

Authors: Joshua Harkness, David Kear, & Dylan Rizzo

Project Description

“The technological revolution at home makes it much easier for computers to do our work.”

- Fareed Zakaria(n.d., Brainy Quotes)

Computers simplify our lives daily, and this project looks to continue the trend by implementing navigational software into our nation's markets. Product location remains an issue for both customers and market employees. Whether customers desire the location of an item, or an employee requires assistance for re-shelving a product, our software will eliminate time wasted searching for the proper location. Our goal is to provide this service for both customers and employees with the least work required by the user.

The user will be guided through a graphical user interface at a kiosk or on a mobile application where an overview of the store will be the initial view. Upon query search, an aisle, rack, and possible shelf view of the item's location will be both given and viewable. The user will be able to locate the product using a multitude ways of inputs; i.e. tag, name, brand. A search box will allow for a keyboard input to search through our product database for the item's location, description, and price. This will include the item's new price if it is on sale or if there is a special deal. If an item is not sold in the store, the user will be notified. Similar to this feature, our program will communicate with registers to update stock availability.



The user will not be limited to search by the exact product. Sometimes, customers may not know the exact product they want, but do know the category. Our software will allow for the user to search a broad category, and will return the portions of the store where those food categories may be. Users will not be restricted to search through queries either. Our software will also allow the user to select an aisle, shelf, or rack, and be notified of the products and categories that are available in that area. For customer satisfaction, our program will also offer a suggestion box feature, which will allow the customer to leave constructive comments for review by only administrators.

Markets also struggle with providing accurate depictions of where items will be moved to for the next week's sale, or just for new location purposes. Today, stores still use layouts drawn on paper for updated presentations. Our program aims to allow only administrators to move items in the store around with a click and drag. Once the administrator determines their layout is appropriate, they can save this layout and apply it immediately.

System Requirements

Identifier	Priority (1-5)	Requirements
REQ1	5	The system will be able to direct the user to the specified item of inquiry.
REQ2	5	A user with administrative code may edit objects (shelves, grocery items, etc.) or view comments/suggestions in the system
REQ3	2	The system will explain the location of the item in its local respect to the store (i.e. Aisle, Rack, Shelf, room, floor, etc.)
REQ4	2	The system will incorporate a GUI for a user's ease of shopping or administrative work.
REQ5	4	A user will be able to search for items by broad category (i.e. bread) and the system will display more specified results with location.
REQ6	3	Specific items will contain the price, and name.
REQ7	3	An item may be searched by general category, name of item (accepts multiple points of input).
REQ8	2	The user can search for an aisle to find out what type of product is stored there.
REQ9	1	The user should be allowed to post suggestions or comments about the application.
REQ10	2	The system will display certain sales and the sales description of items (if applicable).
REQ11	1	An administrator may view and delete comments left by other users.

User Story

Identifier	User Story	Size (1-10)
ST-1	As a user (Customer or employee), I can type in a product or category, and it gives me the location by aisle, rack, and shelf.	10 points
ST-2	As an administrator, I can, at runtime, add, remove, and edit objects (Layout objects and products) within the store. Also, I can view the comments.	9 points
ST-3	As a user, the program explains the directions given (what an aisle, rack, and shelf is).	1 point
ST-4	As a user, I am informed when an object is not found within the store.	1 point
ST-5	As a user, I can search for a general product description which the system will give me specific items that fit the category.	2 points
ST-6	As a user, when I look at a product, the description, price, and location are all shown.	3 points
ST-7	As a user, I can leave suggestions about the application where as the administrator can read the comments to provide better service.	5 points
ST-8	As a user, when looking at an item, I can see whether or not there is a sale on it for the day and what those sale details are.	4 points

Use Cases (continue to next three page)

Actor	Actor's Goal	Use Case Name
Manager	To be able to login with proper credentials to then replicate a store and customize its available space.	CreateStore (UC1)
Manager	To edit the store.	EditStore (UC2)
Manager	To manipulate objects (i.e. Sale Items, Shelves, etc.)	EditObjects (UC3)
Manager	To add or remove items.	AddOrRemoveItems (UC4)
Any User	Have the capability to search for products.	ProductSearch (UC5)
Any User	Bear the means to search by tags through GUI.	TagSearch (UC6)
Any User	Have the option to leave comments and/or suggestions.	CommentBox (UC7)
Manager	Have the ability to view the user's comments.	ViewComment (UC8)
Any User	Can locate item based on search via GUI.	LocateItem (UC9)

UC1	CreateStore
Related Requirements	REQ2
Initiating Actor	Admin
Actor's Goal	To be able to login with proper credentials to then replicate a store and customize its available space.
Participating Actors	NA
Preconditions	At least 1 Shelf with 1 item
Post-conditions	The store will have generated from admin's input
Flow of Events for Main Success Scenario	
	1 Admin must login and have the system create store
	2 Admin must add item to a shelf

UC2	EditStore
Related Requirements	REQ2
Initiating Actor	Admin
Actor's Goal	To edit the store.
Participating Actors	NA
Preconditions	At least 1 Shelf
Post-conditions	Changes made to locations will ripple through system
Flow of Events for Main Success Scenario	
	1 Admin must login and have the system create store
	2 Admin must go to edit and choose location to edit

UC3	EditObjects
Related Requirements	REQ2
Initiating Actor	Admin
Actor's Goal	To manipulate objects (i.e. Sale Items, Shelves, etc.)
Participating Actors	NA
Preconditions	At least 1 Shelf with 1 item
Post-conditions	Edited Item will be changed throughout
Flow of Events for Main Success Scenario	
	1 Admin must login and have the system create store
	2 Admin must add item to a shelf
	3 Admin then can go into edit to edit the item added

UC4	AddOrRemoveItems
Related Requirements	REQ2
Initiating Actor	Admin
Actor's Goal	To add or remove items.
Participating Actors	NA
Preconditions	At least 1 Shelf with 1 item
Post-conditions	The item removed will have no trace left in system
Flow of Events for Main Success Scenario	
	1 Admin must login and have the system create store
	2 Admin must add item to a shelf
	3 Admin goes to add/remove to remove the item

UC5	ProductSearch
Related Requirements	REQ1, REQ2, REQ3, REQ4
Initiating Actor	User or Admin
Actor's Goal	Have the capability to search for products.
Participating Actors	NA
Preconditions	At least 1 Shelf with 1 item
Post-conditions	NA
Flow of Events for Main Success Scenario	
	1 Admin must login and have the system create store
	2 Admin must add item to a shelf
	3 Any user can then search in GUI (via name or brand)

UC6	TagSearch
Related Requirements	REQ1, REQ2, REQ3, REQ4, REQ6
Initiating Actor	User or Admin
Actor's Goal	Bear the means to search by tags through GUI.
Participating Actors	NA
Preconditions	At least 1 Shelf with 1 item
Post-conditions	NA
Flow of Events for Main Success Scenario	
	1 Admin must login and have the system create store
	2 Admin must add item to a shelf
	3 Any user can then search in GUI (by tags)

UC7	CommentBox
Related Requirements	None
Initiating Actor	User or Admin
Actor's Goal	Have the option to leave comments and/or suggestions.
Participating Actors	NA
Preconditions	NA
Post-conditions	The comment left is now visible for admin only
Flow of Events for Main Success Scenario	
	1 Any user goes to User side
	2 Clicks on creat comment
	3 After writing in the required fields, hit submit

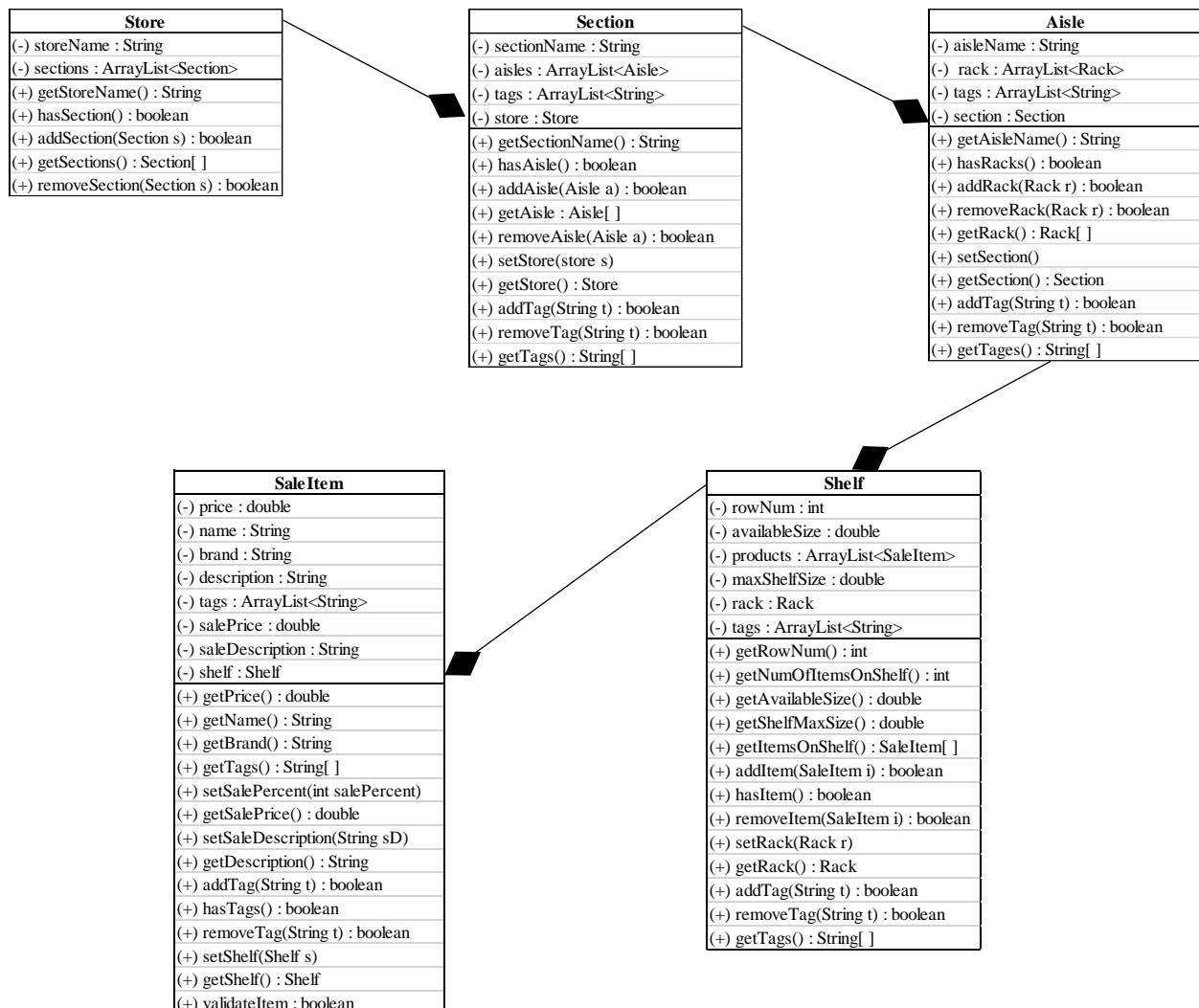
UC8	ViewComment
Related Requirements	None
Initiating Actor	Admin
Actor's Goal	Have the ability to view the user's comments and delete.
Participating Actors	NA
Preconditions	NA
Post-conditions	The comment will be deleted or reside (admin's choice)
Flow of Events for Main Success Scenario	
	1 The admin goes to admin side
	2 Clicks view comments
	3 selecting the comment, it can be viewed/deleted

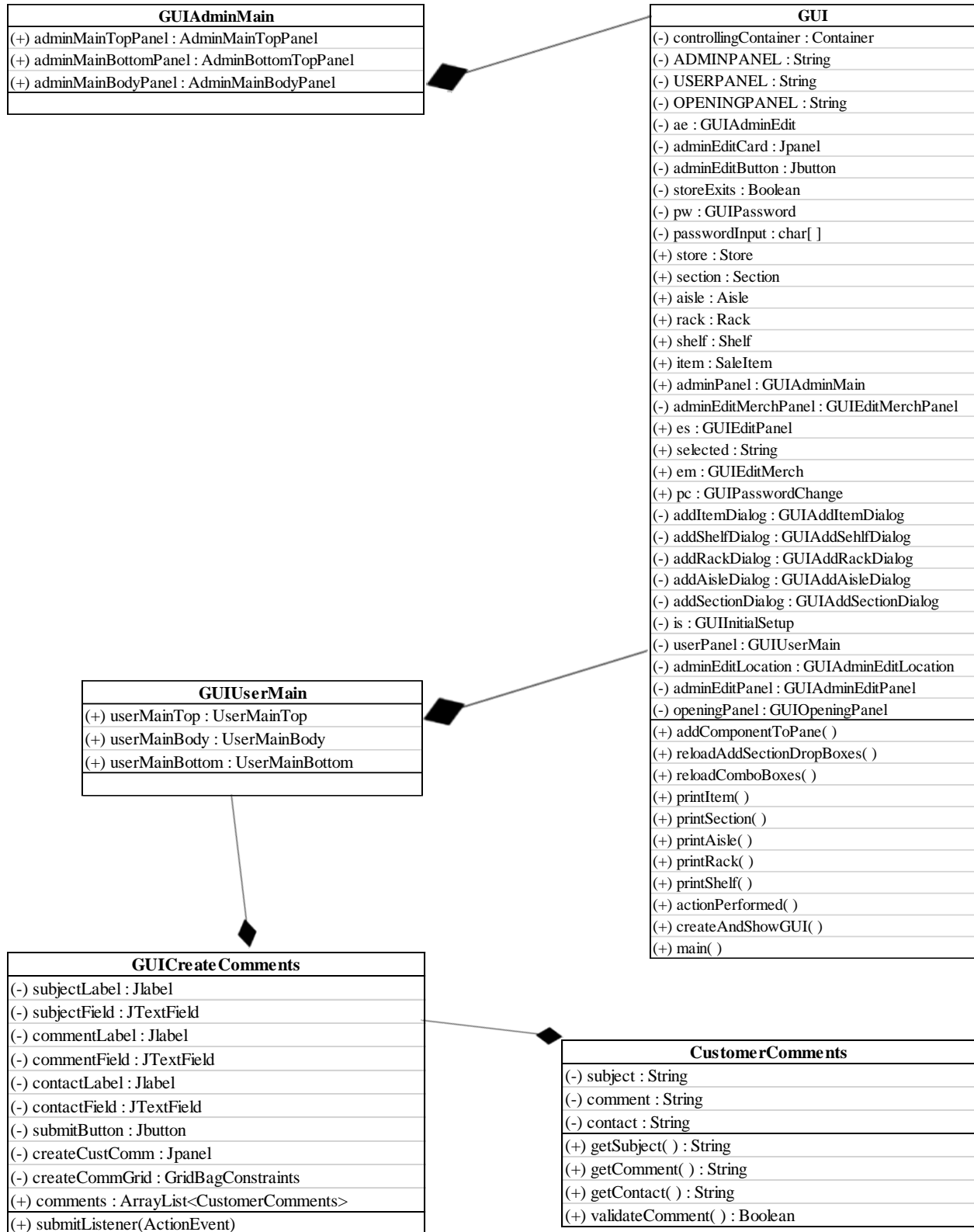
UC9	LocateItem
Related Requirements	REQ1, REQ2, REQ3, REQ4, REQ8
Initiating Actor	User or Admin
Actor's Goal	Can locate item based on search via GUI.
Participating Actors	NA
Preconditions	The store needs to be generated
Post-conditions	NA
Flow of Events for Main Success Scenario	
	1 Any user may use dropbox to search within location

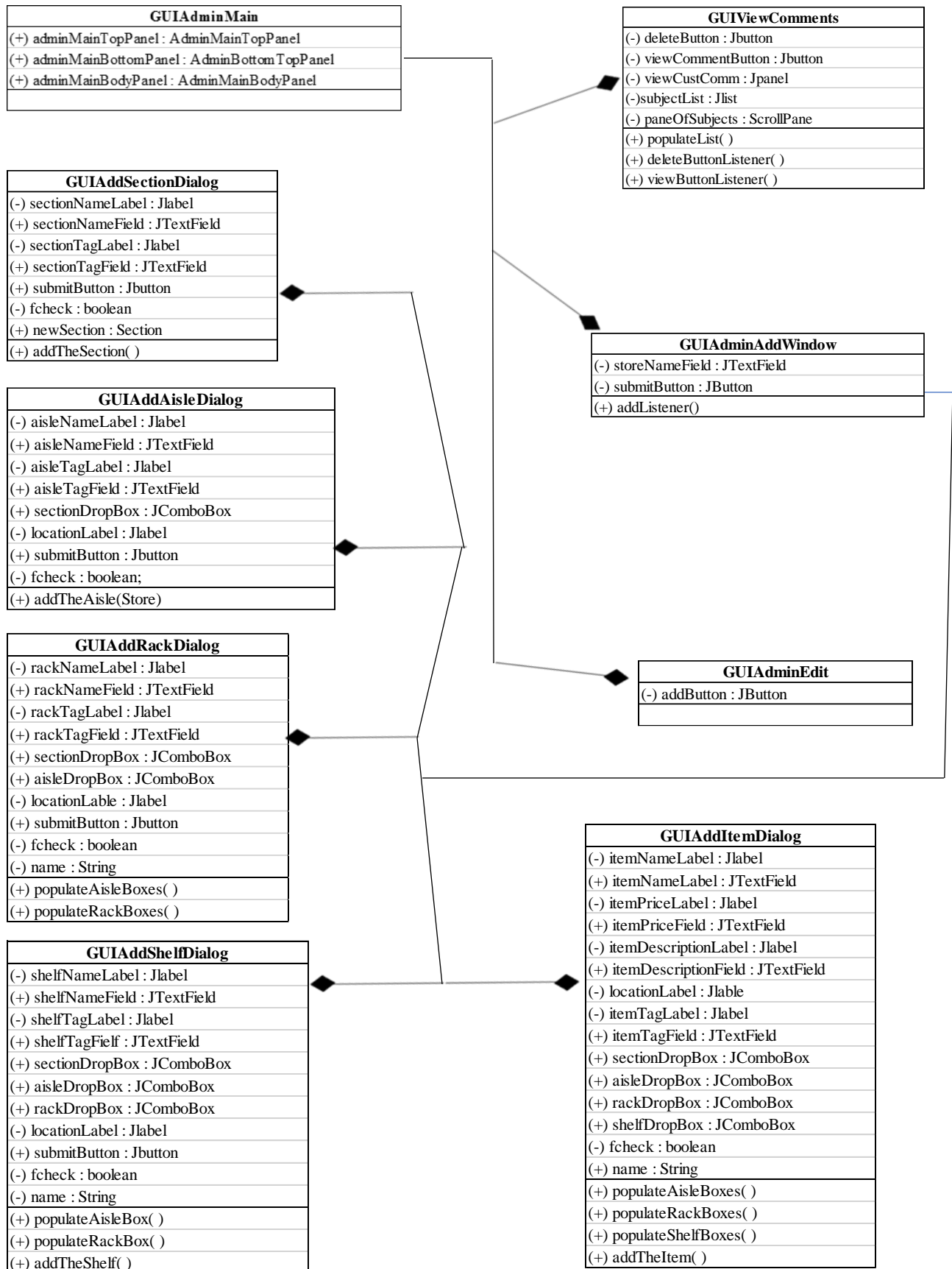
Traceability Matrix

Requirements	UC1	UC2	UC3	UC4	UC5	UC6	UC7	UC8	UC9	UC10	UC11
REQ1						X	X	X			X
REQ2	X	X	X	X						X	
REQ3						X	X	X			X
REQ4					X						
REQ5		X	X	X		X	X	X			X
REQ6						X	X	X			X
REQ7								X			X
REQ8						X	X	X			X
REQ9						X		X			X
REQ10							X				
REQ11									X		
REQ12						X	X	X			X

UML (continue to next two page)

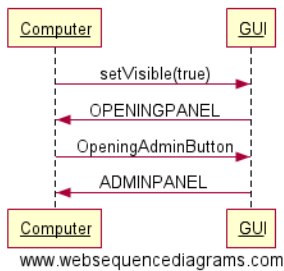




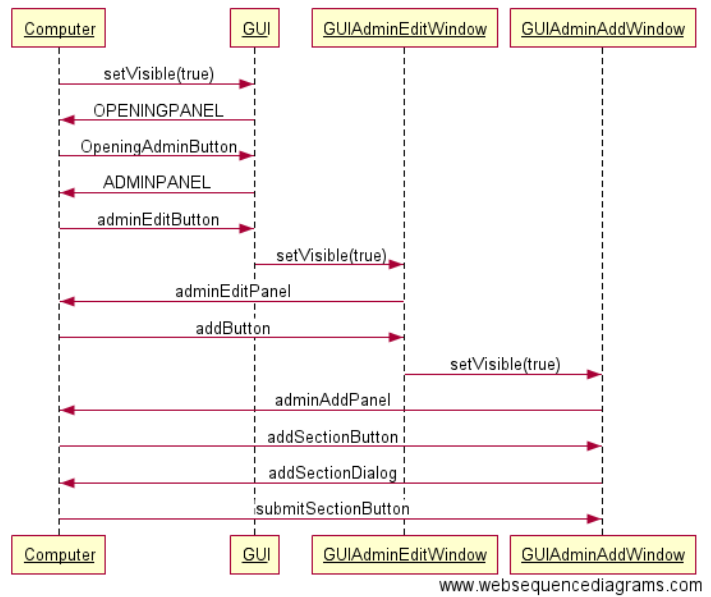


Sequence Diagrams

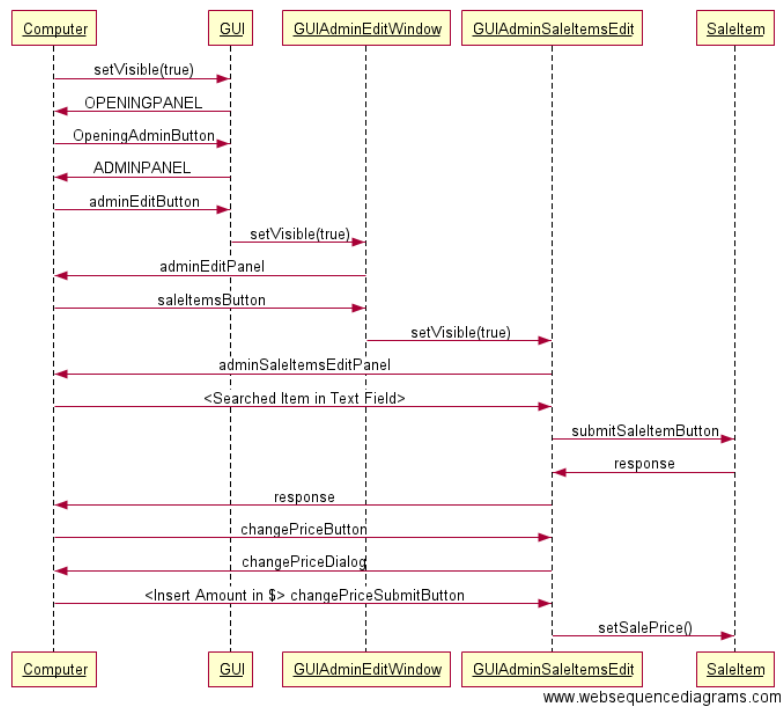
UC1



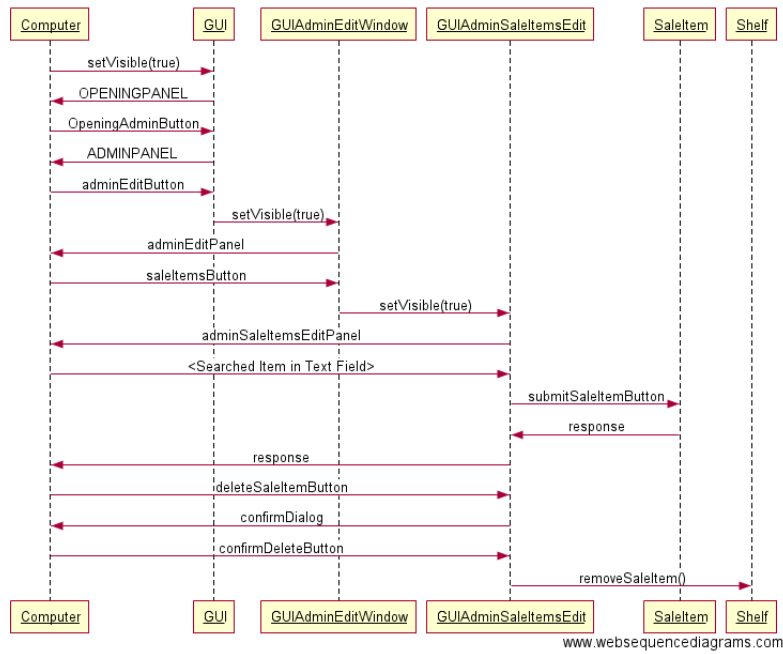
UC2



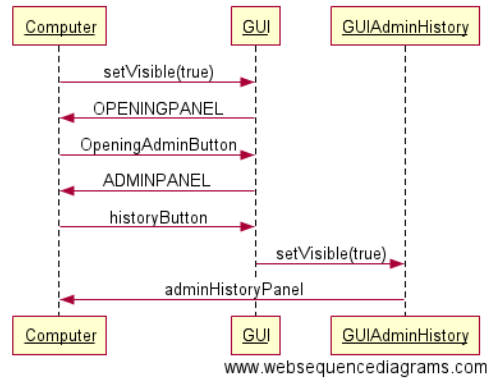
UC3



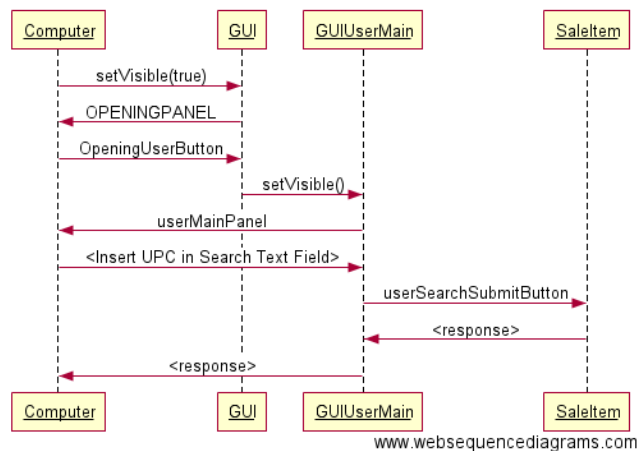
UC4



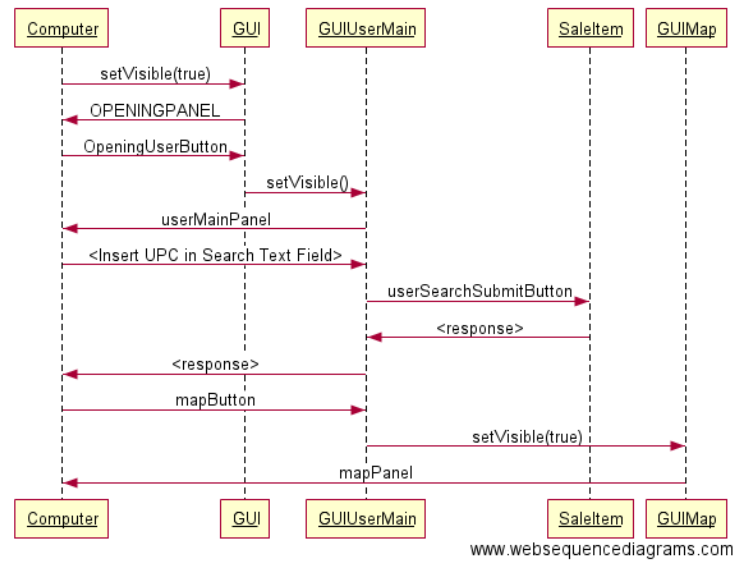
UC5



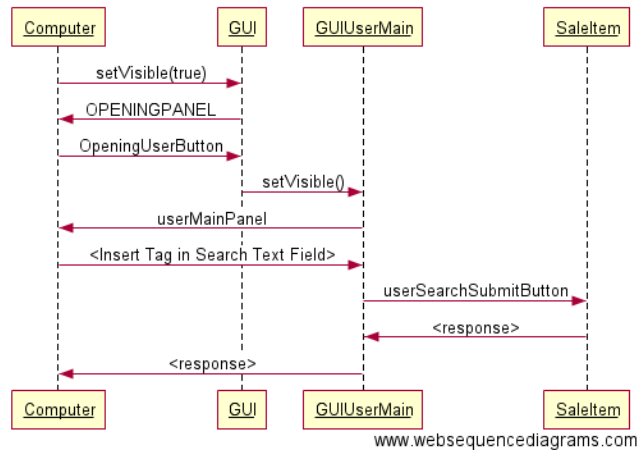
UC6



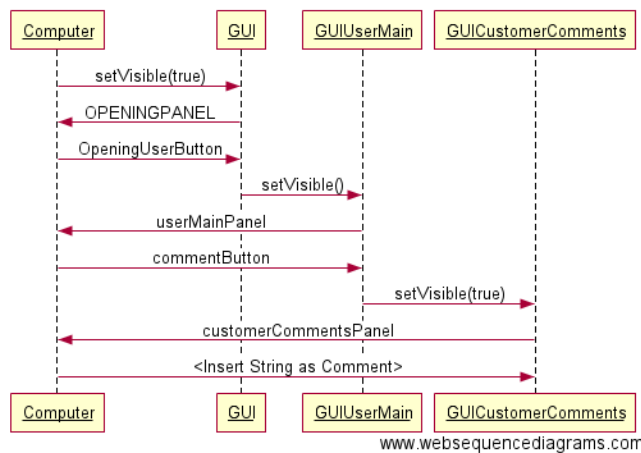
UC7



UC8



UC9



References

(n.d.). Brainy Quotes. Retrieved February 17, 2017, from
http://www.brainyquote.com/search_results.html?q=computers%2Beasier