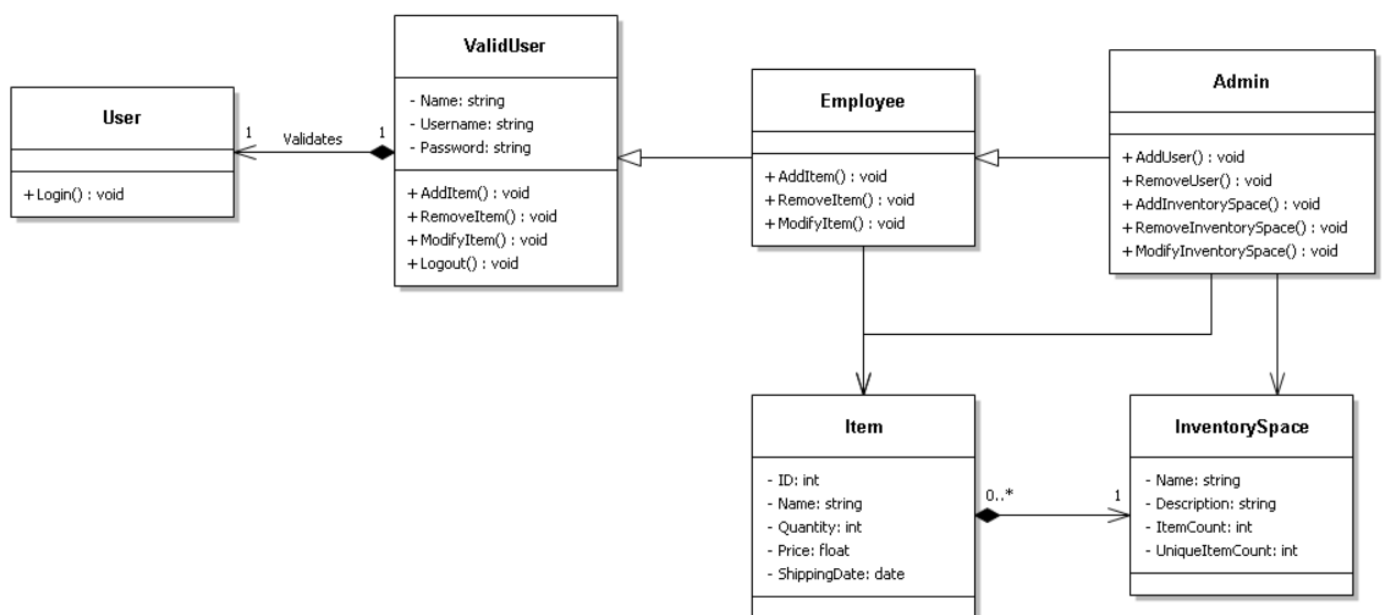
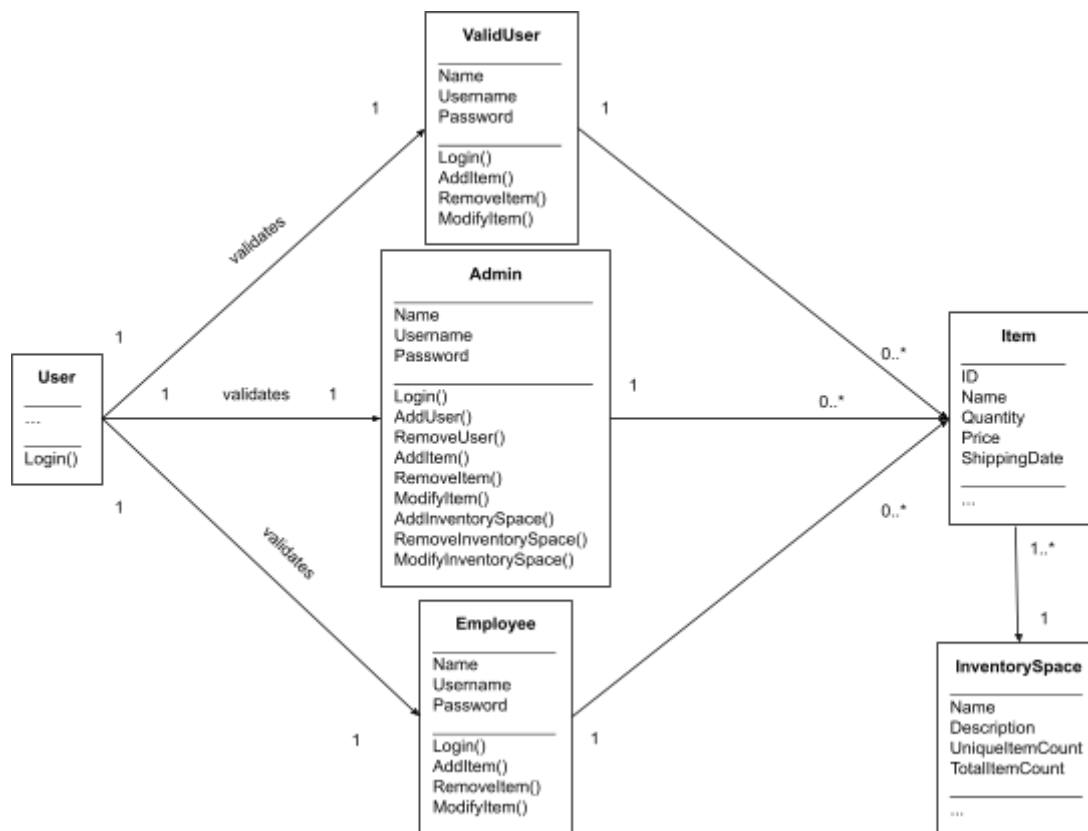
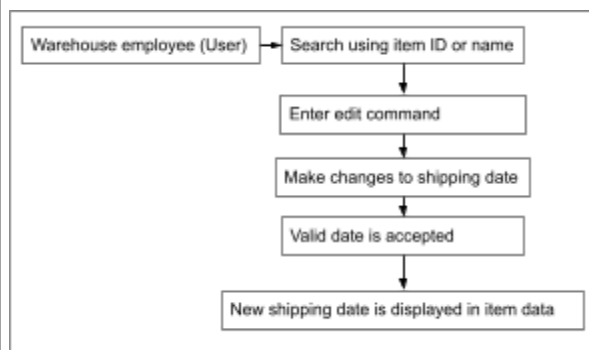
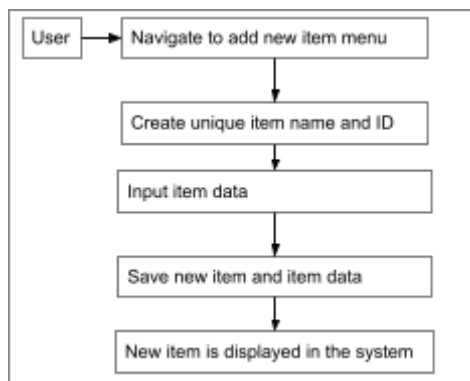
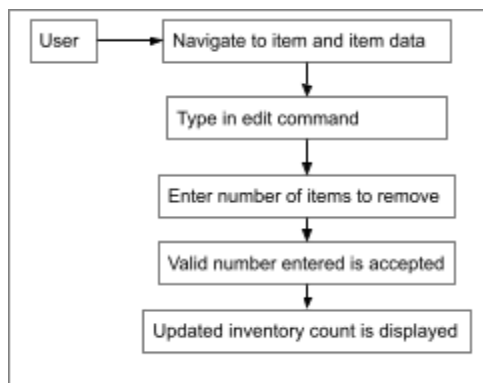
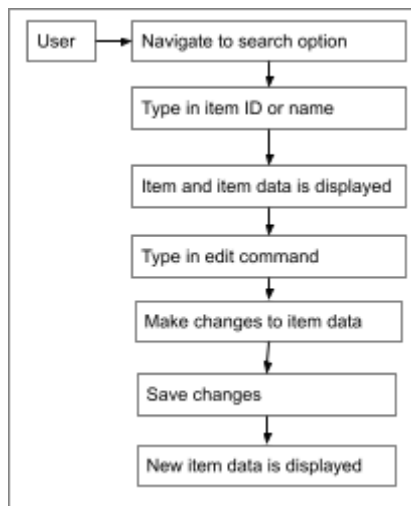
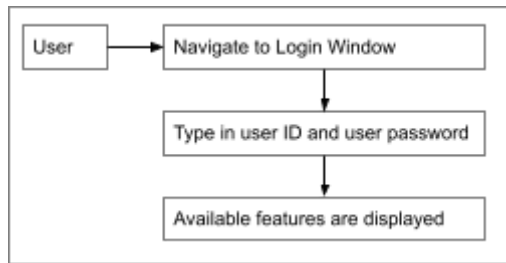
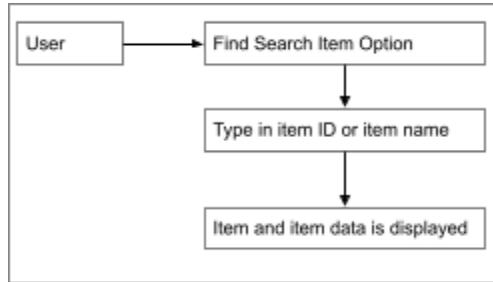
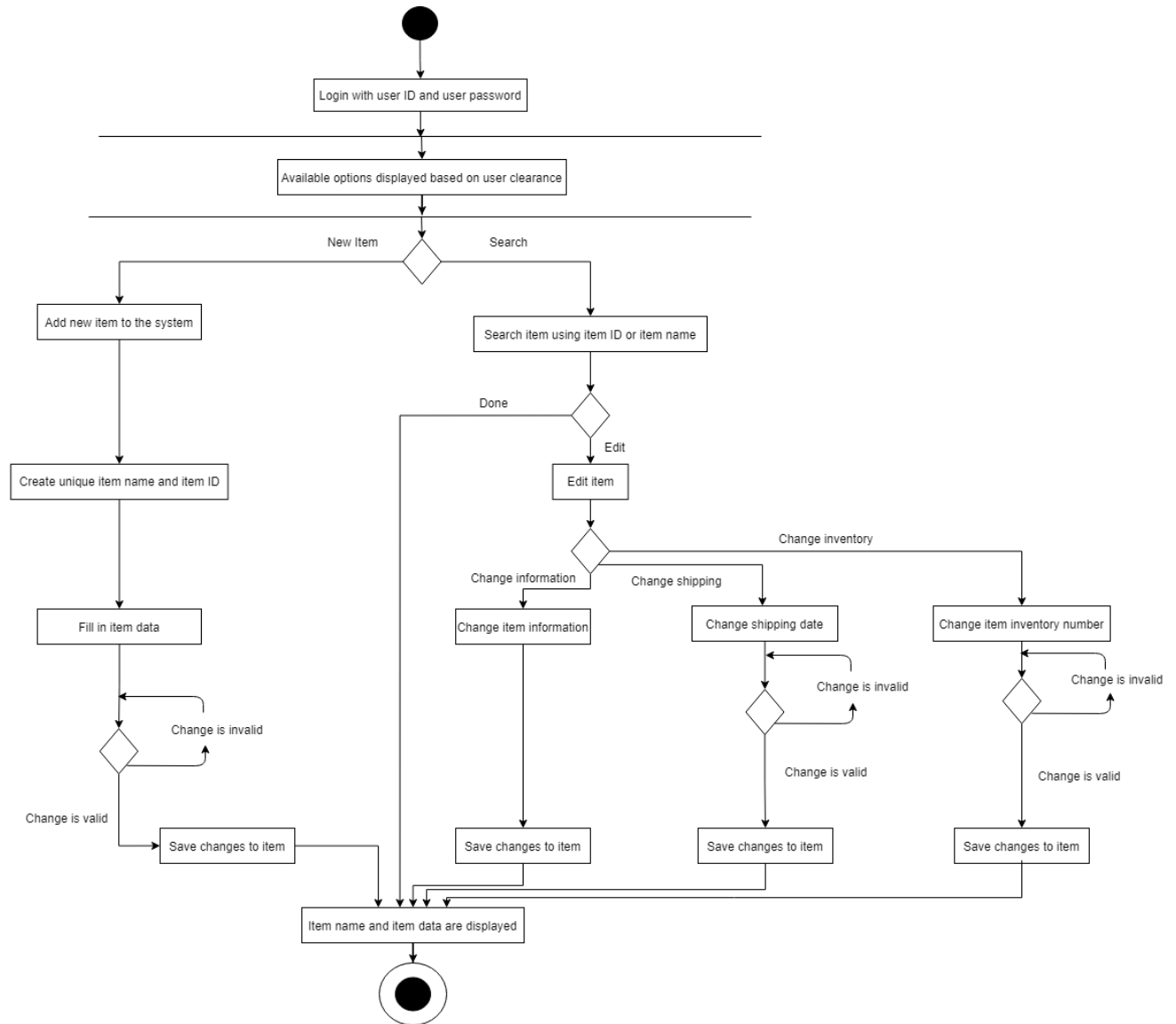


Specifying your classes:

Class Name	Properties	Methods	Description
User	.	Login()	Users must be validated in order to have precedence.
ValidUser	Name Username Password	Login() AddItem() RemoveItem() ModifyItem()	ValidUsers are users who can use the system with limited access.
Admin	Name Username Password	Login() AddUser() RemoveUser() AddItem() RemoveItem() ModifyItem() AddInventorySpace() RemoveInventorySpace() ModifyInventorySpace()	Admins are users who have full access to the system.
Employee	Name Username Password	Login() AddItem() RemoveItem() ModifyItem()	Employees are users who have more access than ValidUsers but less access than Admin.
Inventory Space	Name Description UniqueltemCount TotalItemCount		Inventory Space is comprised of similar items. Example: Let's say the Office Supplies Inventory Space has: - 2 books - 3 rulers - 4 pencils The Office Inventory Space would then have a UniqueltemCount of 3 (books, rulers, pencils) and a TotalItemCount of 9 (2+3+4).
Item	ID Name Quantity Price ShippingDate		Item is the unit contained on the system, it has all the data of the item and makes up an Inventory Space.

Class diagram:

Data Flow Diagrams:

Activity Diagram:

Description of architecture chosen:

Since all aspects of the software, such as the User Interface, Data Storage, and Data Processing, will be managed by a single program, the monolithic architecture will be utilized. This architecture is ideal for smaller projects where a small team of programmers are working on the code, which is similar to our situation. Additionally, the lack of a network means that there does not need to be a focus on internetwork communication and the obstacles that it brings. While there may be concerns of lack of flexibility due to the close-knit nature of the architecture, this concern can be resolved through orthogonal code design.

Normalization to 3NF:

Our 3NF table contains the items and item data that are contained in our application. The key is "Item ID".

Item ID	Item Name	Item Quantity	Item Price	Item Shipping Date
08947	Heavy Duty Polyethylene Tarp Blue/Brown	21	\$30.97	3/11/2022
26531	Polar White 120 qt Cooler	32	\$96.58	12/3/2021
60547	Compact Tape Measure	46	\$14.00	2/11/2022
92831	Carbon Steel Jig Saw Blade Set Assorted	5	\$13.45	6/13/2022
25781	Aluminum Extension Ladder	30	\$68.74	4/11/2022
03496	White PVC Snap-in Gutter Filter	77	\$9.99	5/4/2022
32064	Cordless Drill Kit	15	\$35.00	6/16/2022
57189	13 in. Charcoal Grill and Smoker Green	16	\$501.69	11/2/2022
13594	Portable Air Compressor 150 psi	3	\$92.06	9/15/2022
86027	Wood Shim 42 pk	10	\$5.01	4/8/2022

Database design:

Our database will be housed on site through the hardware provided. We want users to be able to edit the inventory data directly and without requiring the use of the internet. Since there is no network connectivity, we would not make use of the cloud or online connections to a remote database. The diagram below demonstrates how inventory data is stored in our system, and the types of data associated with each category.

Item ID	Item Name	Item Quantity	Item Price	Item Shipping Date
INTEGER	STRING	INTEGER	FLOAT	DATE

Hardware your system will run on:

Our system's hardware will be implemented through use of computer systems at the business's chosen location, such as the store or warehouse. The computer system does not require a network connection to run our application because of the monolithic architecture of the application itself. All data will be stored on site since records are changed directly with the application.

User interface:

Our user interface will have to be able to store information and allow for an efficient way to make changes to that information. The employee can search items using item name or item ID, edit items, and can add new items to the system. The user interface will utilize typing commands to navigate through the application, such as the “edit command” that allows users to change an item’s item data. Users type in commands, like search, edit, new, etc. in order to change the inventory contained in their inventory management system. The users also must navigate through a login screen before being able to see items.

Professional Inventory Manager		Employee: John Doe																																														
<input style="width: 150px;" type="text" value="Item ID..."/>		<input style="width: 80px; background-color: #d9ead3;" type="button" value="Add Item"/>																																														
Item Search:		<input style="width: 150px;" type="text" value="Item Name/ID..."/>																																														
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr style="background-color: #d9e1f2;"><th>Inventory Space Name</th></tr></thead><tbody><tr><td>Clothing</td></tr><tr><td>Health & Beauty</td></tr><tr><td>Kitchen</td></tr><tr style="background-color: #d9d9d9;"><td>Office Supplies</td></tr><tr><td>Power Tools</td></tr><tr><td>Seasonal</td></tr></tbody></table>	Inventory Space Name	Clothing	Health & Beauty	Kitchen	Office Supplies	Power Tools	Seasonal	<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr style="background-color: #d9e1f2;"><th>ID</th><th>Name</th><th>Quantity</th><th>Price</th><th>Shipping Date</th></tr></thead><tbody><tr><td>03496</td><td>White PVC Snap-in Gutter Filter</td><td>77</td><td>\$9.99</td><td>5/4/2022</td></tr><tr><td>08947</td><td>Heavy Duty Polyethylene Tarp Blue/Brown</td><td>21</td><td>\$30.97</td><td>3/11/2022</td></tr><tr><td>25781</td><td>Aluminum Extension Ladder</td><td>2</td><td>\$68.74</td><td>4/11/2022</td></tr><tr><td>26531</td><td>Polar White 120 ct Cooler</td><td>32</td><td>\$96.58</td><td>12/3/2022</td></tr><tr style="background-color: #d9d9d9;"><td>32064</td><td>Cordless Drill Kit</td><td>15</td><td>\$35.00</td><td>6/16/2022</td></tr><tr><td>60547</td><td>Compact Tape Measure</td><td>46</td><td>\$14.00</td><td>2/11/2022</td></tr><tr><td>92831</td><td>Carbon Steel Jig Saw Blade Set Assorted</td><td>5</td><td>\$13.45</td><td>6/13/2022</td></tr></tbody></table>	ID	Name	Quantity	Price	Shipping Date	03496	White PVC Snap-in Gutter Filter	77	\$9.99	5/4/2022	08947	Heavy Duty Polyethylene Tarp Blue/Brown	21	\$30.97	3/11/2022	25781	Aluminum Extension Ladder	2	\$68.74	4/11/2022	26531	Polar White 120 ct Cooler	32	\$96.58	12/3/2022	32064	Cordless Drill Kit	15	\$35.00	6/16/2022	60547	Compact Tape Measure	46	\$14.00	2/11/2022	92831	Carbon Steel Jig Saw Blade Set Assorted	5	\$13.45	6/13/2022
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Security (example, how login/system access will work):

Within our software application, there will exist different levels of users that will ultimately determine their permissions to view and change data. The 'employee' user will only be able to add and remove items from existing storage spaces. Similarly, the 'admin' user will also be able to add and remove items from existing storage spaces. However, the 'admin' user will also be able to add/remove other users and add/remove storage spaces.

Since our application will only be accessed locally by company employees, a table of username and password hashes will be stored locally, coinciding with each user. These login credentials will be salted before being hashed, just to add another layer of security. When the user wishes to log into the program, a hash of the username and password will be generated and compared with the hashes stored locally. If the user-entered values are found to match a pair of values that are stored locally, the user will be granted access to their account with the respective permission level.

Reports:

Reports can be a digitally recorded or a printed sheet that keeps track of changes made. It will have important information on it, such as: Date, time, item number, item amount, amount changed, and who made the change. This makes it easy to track any changes and if anything were to go wrong where to go to fix the issue. Our reports will be handled by the chosen repository, GitHub, since it tracks changes and displays user edits. We will also include a sheet in our repository to keep track of the important inventory information mentioned above, to keep track of it's changes.