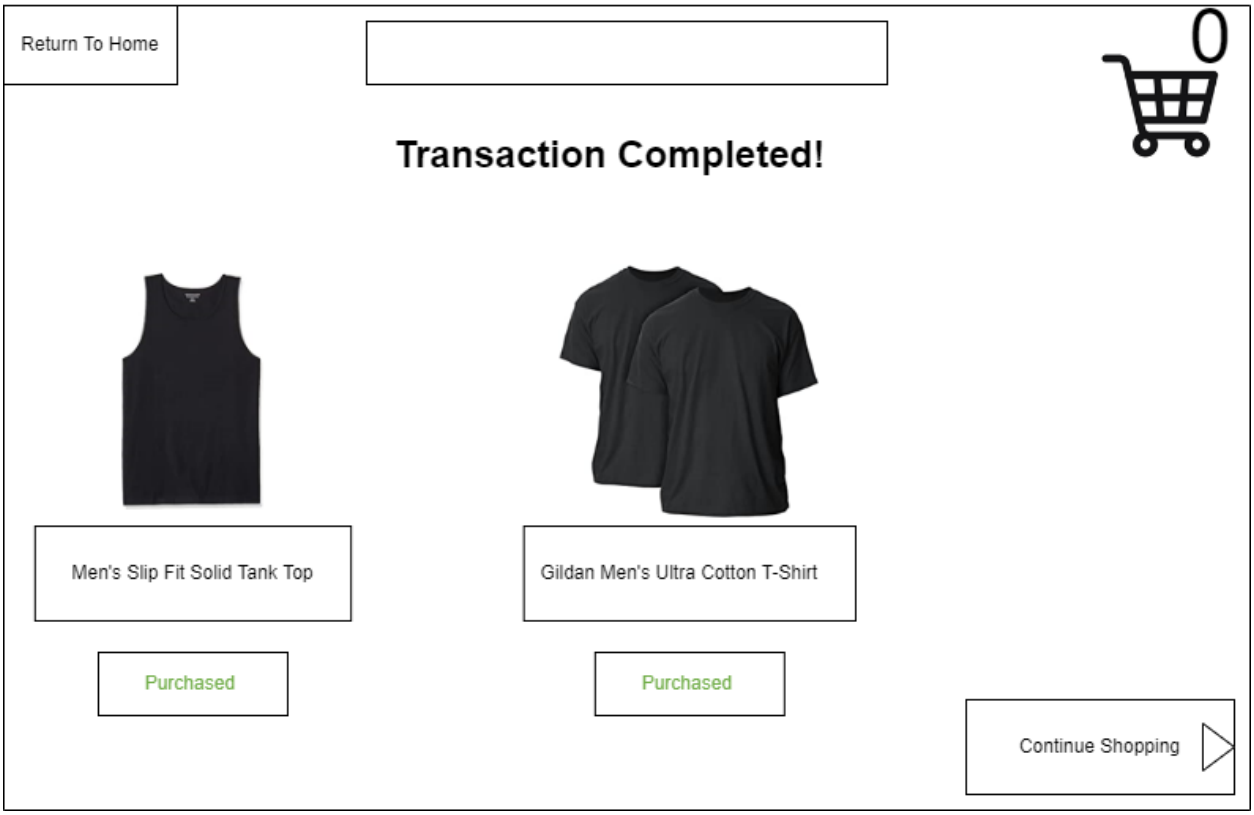
8 the User had clicked on the shopping cart icon, now showing the two items placed within the cart. Here a delete function had been added if they wish to remove the item from the cart, or they can continue on to the checkout.



9 The user had previously clicked the Proceed to Checkout tab and has now been brought to the billing page, where the system prompts the user to enter all relevant customer information.



10 The User had clicked the Confirm Purchase tab and has been displayed the Transaction Completed page, showing the items that they had just purchased



Chapter 5

Accessibility

This section specifies the following requirements to the degree with which the system must be accessible to people with disabilities:

- Any graphical user interfaces of the PCM will be usable by persons with color blindness.
- Any graphical user interfaces of the PCM shall use an adequate font size to be readable and easily understood by persons with limited visual acuity.

Auditability

This section specifies the following requirements with the degree to which the system can support independent auditing of its finances:

- The PCM shall maintain a record for 1.5 years of each sale record.
- The PCM shall maintain a record for 1.5 years of each receipt.
- The PCM shall maintain a record for 1.5 years of each financial report.

Branding

This section specifies the following requirements that are associated to the degree which the system must support the overall brand of PCM.

- Non specified.

Configurability

This section specifies the following requirements that are associated to the degree which the system may have multiple variations:

- Variant Capabilities
    - There are no requirements.
- Internationalization
    - There are no planned requirements for internationalization since the main releases of the PCM system will be restricted to users living within the country of Jamaica.
- Personalization
    - Changes of the background image seen on the main page.
    - Change of the color of the arrow icons that signify user interaction,
    - The receipt and billing page can be changed to include more information.

Efficiency

This section specifies the following requirements that are associated to the degree which the system effectively uses the resources it is given:

- The PCM will require employees and store retail management to download the main system application on to their desktops.
- The PCM will not require users/customers to permanently download the application onto their devices.

Extensibility

This section specifies the following requirements that are associated to the degree which the system can be modified to meet the possibly changing goals and various requirements:

- The PCM shall be easily extendable to enable clothing sellers/retailers to see which clothing items are being sold by popular demand.
- The PCM shall be easily extendable to allow customers to repeat previous purchases through a past transactions tab.
- The PCM shall be easily extendable to create a tracker for the number of times a customer makes purchases and provides discounts at certain milestones.

Installation.

This section specifies the following requirements that are associated to the degree which the system can be installed:

- A user shall not take more than 10 minutes to install or update the PCM software on their computer.
- All users shall be clearly informed and briefed on all system requirements for successful installation.

Interoperability

This section specifies the following requirements that are associated to the degree which the system can be integrated with other systems:

- The PCM system shall work with the following browsers:
  - Internet Explorer
  - Google Chrome
  - Firefox

Maintainability

This section specifies the following requirements that are associated to the degree which the system can be maintained:

- The PCM shall permit the upgrade and maintenance of the software with little to no down time.

Operational Availability

This section specifies the following requirements that are associated to the degree which the system must function correctly:

- By the release 1 the PCM shall provide all users with a minimum operational availability of 99%
- By the release 2, the PCM shall provide all actors with a minimum operational availability of 99.9%

Performance

This section specifies the following requirements that are associated to the degree which the system can functions:

- Capacity
  - The system can support 500 simultaneous sales.
  - The system can support 10,000 sales per year.
  - The system can support 30 employees.
  - The system can support 5000 customers.
- Latency
  - The customer is able to search for and find all relevant items in 5 minutes.
- Response Time
  - All system-based responses will be generated within 20 seconds.

Portability

This section specifies the following requirements that are associated to the degree which the system can be moved from environments:

- Laptop
- Desktop
- Smartphone

Reliability

This section specifies the following requirements that are associated to the degree which the system is associated with the reliability:

- The time between major system failures will be between 2-3 weeks.

Reusability

This section specifies the following requirements that are associated to the degree which the system can be used for other purposes:

- The PCM shall reuse software to send requests for more inventory stock from manufacturers.

Robustness

This section specifies the following requirements that are associated to the degree which the system functions under unexpected circumstances:

- The PCM will handle invalid or incorrect input form the customers.
- The PCM should handle major hardware failures:
    - Records all current data into a back up for as a failsafe precaution.

Safety

This section specifies the following requirements that are associated to the degree which the system handles loss of property:

- The PCM will not lose customer account data.
- The PCM will correctly calculate all orders placed into the shopping cart.

Scalability

This section specifies the following requirements that are associated to the degree which the system can scale for the future:

    - The system can scale from 500 to 800 simultaneous sales.
    - The system can scale 10,000 to 12,000 sales per year.
    - The system can scale 30 to 50 employees.
    - The system can scale 5000 to 6000 customers.

Security Requirements

- The system will verify the account credentials of the accountant before allowing access to the following:
    - Sales Records.
    - Financial Reports.
- The system will verify the account credentials of the sales representative before allowing access to the following:
    - Sales Records.
    - Financial Reports.
    - Receipts
- The system will verify the account credentials of the managers before allowing access to the following:
    - Sales Records.
    - Financial Reports.
    - Inventory stock
- The system will verify the account credentials of the customer before allowing access to the following:
    - Receipt
    - Order Tracking

Testability

This section specifies the following requirements that are associated to the degree which the system can tested:

- To be announced.

Usability

This section specifies the following requirements that are associated to the degree which the system can be used properly:

- The customer should be able to access the site in 1 minute.
- The customer should be able to search for the item in 1 minute.
- The customer should be able to identify their order via tracker in 2 minutes.
- The customer should be able to purchase their items in 3 minutes.
- The accountant should be able to view all sales records within 5 minutes
- The accountant should be able to access, view or edit the main financial report under 10 minutes.
- The manager should be able to view all sales records within 5 minutes
- The manager should be able to access or view the main financial report under 10 minutes.
- The manager should be able to compile a financial report for the month within 20 minutes.
- The sales representative should be able to facilitate an order with a customer within 5 minutes.
- The sales representative should be able to generate a sales record within 8 minutes.