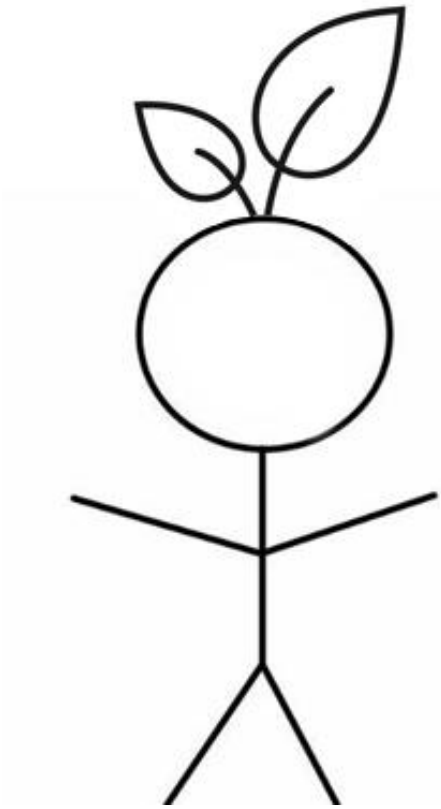
Growing Pains – An Online House Plant Store

Systems Analysis, Design & Testing - Project



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Course: Software Development (CW_KCSOF_B)

Submission Date:

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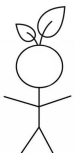
South East Technological University



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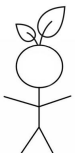


Summary

A rapidly growing houseplant store wants to expand its business to build an online system in order to manage its expanding business and improve customer engagement. The system should aim to meet the following requirements:–

a) Facilitate the buying of a diverse range of plants and plant accessories

b) A comprehensive marketplace experience, making the interface accessible to the user

c) The store catalogue must have a filter feature to enhance user experience, allowing users to sort items and accessories by price, type etc

d) Users must also be able to set personal reminders, notifying them of when to water their plants

The system should also feature a user-interface which keeps the design aesthetics of the houseplant store in mind.

The system should allow users to browse the store catalogue, which will include filtering options such as plant species, type, price and accessory. Each plant listing will include brief descriptions, care instructions and pricing information, which can be visible when a customer selects a plant.

Once the user selects a plant, they can add it to their cart to proceed with the checkout process.

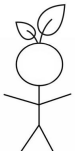
Another integrated feature should allow users to set a reminder by selecting a date. The reminder will take input on the plant type and species (e.g., succulent, tropical, houseplant) and notify the user of when to next water their plant.

User Stories

Story ID :	STK001
Story Name :	Select Item
Description :	As a customer I need to select a plant so that I can then add it to my basket.
Confirmation:	User successfully selected a plant

Story ID :	STK002
Story Name :	Add to Cart
Description :	As a customer I need to add items to my cart so that I can purchase multiple items at once
Confirmation:	User has accumulated a basket

Story ID :	STK003
Story Name :	Checkout
Description :	As a customer I need to checkout so that I can get plants to decorate my room
Confirmation:	User receives their items

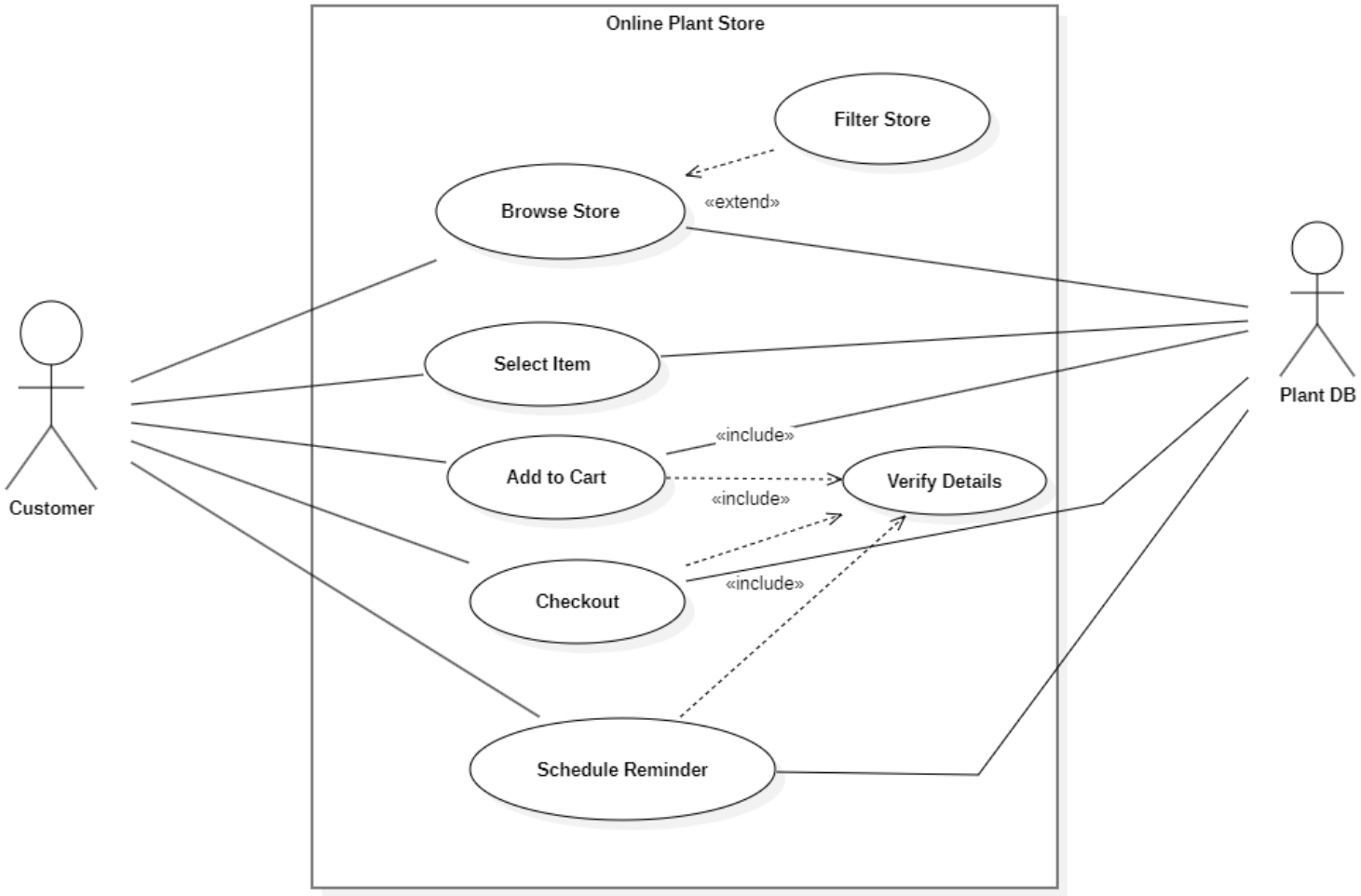


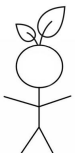
Story ID :	STK004
Story Name :	Schedule Reminder
Description :	As a plant owner I would like to be able to set a reminder on when to water so that I don't forget
Confirmation:	User received a reminder

Story ID :	STK005
Story Name :	Filter Catalogue
Description :	As a customer I want to filter the catalogue by types so that I can only see plants that are relevant to my interests and climate
Confirmation:	Store has filtered to relevant tags

Story ID :	STK006
Story Name :	Browse Catalogue
Description :	As a customer I need to browse the catalogue so that I can see all items available to purchase
Confirmation:	User can interface with the catalogue

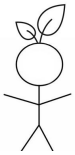
Use Case Diagram



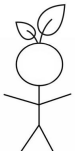


Use Case Scenarios

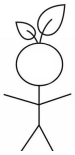
Use case name: Select Item	**UniqueID:** UC001
Area: Web store	
Actor(s): User	
Description: Allow user to select an item from online store	
Triggering Event: User clicks on a product	
Trigger type: ☒**External** ☐**Temporal**	
Steps Performed (Main Path)	**Information for Steps**
1. User visits online store	URL link
2. User begins browsing catalogue of items	Store database
3. Clicks an item - so as to view more information	User, Store database
Preconditions: User has internet connection to visit store	
Postconditions: Store GUI updates to represent the user's selection	
Assumptions: User wants to select an item	
Requirements met: User can select an item from store	
Outstanding issue(s): Ability to select multiple items	
Priority: 1	
Risk: User wants to go back and select a new item	



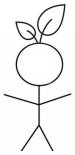
Use case name: Add to Cart	**UniqueID:** UC002
Area: Web store	
Actor(s): User	
Description: Customer may add a selected item to their cart	
Triggering Event: User selects item to add	
Trigger type: ☒**External** ☐**Temporal**	
Steps Performed (Main Path)	**Information for Steps**
1. User visits online store	URL link
2. User logs into the system	User, store database
3. User begins browsing catalogue of items	Store database
4. Clicks an item - so as to view more information	User, Store database
5. User clicks “add to cart” button	User, Store database
Preconditions: User visits website	
Postconditions: System updates cart to reflect item added	
Assumptions: User wants to add items to their cart	
Requirements met: User can add item to cart	
Outstanding issue(s): Customer may want to add an item no longer in stock to cart	
Priority: 2	
Risk: Customer must have an account in order to add items to their cart	



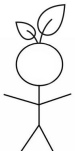
Use case name: Checkout	**UniqueID:** UC003
Area: Web store	
Actor(s): User	
Description: Allow user to checkout their cart	
Triggering Event: User clicks “proceed to checkout”	
Trigger type: ☒**External** ☐**Temporal**	
Steps Performed (Main Path)	**Information for Steps**
1. User visits online store	URL link
2. User logs into the system	User, store database
3. User begins browsing catalogue of items	Store database
4. Clicks an item - so as to view more information	User, Store database
5. User clicks “add to cart” button	User, Store database
6. User clicks “proceed to checkout”	User, Store database
7. User inputs personal information (payment details, address, phone number)	User, Store database
8. User selects confirm order	User, Store database
9. System confirms Order Completed Successfully	Store database
Preconditions: User has a cart of item(s)	
Postconditions: System updates to confirm purchase	
Assumptions: User has money	
Requirements met: User has successfully purchased item	
Outstanding issues: Checkout a cart as a gift	
Priority: 3	
Risk: Order may not be successful if user doesn’t input personal details correctly	



Use case name: Filter Catalogue	**UniqueID:** UC004
Area: Web store	
Actor(s): User, Store database	
Description: A customer may apply filters to specify a more narrow range of items	
Triggering Event: User applies a filter	
Trigger type: ☒**External** ☐**Temporal**	
Steps Performed (Main Path)	**Information for Steps**
1. User visits online store	URL link
2. User begins browsing catalogue of items	Store database
3. User selects “filter” button	User, Store database
4. User selects tags to filter from a dropdown menu	User, Store database
5. User clicks “apply filter(s)”	User, Store database
6. System updates to display all relevant items	Store database
Preconditions: User is browsing the store catalogue	
Postconditions: Store GUI updates to reflect the filter	
Assumptions: User wants to apply a filter	
Requirements met: User can apply a filter to store catalogue	
Outstanding issues: Ability to apply multiply filters	
Priority: 2	
Risk: If the user applies too many filters, no items will be displayed	

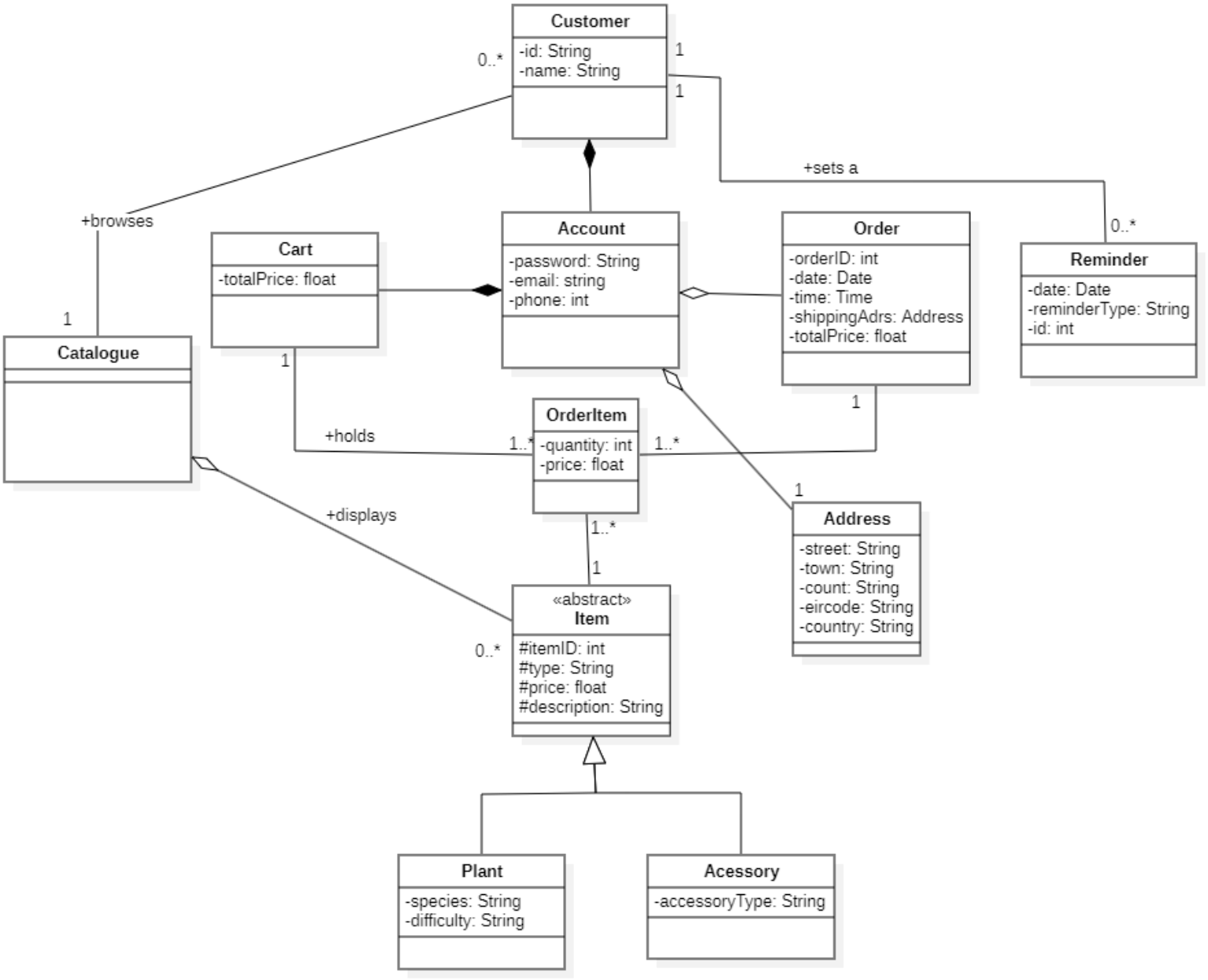


Use case name: Schedule Reminder	**UniqueID:** UC005
Area: Web store	
Actor(s): User	
Description: User can schedule plant watering reminders	
Triggering Event: User wants to schedule a reminder	
Trigger type: ☒**External** ☐**Temporal**	
Steps Performed (Main Path)	**Information for Steps**
1. User visits online store	URL link
2. User logs into the system	User, store database
3. User selects “schedule reminder”	User, store database
4. User inputs the date they wish to schedule reminder	User, store database
5. System updates to confirm the reminder has been set	Store database
Preconditions: User has an account	
Postconditions: Store GUI updates with confirmation	
Assumptions: User wants to schedule a reminder	
Requirements met: User successfully schedule reminder	
Outstanding issues: Ability to set an audio notification	
Priority: 5	
Risk: Reminder will not be able to be set for a date in the past	

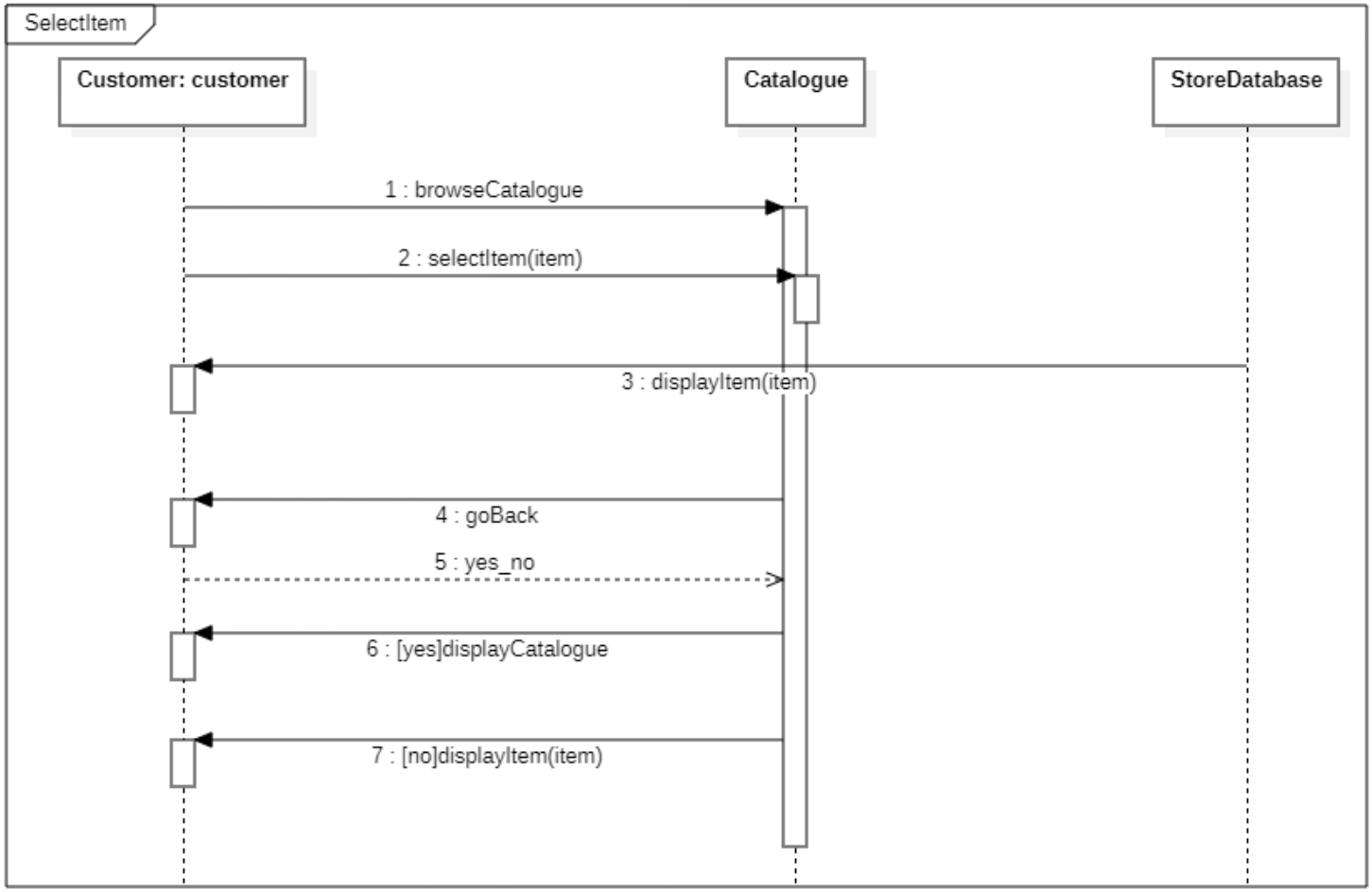


Use case name: Browse Catalogue	**UniqueID:** UC006
Area: Web store	
Actor(s): User	
Description: Allow user to browse and interface with the catalogue of items	
Triggering Event: User clicks on home page	
Trigger type: ☒**External** ☐**Temporal**	
Steps Performed (Main Path)	**Information for Steps**
1. User visits online store	URL link
2. User begins browsing catalogue of items	Store database
Preconditions: The catalogue has items available to display	
Postconditions: Store GUI updates to show catalogue	
Assumptions: User wants to view catalogue	
Requirements met: User can browse the catalogue of items	

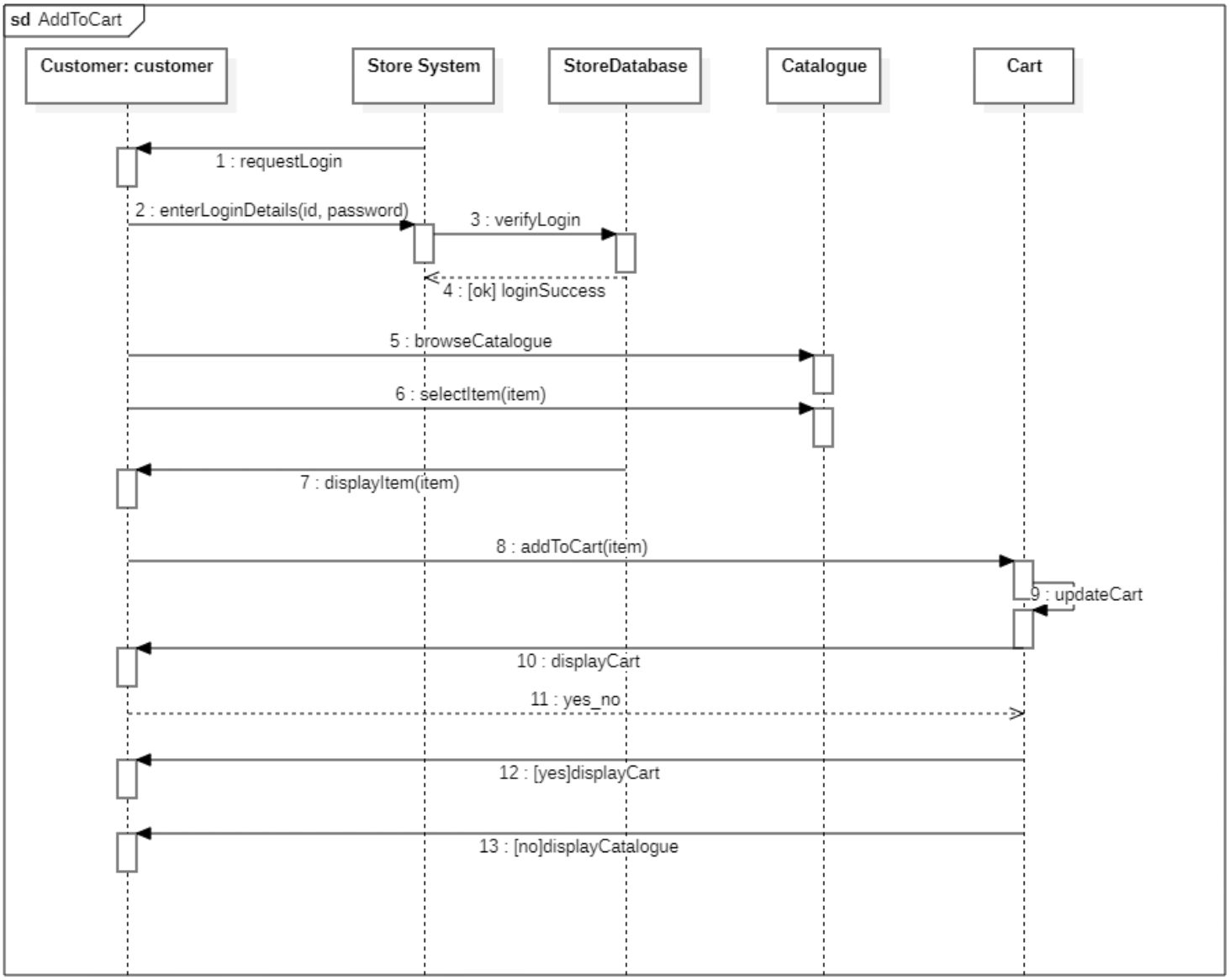
Class Diagram

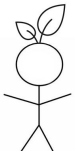


Sequence Diagrams

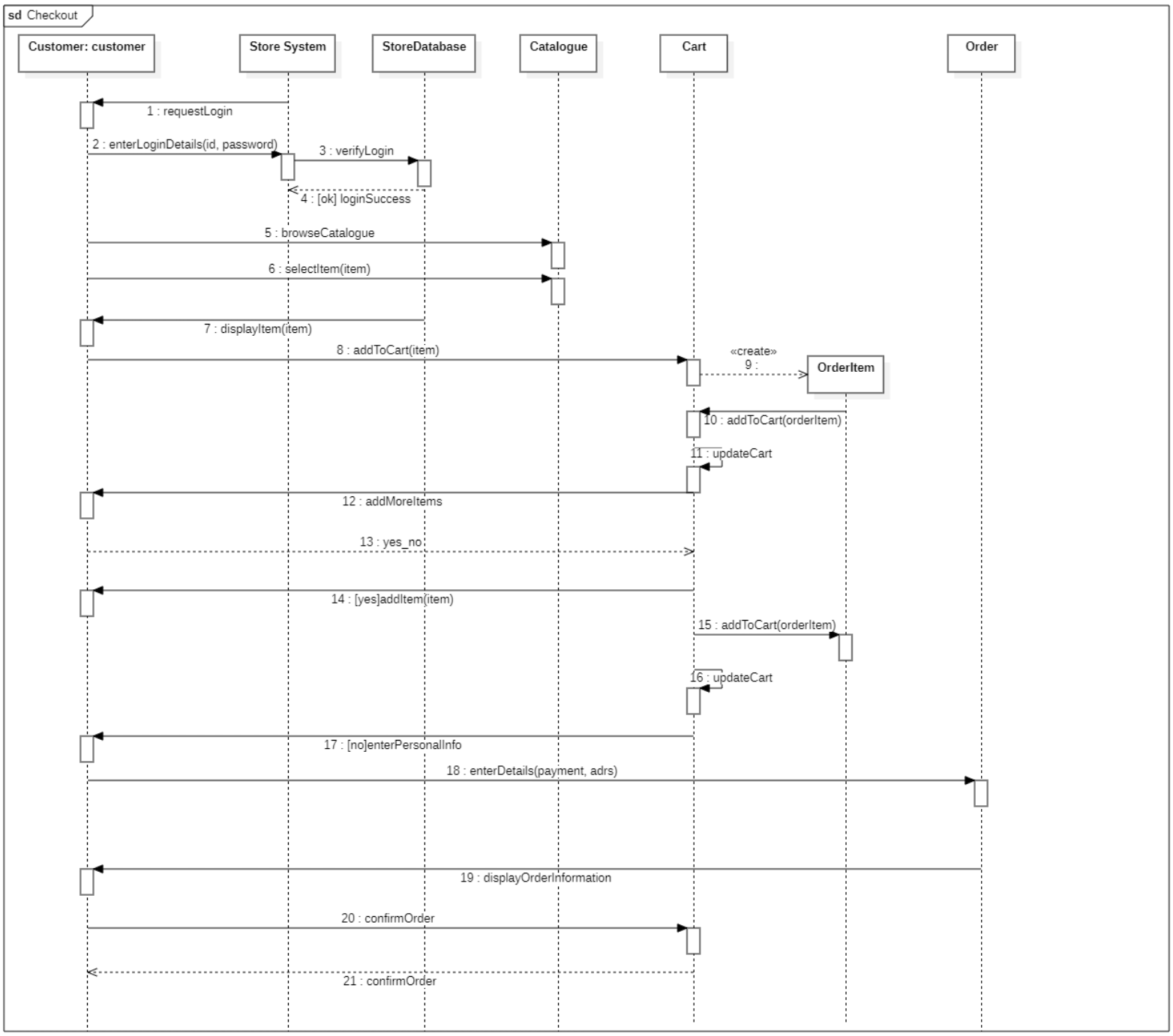


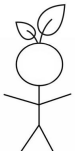
Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constrain
1.	Customer	Catalogue	browseCatalogue	Synchronus	-	-
2.	Customer	Catalogue	selectItem	Synchronus	Item	-
3.	StoreDatabase	Customer	displayItem	Synchronus	Item	-
4.	Catalogue	Customer	goBack	Synchronus	-	-
5.	Yes/No	Customer	Catalogue	Synchronus	Boolean	-
6.	Catalogue	Customer	displayCatalogue	Synchronus	-	=true
7.	Catalogue	Customer	displayItem	Synchronus	Item	=false


sd AddToCart
Customer: customer
Store System
StoreDatabase
Catalogue
Cart
1 : requestLogin
2 : enterLoginDetails(id, password)
3 : verifyLogin
4 : [ok] loginSuccess
5 : browseCatalogue
6 : selectItem(item)
7 : displayItem(item)
8 : addToCart(item)
9 : updateCart
10 : displayCart
11 : yes_no
12 : [yes]displayCart
13 : [no]displayCatalogue

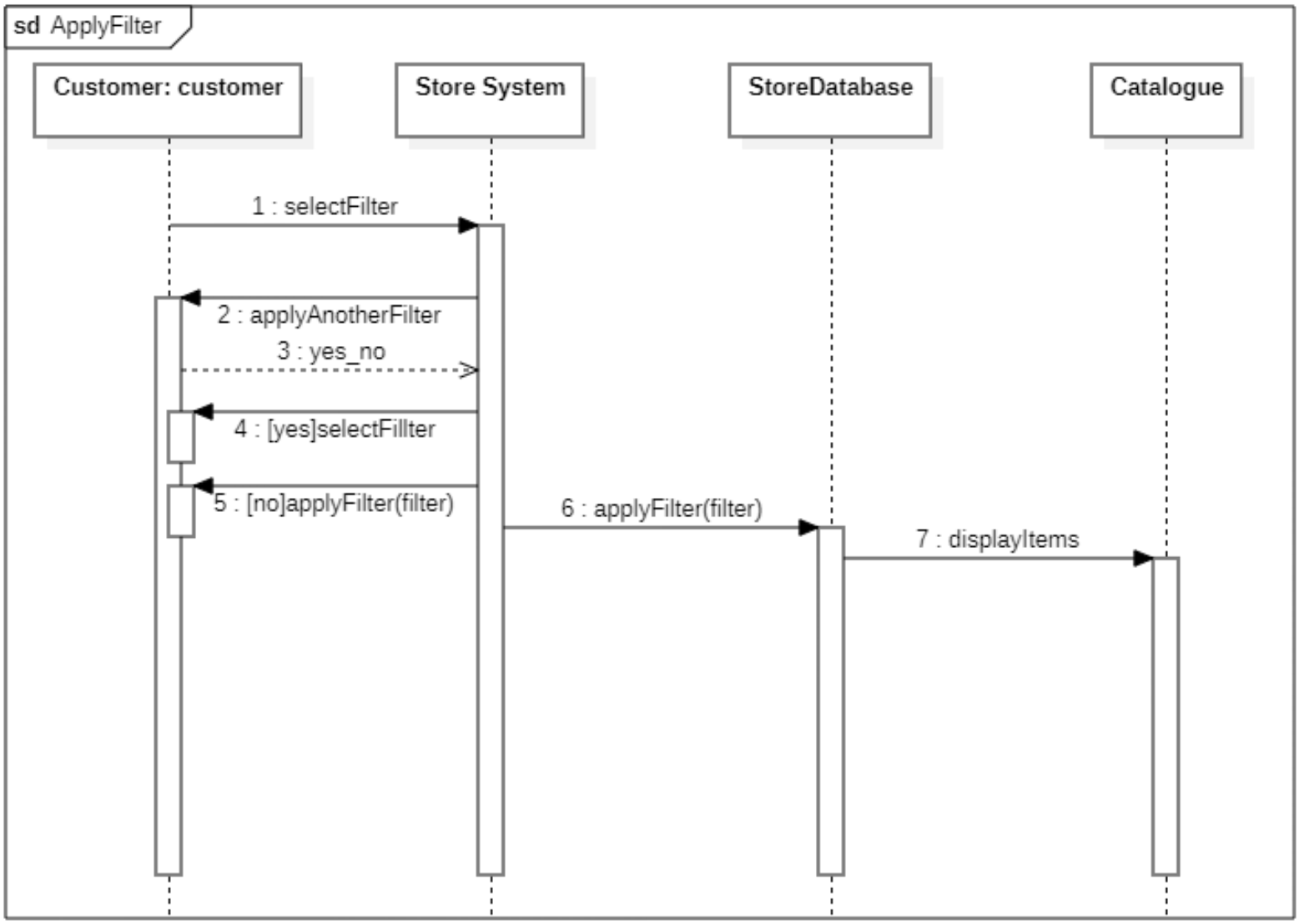


Num	Caller	Callee	Name	Type	Parameter	Constraint
1.	Store System	Customer	requestLogin	Synchronous	-	-
2.	Customer	Catalogue	enterLoginDetails	Synchronous	id, password	-
3.	Store System	StoreDatabase	verifyLogin	Synchronous	id, password	-
4.	StoreDB	Store System	loginSuccess	Synchronous	id, password	-
5.	Customer	Catalogue	browseCatalogue	Synchronous	-	-
6.	Customer	Catalogue	selectItem	Synchronous	Item	-
7.	StoreDB	Customer	displayItem	Synchronous	Item	-
8.	Customer	Cart	addToCart	Synchronous	Item	-
9.	Cart	Cart	updateCart	Synchronous	-	-
10.	Cart	Customer	displayCart	Synchronous	-	-
11.	Customer	Cart	Yes/No	Synchronous	Boolean	-
12.	Cart	Customer	displayCart	Synchronous	-	=true
13.	Cart	Customer	displayCatalogue	Synchronous	-	=false

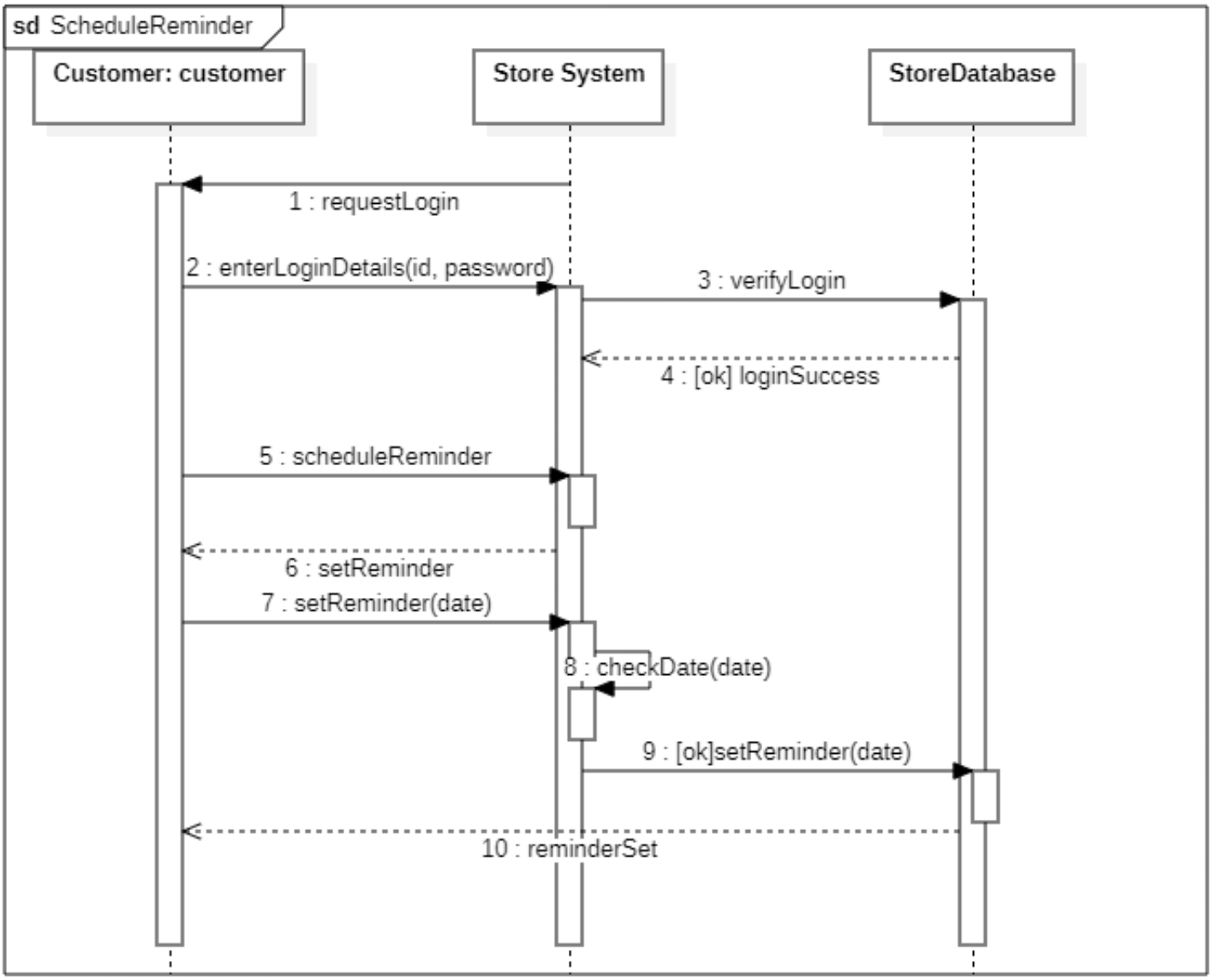

sd Checkout
Customer: customer
Store System
StoreDatabase
Catalogue
Cart
Order
1 : requestLogin
2 : enterLoginDetails(id, password)
3 : verifyLogin
4 : [ok] loginSuccess
5 : browseCatalogue
6 : selectItem(item)
7 : displayItem(item)
8 : addToCart(item)
«create»
9 :
OrderItem
10 : addToCart(orderItem)
11 : updateCart
12 : addMoreItems
13 : yes_no
14 : [yes]addItem(item)
15 : addToCart(orderItem)
16 : updateCart
17 : [no]enterPersonalInfo
18 : enterDetails(payment, adrs)
19 : displayOrderInformation
20 : confirmOrder
21 : confirmOrder

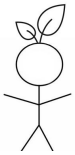


Num	Caller	Callee	Name	Type	Parameter	Constraint
1.	Store System	Customer	requestLogin	Synchronous	-	-
2.	Customer	Catalogue	enterLoginDetails	Synchronous	id, password	-
3.	Store System	StoreDatabase	verifyLogin	Synchronous	id, password	-
4.	StoreDB	Store System	loginSuccess	Synchronous	id, password	-
5.	Customer	Catalogue	browseCatalogue	Synchronous	-	-
6.	Customer	Catalogue	selectItem	Synchronous	Item	-
7.	StoreDB	Customer	displayItem	Synchronous	Item	-
8.	Customer	Cart	addToCart	Synchronous	Item	-
9.	Cart	OrderItem	Create	Synchronous	-	-
10.	OrderItem	Cart	addToCart	Synchronous	orderItem	-
11.	Cart	Cart	updateCart	Synchronous	-	-
12.	Cart	Customer	addMoreItems	Synchronous	-	-
13.	Customer	Cart	Yes/No	Synchronous	Boolean	-
14.	Cart	Customer	addItem	Synchronous	Item	=true
15.	Cart	OrderItem	addToCart	Synchronous	orderItem	-
16.	Cart	Cart	updateCart	Synchronous	-	-
17.	Cart	Customer	enterPersonalInfo	Synchronous	-	=false
18.	Customer	Order	enterDetails	Synchronous	payment, adrs	-
19.	Order	Customer	displayOrderInformation	Synchronous	-	-
20.	Customer	Cart	confirmOrder	Synchronous	-	-
21.	Cart	Customer	confirmOrder	Synchronous	-	-

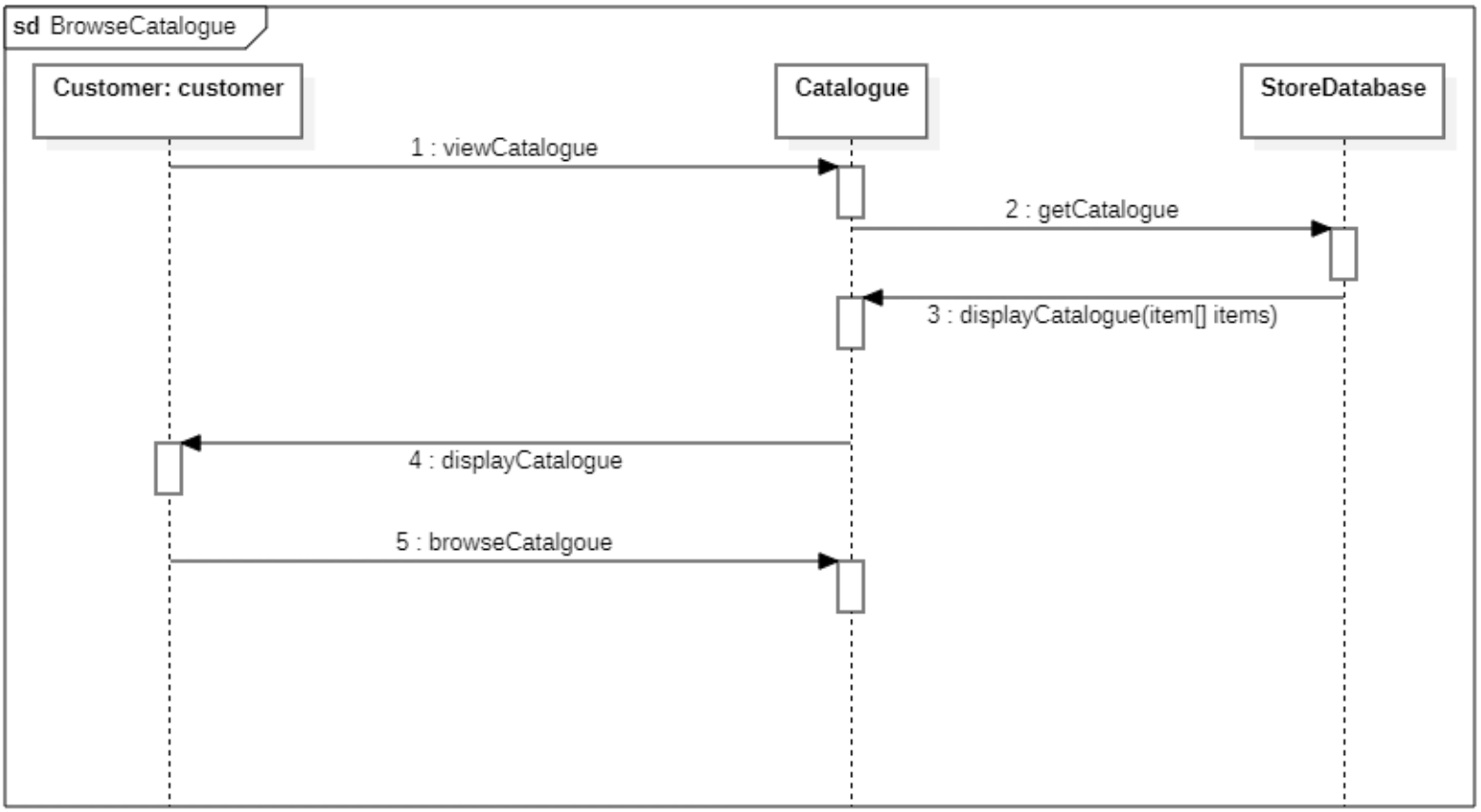


Num	Caller	Callee	Name	Type	Parameter	Constraint
1.	Customer	Store System	selectFilter	Synchronous	-	-
2.	Store System	Customer	applyAnotherFilter	Synchronous	-	-
3.	Customer	Store System	Yes/No	Synchronous	Boolean	-
4.	Store System	Customer	selectFilter	Synchronous	-	=true
5.	Store System	Customer	applyFilter	Synchronous	Filter	=false
6.	Store System	StoreDB	applyFilter	Synchronous	Filter	-
7.	StoreDB	Catalogue	displayItems	Synchronous	-	-

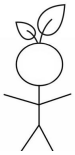

sd ScheduleReminder
Customer: customer
Store System
StoreDatabase
1 : requestLogin
2 : enterLoginDetails(id, password)
3 : verifyLogin
4 : [ok] loginSuccess
5 : scheduleReminder
6 : setReminder
7 : setReminder(date)
8 : checkDate(date)
9 : [ok]setReminder(date)
10 : reminderSet



Num	Caller	Callee	Name	Type	Parameter	Constraint
1.	Store System	Customer	requestLogin	Synchronous	-	-
2.	Customer	Catalogue	enterLoginDetails	Synchronous	id, password	-
3.	Store System	StoreDatabase	verifyLogin	Synchronous	id, password	-
4.	StoreDB	Store System	loginSuccess	Synchronous	id, password	-
5.	Customer	Store System	scheduReminder	Synchronous	-	-
6.	Store System	Customer	setReminder	Synchronous	-	-
7.	Customer	Store System	scheduReminder	Synchronous	date	-
8.	Store System	Store System	checkDate	Synchronous	date	-
9.	Store System	Store DB	setReminder	Synchronous	Date	-
10.	Store DB	Customer	reminderSet	Synchronous	-	-



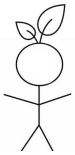
Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constrain
1.	Customer	Catalogue	viewCatalogue	Synchronus	-	-
2.	Catalogue	Store DB	getCatalogue	Synchronus	-	-
3.	Store DB	Catalogue	displayItems	Synchronus	item[] items	-
4.	Catalogue	Customer	displayCatalogue	Synchronus	-	-
5.	Customer	Catalogue	browseCatalogue	Synchronus	-	-



Test Cases

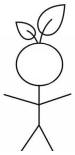
Name	**TC-001:** Select Item
Requirement	Verify that the system successfully updates to display details of a selected item from a database of items.
Preconditions	The system is displaying the full catalogue
Steps	1. Click on the **image** of the third item. 2. Return to previous page 3. Click on the **name** of the first item. 4. Return to previous page
Expected Results	1. The item details window appears, with a larger image and more detailed information 2. Verify that items can be selected by clicking icon **or** thumbnail 3. Return to browsing catalogue

Name	**TC-002:** Add to Cart
Requirement	Verify that the system successfully allows a user to enter item(s) to cart.
Preconditions	The user is viewing the catalogue
Steps	1. Click on the **second** product 2. Click the “Add to Cart” button 3. Return to catalogue 4. Click on the **fourth** product 5. Change **quantity** to 2, add to cart
Expected Results	1. The item details window appears, with a larger image and more detailed information 2. The system alerts the user to the fact that the item has been added successfully 3. Return to browsing catalogue



Name	**TC-003:** Checkout
Requirement	Verify that the store system successfully allows the user to checkout their items
Preconditions	The customer has items in their cart
Steps	1. Click on the **View Cart** button 2. Click on the **Proceed to Checkout** button 3. Enter your **login details** 4. Input **personal information** 5. Click on the **Confirm Order** button
Expected Results	1. The system displays the users Cart 2. The system begins the Checkout process 3. System prompts user for login details 4. System prompts user for shipping & billing information 5. System updates to confirm to the user that their order has been successfully placed

Name	**TC-004:** Filter Catalogue
Requirement	Verify that the system allows the user to apply filter(s) to the Catalogue of Items
Preconditions	The system is displaying the full catalogue
Steps	1. Click on the **Filter** button 2. Select **one** filter 3. Click the **Apply Filter** button 4. Click on the **Filter** button 5. Select **another** filter 6. Click on the **Apply Filter** button
Expected Results	1. The system updates to show a list of filters to choose from 2. When applied, the system displays just items matching the filter tag 3. Applying another filter will result in a more specific list of items



Name	**TC-005:** Schedule Reminder
Requirement	Verify that the system successfully sets and alerts the user when a Reminder is Scheduled
Preconditions	The user is logged in
Steps	1. Click on the **Schedule Reminder** button 2. Input **todays date** 3. Click on the **Set Reminder** button to confirm
Expected Results	1. The system will display the Schedule Reminder page 2. The system will update to display the reminder the user has just input

Name	**TC-006:** Browse Catalogue
Requirement	Verify that the system allows the user to browse the catalogue of items
Preconditions	The user is on the page displaying the catalogue
Steps	1. Click on the **Home** page 2. Scroll to browse the catalogue
Expected Results	1. The system will update in real time to display the catalogue – containing items - for the user