Project Vision:

This software will benefit the user because it will allow for easy management of an online store's inventory, allowing the store to add/remove items, keep track of the total inventory, keep track of orders. The system will manage the store's inventory allowing the employees to focus on other tasks. The main stakeholders for this project are the customers of the store and the store's employees. The customers will only be able to purchase the items if they are in stock, and the employees will need to know if stock is getting low so that they can order more. The system will have a GUI that allows for the user to look up an item by an ID number and see its stock, a general description, and make a purchase. The software will also need to keep track of the items that the customer has added to their cart, to enable the purchase of multiple items.

Website Link w/ Link to GitHub and Issue Tracking:

https://runtimeterrorbu.github.io/InventoryManagement/

Group Members:

Ashley Bickham:

Joshua Hunter (Project Leader):

Austin Lehman: 22 hours worked

Tyler Ross:

Runtime Terror Gantt Chart

Project Name and Team Members Report

SIMPLE GANTT CHART by Vertex42.com

CSI 3471

Iteration 1
Start

Requirements

Fully Dressed Use Cases

Operation Contracts

Domain Model

WireFrame Model

Traceability Matrix

Website Creation

Presentation

System Sequence Diagrams

Use Cases

Ashley Bickham, Joshua Hunter, Austin Lehman, Tyler Ross

https://www.vertex42.com/ExcelTemplates/simple-gantt-chart.html

Mon, 2/1/2021

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Feb 1, 2021 Feb 15, 2021 Feb 22, 2021 Mar 1, 2021 Feb 8, 2021 2/1/21 2/5/21 2/17/21 2/19/21 2/23/21 2/24/21 2/28/21 2/23/21 3/2/21 3/1/21 3/3/21 3/3/21

Runtime Terror Gantt Chart

SIMPLE GANTT CHART by Vertex42.com

https://www.vertex42.com/ExcelTemplates/simple-gantt-chart.htm

CSI 3471 ${\it Ashley Bickham, Joshuas Hunter, Austin Lehman, Tyler\ Ross}$ Wed, 3/3/2021 Mar 8, 2021 Mar 1, 2021 Mar 22, 2021 Apr 5, 2021 Apr 12, 2021 Apr 19, 2021 Mar 15, 2021 Mar 29, 2021 1 1 2 3 4 5 6 M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S Demo of User Interface 3/3/21 4/1/21 Design Class Diagram 3/3/21 3/15/21 Design Sequence/Communication Diagrams 3/10/21 3/28/21 3/15/21 3/5/21 Update Website 4/1/21 Update Powerpoint 3/5/21 4/1/21 Insert new rows ABOVE this one

Runtime Terror Gantt Chart

SIMPLE GANTT CHART by Vertex42.com

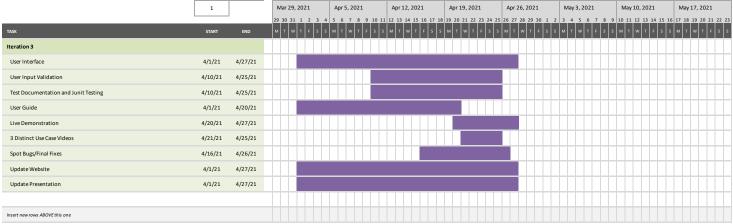
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CSI 3471

Ashley Bickham, Joshua Hunter, Austin Lehman, Tyler Ross

Thu, 4/1/2021

Mar 29, 2021 Apr 5, 2021 Apr 12, 2021 Apr 19, 2021 Apr 26, 2021 May 3, 2021 May 10, 2021 May



Requirements List:

R1: The system will keep a set of items that are sold by the store

R2: The store will be able to add and remove from the set of items

R3: Items will be associated with a unique ID to allow for easy lookup and management

R4: The system will keep track of the amount of each item that is available for sale

R5: Customers will be able to add and remove items they wish to purchase into a cart

R6: The system will be able to keep track of each order by its unique ID

R7: Each order will be stored in a database to allow for easy lookup

R8: Customers must be able to make accounts easily

R9: When stock is low, the system must notify an employee or manager

R10: Customers can rent items that allow it.

R11: Customers can return items that have been rented.

R12: If a customer's rental is late a fee should be sent to them.

R13: The customer should be able to return an item within 30 days.

R14: The customer should be able to search for items.

R15: The customer should be able to add items to a wishlist.

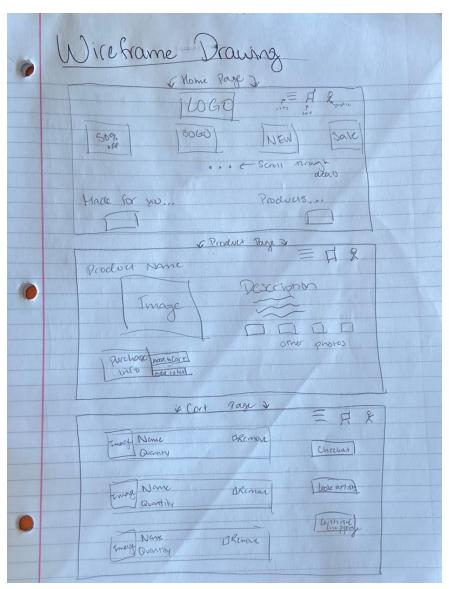
R16: The system should notify the customer when an item in their wishlist is in stock.

R17: The system should notify the customer when an item in their wishlist is on sale.

Use Cases:

- 1. Make Purchase Ashley
- 2. Add Item to Cart Austin
- 3. Add Item to Wishlist Tyler
- 4. Restock Item Joshua
- 5. Return Item Ashley
- 6. Make Account Austin
- 7. Send/Ship Item Tyler
- 8. Add New Product Tyler
- 9. Delete Product Joshua
- 10. View Product Availability Joshua
- 11. Generate Report Ashley
- 12. Remove Item from Cart Austin

	REQ 1	REQ 2	REQ 3	DEO 4	DEO 5	REQ 6	DEO 7	DEO 0	DEO 0	REQ 10	DEO 44	DEO 40	DEO 42	DEO 44	REQ 15	DEO 46	REQ 17
	REQT	REQZ	REQ 3	REQ 4	REQS	REQ	REQ /	REQ 8	REQ 9	REQ 10	REQ 11	REQ 12	REQ 13	REQ 14	REQ 15	REQ 16	REQ 17
UC - 1 Make Purchase	1		1			1	1			1							
UC - 2 Add Item to Cart	1		1	1	1		1			1				1		1	
UC - 3 Add Item to Wishlist	1		1	1			1			1				1	1	1	1
UC - 4 Restock Item	1		1	1			1		1								
UC - 5 Return Item	1		1			1	1				1	1	1				
UC - 6 Make Account								1									
UC - 7 Ship/Send Item	1		1				1			1	1						
UC - 8 Add New Product	1	1	1							1							
UC - 9 Delete Product	1	1	1														
UC - 10 View Product Avalibility	1		1	1					1	1	1			1		1	1
UC - 11 Generate Report						1	1		1							1	
UC - 12 Remove Item from Cart	1		1		1		1										



Use Case Name: Add Item to Cart

Scope: Store

Level: user goal

Primary Actor: customer

Stakeholders and Interests:

• Customer: wants to be able to purchase multiple different items

• Company: wants to be able to keep track of the items the customer purchases so that they can get their items in a timely manner

Preconditions: Customer wants to add an item to their cart

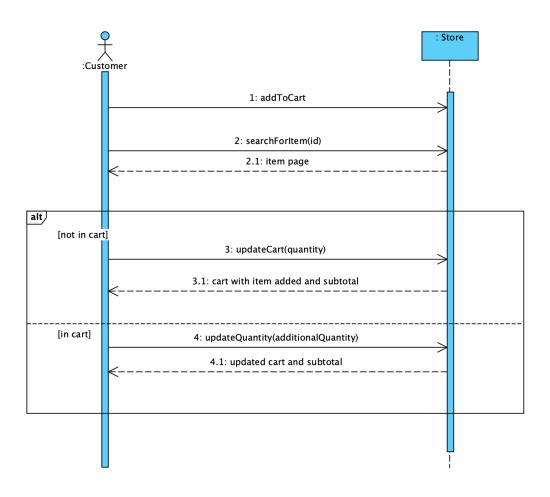
Success Guarantee (or Postconditions):

The item is added to the cart, and the subtotal is updated

Main Success Scenario (or Basic Flow):

- 1. Customer navigates to the item
- 2. Customer clicks add to cart button
- 3. Customer enters the quantity they wish to purchase
- 4. Items are added to cart
- 5. Subtotal is updated
- 6. The customer is informed that the items have been successfully added to the cart

- 2a. Item is already in cart:
 - 1. Customer selects how many they wish to add to the cart
 - 2. The customer's selection is added to their previous selection



Use Case Name: Remove Item from Cart

Scope: Store

Level: user goal

Primary Actor: customer

Stakeholders and Interests:

- Customer: wants to be able to keep track of the items to be purchased, and make adjustments to them (remove, alter number of) if needed.
- Company: wants to be able to properly track an order, including when items are removed, so that purchases are accurate.

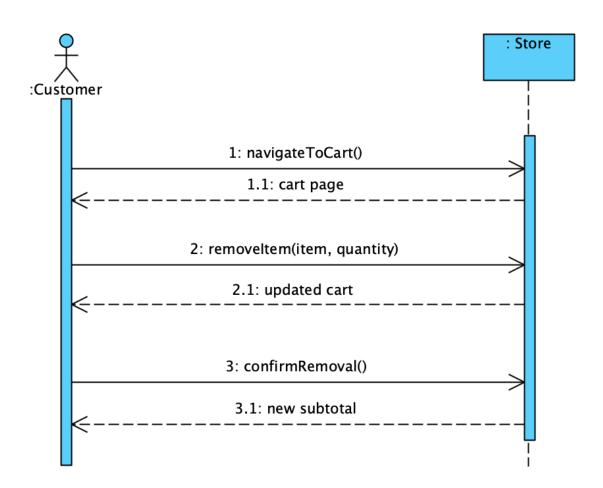
Preconditions: Customer wants to remove an item from their cart

Success Guarantee (or Postconditions): The item the customer wanted removed from the cart will be removed and the subtotal calculated.

Main Success Scenario (or Basic Flow):

- 1. Customer navigates to their current shopping cart instance
- 2. The customer clicks on the item to be removed from the cart
- 3. The customer clicks on the UPDATE ORDER button
- 4. The customer clicks remove item
- 5. The machine shows a verification that the user wants to remove the item
- 6. The customer selects yes
- 7. The subtotal is updated

- 4a. There are multiple of the same item in the cart
 - 1. Customer selects how many of the item they would like to remove
 - 2. Customer confirms the amount to remove
- 6a. The customer doesn't want to remove the item from cart
 - 1. The customer changes their mind and selects no
- 7a. There is no resulting change in the order
 - 1. The subtotal is not changed and thus not updated



Use Case Name: Make Account

Scope: Store

Level: user-goal

Primary Actor: Customer

Stakeholders and Interests:

- Customer: wants to store their information so that it's saved for next time

- Company: has to keep track of the customer's login information

Preconditions: Customer is asked if they want to create an account

Success Guarantee (or Postconditions): The customer's login information is saved and their cart is tied to their account

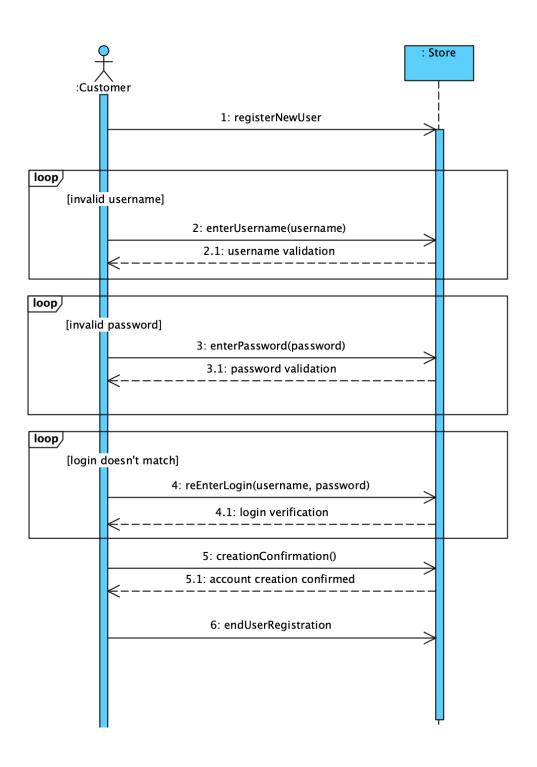
Main Success Scenario (or Basic Flow):

- 1. Customer selects they want to create an account
- 2. The customer is prompted for a username
- 3. The customer is prompted for a password

Repeat steps 2 and 3 until the login is validated

- 4. The user is asked to re-enter their username and password for validation
- 5. The customer is asked to confirm the account creation

- 2a. The username is invalid
 - 1. The customer is informed why the username is invalid (either it is taken or does not meet requirements)
 - 2. The customer is asked to enter another username
- 3a. The password is invalid
 - 1. The customer is informed why the password is invalid (i.e. the requirements it violates)
 - 2. The customer is asked to enter another password
- 4a. The customer's username does not match
 - 1. The customer is informed that their usernames don't match
 - 2. The customer is prompted to try again
- 4b. The customer's password doesn't match
 - 1. The customer is informed that their passwords don't match
 - 2. The customer is prompted to try again



Use Case Name: View Product Availability

Scope: Store

Level: Subfunction

Primary Actor: Company

Stakeholders and Interests:

• Customer: Wants to have the option to pick from a variety of items and have what is needed available.

• Company: Wants to be able to properly track the inventory of all of the products available.

Preconditions: The website is up and running and the product being looked for is valid and have an unique id and product page

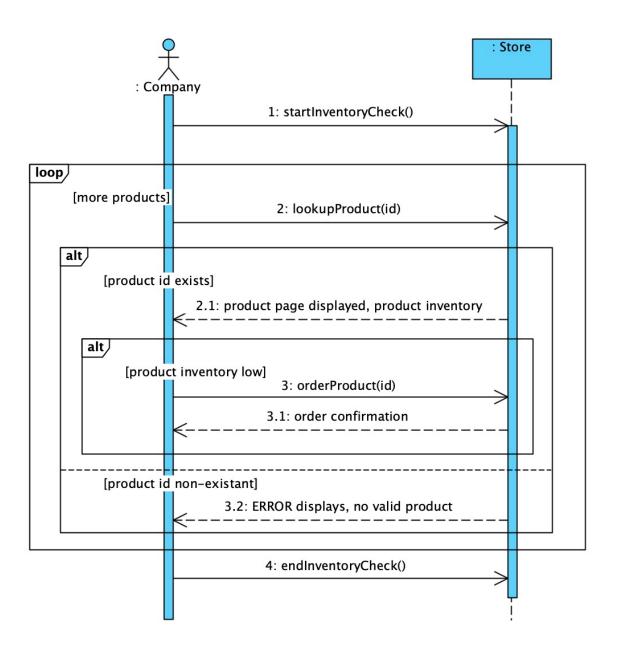
Success Guarantee (or Postconditions): The availability of a product is checked and updated if needed

Main Success Scenario (or Basic Flow):

- 1. A product inventory is needed to be checked
- 2. The product is looked up based on its unique id
- 3. The inventory available will be displayed on the product page
- 4. The company will request more inventory to be shipped to the containment center if product is getting low.

Steps 2-4 can be repeated if multiple products are having their inventory checked

- 2a. The unique id does not exist
- 1. The product being looked up doesn't exist and results an ITEM NOT FOUND message



Use Case Name: Delete a Product

Scope: Store

Level: Subfunction

Primary Actor: Company

Stakeholders and Interests:

• Customer: Wants to have the option to pick from a variety of items and have what is needed available.

• Company: Wants to remove product from the store to generate more revenue and make more space for more popular items

Preconditions: There is a product the company wants to remove

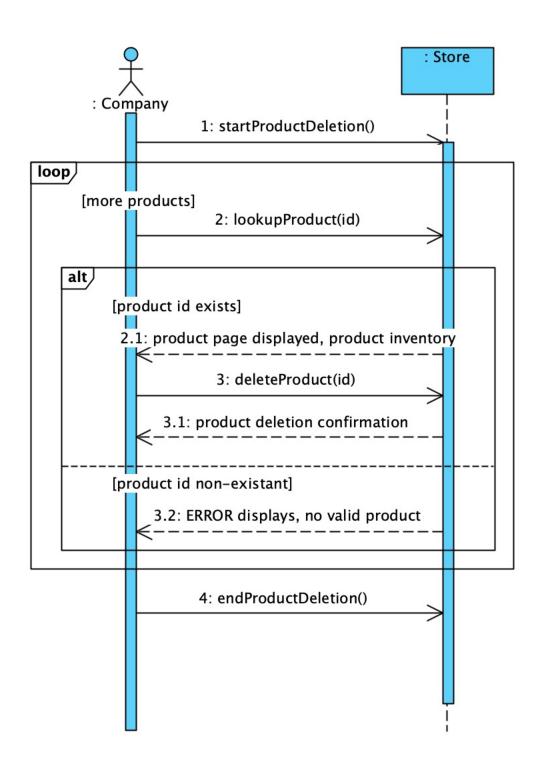
Success Guarantee (or Postconditions): The product is removed from the site

Main Success Scenario (or Basic Flow):

- 1. A product is deemed needed to be removed from the store
- 2. The product is deleted from the sites database based on its unique id
- 3. The products id is freed to be used by another future product
- 4. The products page is removed as result of a freed unique id

Steps 2-4 can be repeated if multiple products are being deleted

- *a. At any point the products removal process can stop, resulting in leaving the product on the store
 - 2a. The unique id does not exist
 - 1. The product being looked up doesn't exist and results an ITEM NOT FOUND message



Use Case Name: Stock Item

Scope: Store

Level: subfunction

Primary Actor: Company

Stakeholders and Interests:

• Company: wants to be able to add their item to the shop so it can be sold

• Customer: wants to be able to purchase the item once it is stocked

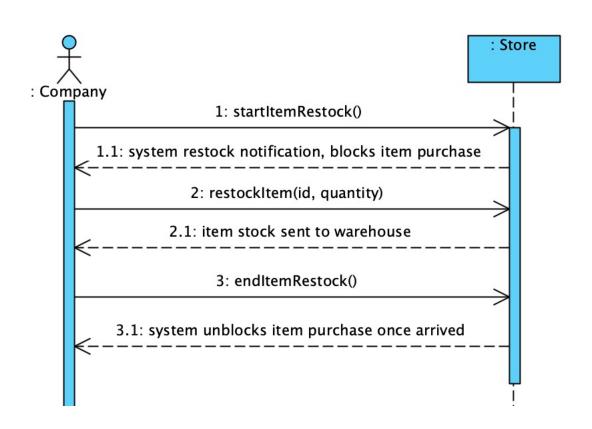
Preconditions: The item is out of stock

Success Guarantee (or Postconditions): The item is stocked to the appropriate level

Main Success Scenario (or Basic Flow):

- 1. The system notifies the company that the item is out of stock
- 2. The system marks the item as unavailable to purchase
- 3. The company gets more of the item
- 4. The company sends the ordered items to the store's warehouse
- 5. Company updates the amount available in the system
- 6. System refreshes the item's stock
- 7. The item is made available for sale again

- 3a. Company decides not to add more of the item
 - 1. The system confirms the choice, and resends the message in a week



Use Case Name: Add Item to Wishlist

Scope: Customer

Level: user-goal

Primary Actor: Customer

Stakeholders and Interests:

- Customer: Wants to add the product to their wishlist.

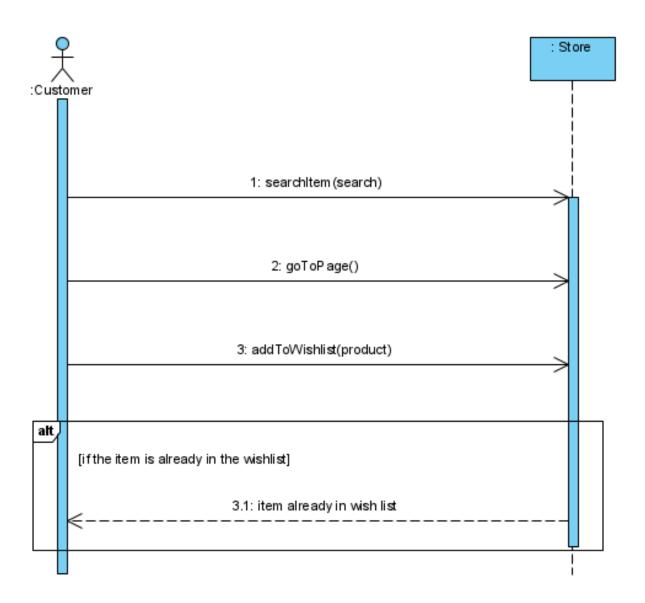
Preconditions: The product must be in the store.

Success Guarantee (or Postconditions): The product will be added to the user's wishlist.

Main Success Scenario (or Basic Flow):

- 1. User searches for the product.
- 2. User clicks on the product page.
- 3. User clicks the "add to wishlist" button,
- 4. Product is added to the user's wishlist.

- 4a. The product is already in the user's wishlist.
 - 1. The site tells the user that the item is already in their wishlist.



Use Case Name: Ship/Send Item

Scope: Store

Level: Subfunction

Primary Actor: Customer

Stakeholders and Interests:

- Company: The company makes profit if the item is successfully delivered and not returned.

- Customer: The customer is the one who ordered the item.

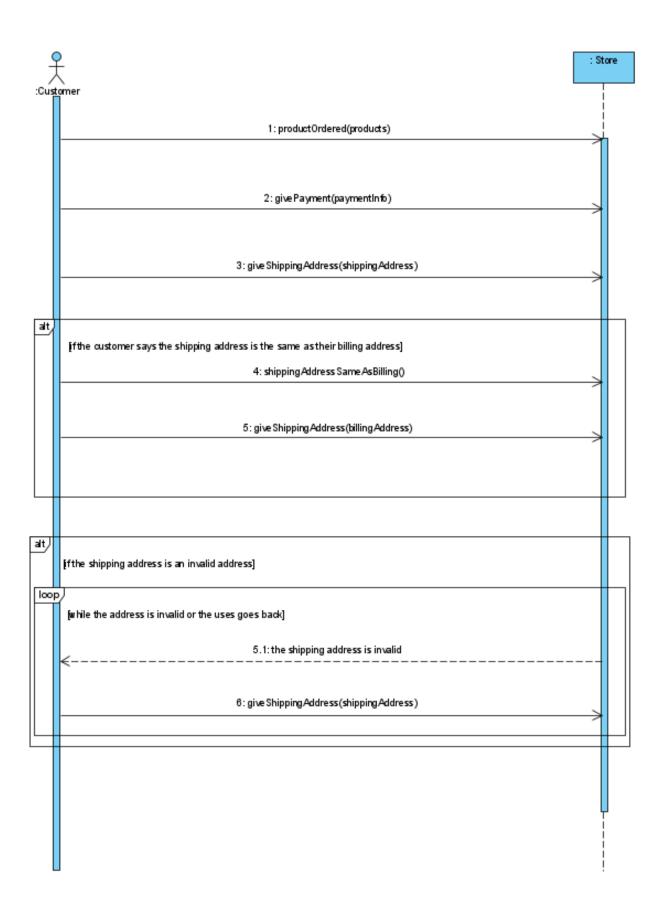
Preconditions: An item is ordered by the customer.

Success Guarantee (or Postconditions): The item is delivered to the customer.

Main Success Scenario (or Basic Flow):

- 1. The customer orders a product.
- 2. The customer inputs their shipping address.
- 3. The item is paid for.
- 4. The item is sent to the shipper with the correct address.

- 2a. The customer selects that their shipping address is the same as their billing address.
 - 1. The store will fill in the shipping address with the billing address.
- 2b. The address is not valid.
 - 1. The site will tell the customer that the address is not valid.
 - 2. The site will not let them proceed till a valid address is input.



Use Case Name: Add New Product

Scope: Store

Level: Subfunction

Primary Actor: Company

Stakeholders and Interests:

- Company: The one adding the product to the store.

- Customer: The one that will buy the product.
- Shipper: The place that ships an item to the customer.

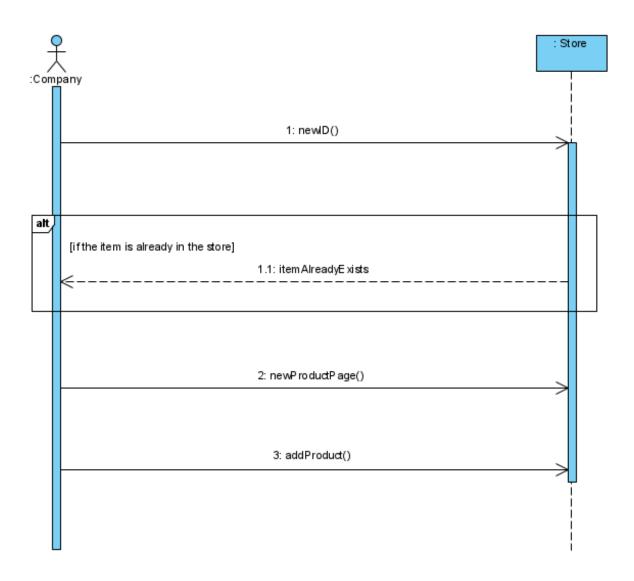
Preconditions: There is a product the company wants to add.

Success Guarantee (or Postconditions): The product is added to the site.

Main Success Scenario (or Basic Flow):

- 1. A product is chosen to be added to the store.
- 2. The product is given a unique id.
- 3. The product is given a product page based off of a template.
- 4. The product is added to the store.

- 1a. The product is already in the store.
 - 1. The system will tell the company that the product already exists.



Use Case Name: Make Purchase

Scope: Store

Level: user goal

Primary Actor: Customer

Stakeholders and Interests:

• Customer: Wants to buy product

• Company: When an item is purchased, revenue goes back to the owner

Preconditions: The item wanted by the customer must be in stock

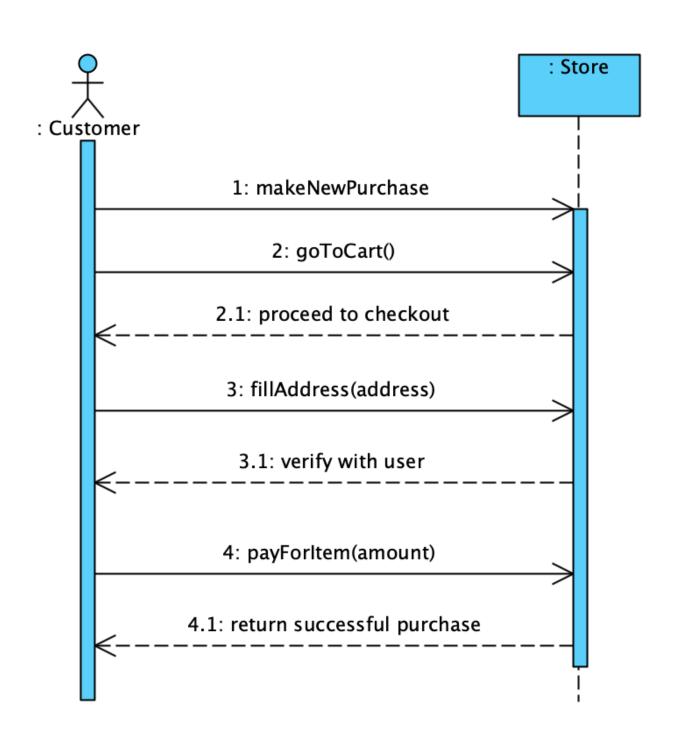
Success Guarantee (or Postconditions):

The customer is successfully able to purchase the product they wanted

Main Success Scenario (or Basic Flow):

- 1. Customer searches for an item from the store
- 2. Customer picks out that item from the store
- 3. Item goes into the Customers' cart
- 4. Customer goes to their cart
- 5. Customer checks out and item is purchased

- 1a. The item isn't sold from the store
 - 1. Customer must request item for the future
 - 2. Customer must find either an off-brand replacement or another store that sells the product
- 2a. The item is out of stock
 - 1. Customer can request to be notified when the item is back in stock



Use Case Name: Return Item

Scope: Store

Level: user-goal

Primary Actor: Customer

Stakeholders and Interests:

- Customer: Is able to return their product worry free

- Company: Receives product back from customer

Preconditions: Item has been received by the customer in order to return it

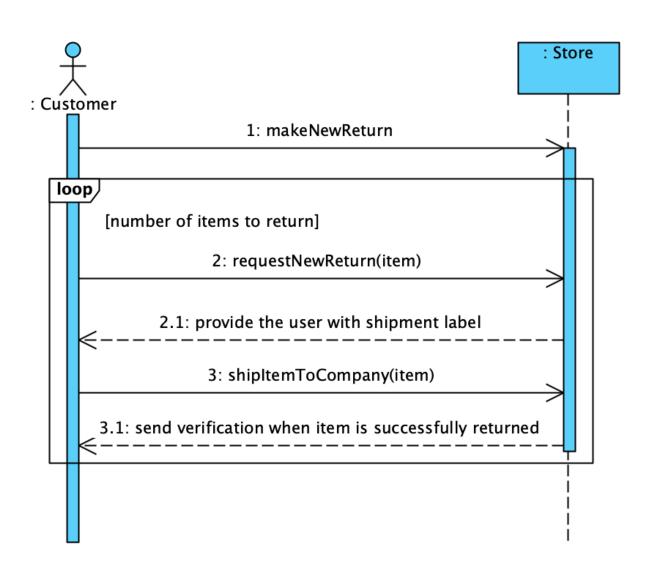
Success Guarantee (or Postconditions): The item is successfully returned to the company

Main Success Scenario (or Basic Flow):

- 1. The customer wishes to return an order
- 2. The customer requests a return
- 3. The customer receives a shipment label to use to return the item
- 4. The customer uses the shipment label to ship the item through a separate shipping company (FedEx, UPS, USPS)
- 5. The company receives the item returned

Steps 1-5 can be repeated due to how many items they wish to return

- 2a. The customer is not qualified to return the item
 - 1. Customer must keep the item, donate the item, or throw it away
- 3a. The shipment label is wrong
 - 1. Customer must request a new one
- 4a. The shipment label is expired
 - 1. The customer must keep the item, donate the item, or throw it away
- 5a. The item never returns to the company
 - 1. The company must cut their losses due to lost package



Use Case Name: Generate Report

Scope: Store

Level: user goal

Primary Actor: Company

Stakeholders and Interests:

• Company: Wants to visualize their product sales and customer satisfaction/customer usage rate

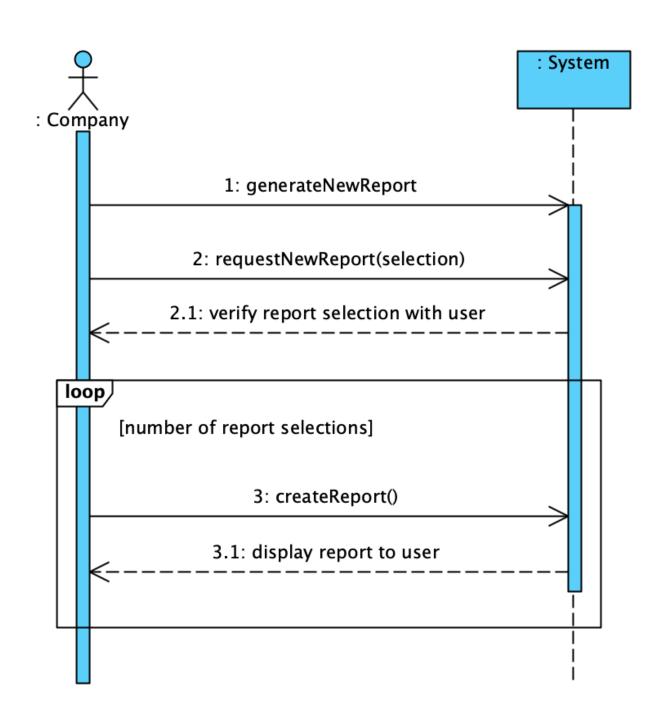
Preconditions: The website is up and running

Success Guarantee (or Postconditions): The website produces a report that displays the companys' weekly sales, new customer accounts, and ratings

Main Success Scenario (or Basic Flow):

- 1. The company requests report
 - 1. The company selects certain aspects to receive a report of
- 2. The system confirms the selection
- 3. The report is generated through the system
- 4. The report is sent to the company

- The system does not respond
 - o The system must be restarted manually in order to generate report



```
Store System
addToCart
searchForItem(id)
updateCart(quantity)
updateQuantity(additionalQuantity)
navigateToCart()
removeltem(item, quantity)
confirmRemoval()
registerNewUser
enterUsername(username)
enterPassword(password)
reEnterLogin(username, password)
creationConfirmation()
endUserRegistration
startInventoryCheck()
orderProduct(id)
endInventoryCheck()
startProductDeletion()
deleteProduct(id)
endProductDeletion()
startRestockItem()
itemRestock(id, quantity)
endRestockItem()
qoToPage()
addToWishList(product)
givePayment(paymentInfo)
giveShippingAddress(shippingAddress)
shippingAddressSameAsBilling()
productOrdered(products)
newProductPage()
newID()
addProduct()
makeNewPurchase
qoToCart()
fillAddress(address)
payForItem(amount)
makeNewReturn
requestNewReturn(item)
shipItemToCompany(item)
generateNewReport()
requestNewReport(selection)
createReport()
```

Operation: addToCart
Cross References: Add Item to Cart

Preconditions: There is an instance of a cart created **Postconditions:** The cart has an item added to it

Operation: searchForItem(id) **Cross References:** Add Item to Cart

Preconditions: The customer knows what item they are searching for

Postconditions: The customer has navigated to the item page

Operation: updateCart(quantity)
Cross References: Add Item to Cart

Preconditions: The customer has navigated to the item page, and the item isn't in the cart

Postconditions: The item and its desired quantity is added to the cart

Operation: updateQuantity(additionalQuantity)

Cross References: Add Item to Cart

Preconditions: The customer has navigated to the item page, and the item is already in the

cart

Postconditions: The quantity of the item in the cart is increased by additional Quantity

Operation: navigateToCart()

Cross References: Remove Item from Cart

Preconditions: The cart exists

Postconditions: The cart is displayed to the user

Operation: removeItem(item, quantity)
Cross References: Remove Item from Cart

Preconditions: there are at least "quantity" instances of "item" in the carty

Postconditions: the item is

Operation: confirmRemoval() **Cross References:** Remove Item from Cart

Preconditions: The customer has selected to remove an item from their cart

Postconditions: If confirmed, the removal is finalized

Else, the removal is cancelled

Operation: registerNewUser
Cross References: Make Account

Preconditions: The customer has elected to create an account.

Postconditions: A new account is registered.

Operation: enterUsername(username)

Cross References: Make Account

Preconditions: The customer is prompted to enter a username.

Postconditions: The username is validated.

Operation: enterPassword(password)

Cross References: Make Account

Preconditions: The customer is prompted to enter a password.

Postconditions: The password is validated.

Operation: reEnterLogin(username, password)

Cross References: Make Account

Preconditions: The customer is prompted to re-enter their valid username and password

Postconditions: The two logins are compared, then validated if they match

Operation: creationConfirmation()

Cross References: Make Account

Preconditions: The two logins matched

Postconditions: If the user confirms, the account is created

Else, account creation is canceled

Operation: endUserRegistration
Cross References: Make Account

Preconditions: The registration was sucessful

Postconditions: The process of creating an account ends

Operation: startInventoryCheck()
Cross References: View Product availability

Preconditions: Website is up and running and has products with different product ids

Postconditions: The inventory checking has been started

Operation: orderProduct(id)

Cross References: View Product availability

Preconditions: Product exists in the database and is coupled with a unique id

Postconditions: Product is ordered to wearhouse

Operation: endInventoryCheck()
Cross References: View Product availability

Preconditions: All products need to be inventory checked have been

Postconditions: The inventory checking has been finished

Operation: startProductDeletion()
Cross References: Product Deletion

Preconditions: Website is up and running and has products with different product ids

Postconditions: The product deletion has been started

Operation: deleteProduct(id)
Cross References: Product Deletion

Preconditions: Product exists in the database and is coupled with a unique id

Postconditions: Product is deleted from database

Operation: endProductDeletion()
Cross References: Product Deletion

Preconditions: All products needed to be deleted have been **Postconditions:** The inventory deletion has been finished

Operation: startRestockItem()
Cross References: Restock Item

Preconditions: Website is up and running and has products with different product ids

Postconditions: Restock has been started

Operation: itemRestock(id, quantity)

Cross References: Restock Item

Preconditions: Product exists in the database and is coupled with a unique id **Postconditions:** Product is ordered to warehouse in the specific quantity mentioned

Operation: endRestockItem()
Cross References: Restock Item

Preconditions: All products needed to be restocked have been

Postconditions: Restock has been finished

Operation: goToPage()

Cross References: Add Item To WishList **Preconditions:** The item page exists

Postconditions: The customer has the item page on their screen

Operation: addToWishList(product)
Cross References: Add Item To Wishlist

Preconditions: The customer has an account

Postconditions: The item is in the customer's wishlist

Operation: givePayment(paymentInfo)

Cross References: Ship/Send Item

Preconditions: The customer is buy an item

Postconditions: The store has the customer's payment info

Operation: giveShippingAddress(shippingAddress)

Cross References: Ship/Send Item

Preconditions: The customer bought an item

Postconditions: The store has the customer's shipping address

Operation: shippingAddressSameAsBilling()

Cross References: Ship/Send Item

Preconditions: The customer is buying an item

Postconditions: The store has the customer's shipping address

Operation: productOrdered(products)

Cross References: Ship/Send Item

Preconditions: The customer is buying an item

Postconditions: The item is purchased

Operation: newProductPage()
Cross References: Add New Product

Preconditions: There is a new product to add **Postconditions:** A new product page is created

Operation: newID()

Cross References: Add New Product **Preconditions:** There is a new product

Postconditions: The new product has its own unique ID

Operation: addProduct() **Cross References:** Add New Product

Preconditions: There is a fully ready new product to add **Postconditions:** The new product is added to the store

Operation: makeNewPurchase **Cross References:** Make New Purchase

Preconditions: There is an instance of a purchase created

Postconditions: The item/items are purchased

Operation: goToCart

Cross References: Make New Purchase **Preconditions:** The cart exists

Postconditions: The customer is able to open the cart and see the items inside

Operation: fillAddress(address) **Cross References:** Make New Purchase

Preconditions: The customer has an address in which they live at

Postconditions: The customer has an address on file to ship to in the future and for the

current purchase

Operation: payForItem(amount) **Cross References:** Make New Purchase

Preconditions: Customer has items to pay for

Postconditions: The customer pays for their items and the purchase is complete

Operation: makeNewReturn
Cross References: Make New Return

Preconditions: An item needs to be returned **Postconditions:** The item is successfully returned

Operation: requestNewReturn(item)

Cross References: Make New Return

Preconditions: The customer needs to return an item **Postconditions:** The company approves the return request

Operation: shipItemToCompany(item)

Cross References: Make New Return

Preconditions: The customer has a ready shipment label to return the item

Postconditions: The company receives the returned item

Operation:generateNewReport()Cross References:Generate Report

Preconditions: The report does not exist **Postconditions:** The report is created

Operation: requestNewReport(selection)

Cross References: Generate Report

Preconditions: The report selection hasn't been made

Postconditions: The report selection is chosen and verified by the system with the user

Operation: createReport() **Cross References:** Generate Report

Preconditions: The report has yet to be made

Postconditions: The report is created and sent to the company

