**System Design Document**

**Eagle Wholesale**

**Warehouse Management System**

**Joshua Stewart**

**Table of Contents**

Overview of Solution 3

Technology Solution 11

User Interface 13

Object Model 59

Object Interaction Diagram 60

Algorithms 62

Entity Relationship Diagram 63

External Interface Specifications 63

Class Definitions 64

# Overview of Solution

*This describes the planned solution and how it will meet the functional and non-functional requirements.*

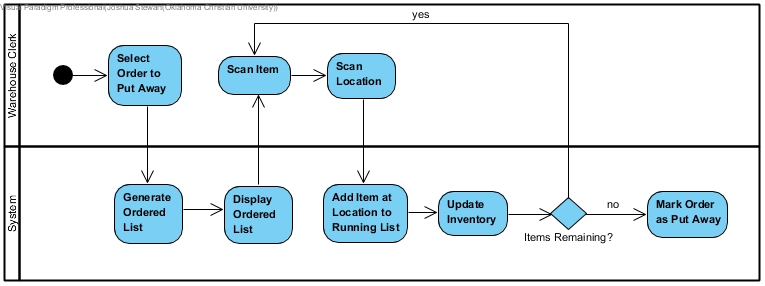
The solution is an online warehouse management system to replace their existing paper records. This system will maintain all the data require to support the automation of the supplier and customer ordering processes and assist workers in the manual parts of the process.

* 1. **System Flow**
     + **Sign-In Flow**
       1. User enters sign-in information
       2. System authorizes user and display appropriate menus
     + **Maintenance Flow**
       1. User selects from the menu what to maintain
       2. User selects to add/selects specific item to update or delete
       3. User make changes to the data
       4. User saves the data or cancels the action
     + **Supplier Ordering Flow**
       1. System filters through inventory and creates orders for any items that are below their minimum amount
       2. Manager views generated orders and confirms them
       3. System creates formatted files that are then sent to suppliers
     + **Receiving Flow**
       1. Warehouse Clerk selects Receive
       2. Warehouse Clerk selects from list of arrived orders to receive
       3. Warehouse Clerk scans the UPC of each case from the order
       4. System keeps a running list of cases scanned and the quantity of each
       5. Warehouse Clerk marks order as completed
       6. System compares order and running total and notifies Warehouse Clerk of any differences
       7. Warehouse Clerk can either recount cases or store the difference
       8. System marks order as received
     + **Put Away Flow**
       1. Warehouse Clerk selects Put Away
       2. Warehouse Clerk selects from list of received orders to put away
       3. System orders the line items of the order based on their aisle location
       4. Warehouse Clerk scans each case and the location that the case is being stored
       5. System adds the case to the quantity of items in the inventory
       6. Repeat until all items are put away
       7. System marks the order as put away
     + **Customer Ordering Flow**
       1. Customer selects to create order
       2. Customer selects items from list to add to order
       3. Customer confirms order
       4. System shows Customer order information
     + **Picking Flow**
       1. Warehouse Clerk selects Pick
       2. Warehouse Clerk selects from list of placed orders to pick
       3. System orders the line items of the order based on their aisle location
       4. Warehouse Clerk scans each item and the location that the item is being picked from
       5. System removes the item from the quantity of items in the inventory
       6. Repeat until all items are picked
       7. System marks the order as picked
     + **Shipping Flow**
       1. Shipping Clerk selects Ship
       2. Shipping Clerk selects from list of picked orders to ship
       3. Shipping Clerk scans the UPC of each case for the shipment
       4. System keeps a running list of cases scanned and the quantity of each
       5. Shipping Clerk marks shipment as finished
       6. System compares order and running total and notifies Shipping Clerk of any differences
       7. Shipping Clerk can either recount cases or store the difference
       8. System marks order as shipped
     + **Delivery Flow**
       1. Driver selects Deliver
       2. System orders the stores that the truck must deliver to and creates a map
       3. System provides directions to store
       4. Driver follows direction to store
       5. Driver selects Arrived once at the store
       6. Driver scans the UPC of each case for the delivery
       7. System keeps a running list of cases scanned and the quantity of each
       8. Driver marks delivery as finished
       9. System compares Bill of Lading and running total and notifies Driver of any differences
       10. Driver can either recount cases or store the difference
       11. System marks order as delivered
       12. Repeat for all orders
       13. Driver follows directions back to warehouse
     + **Inventory Count Flow**
       1. Warehouse Clerk selects Count
       2. Warehouse Clerk scans location
       3. System stores what items should be stored in the given location
       4. Warehouse Clerk scans each item in the location
       5. System compares expected inventory and actual inventory and notifies the Warehouse Clerk
       6. Warehouse Clerk can recount the items or mark the inventory as incorrect
       7. System updates the inventory accordingly

**A screenshot of a cell phone

Description automatically generatedSupplier Order and Receive Workflow**

**Supplier Order Put Away Workflow**

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**A screenshot of a cell phone

Description automatically generatedCustomer Order Ship and Deliver Workflow**

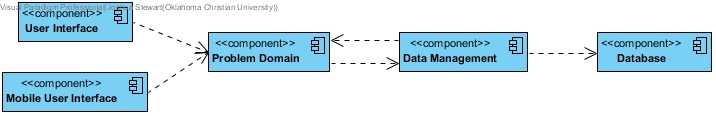
* 1. **System Features that meet the functional requirements specified in** **the Requirements Document.**
* Maintain Item Information (add, update, delete)
  + The system provides persistence and UI for adding, updating and deleting items.
* Maintain Customer Information (add, update, delete)
  + The system provides persistence and UI for adding, updating and deleting customers.
* Maintain Supplier Information (add, update, delete)
  + The system provides persistence and UI for adding, updating and deleting supplier.
* Maintain Warehouse Information (update)
  + The system provides persistence and UI for updating warehouse information.
* Maintain Supplier Order Information (add, update, delete)
  + The system provides persistence and UI for adding, updating and deleting Supplier Orders.
* Maintain Customer Order Information (add, update, delete)
  + The system provides persistence and UI for adding, updating and deleting Customer Orders.
* Maintain Inventory Information (update)
  + The system provides persistence and UI for updating inventory information.
* Maintain Route Information (add, update, delete)
  + The system provides persistence and UI for adding, updating and deleting routes.
* Maintain Employee Information (add, update, delete)
  + The system provides persistence and UI for adding, updating and deleting employees.
* Automatically Generate Supplier Orders
  + The system provides orders containing items that need to be ordered because they are low on stock
* Receive Supplier Orders
  + The system provides persistence and UI for selecting an order to receive.
  + The system allows scanning of UPC for adding cases to a running list.
  + The system provides persistence and UI for displaying the running total and expected amount for each case.
  + The system provides automatic calculations of differences in quantities.
  + The system provides persistence and UI for recounting and confirming count differences.
* Put Away Supplier Orders
  + The system provides persistence and UI for selecting an order to put away.
  + The system allows scanning of UPC for moving items to a given location in the warehouse.
* Take Customer Orders
  + The system provides persistence and UI for adding, updating and deleting line items for new orders.
* Pick Customer Orders
  + The system provides persistence and UI for selecting an order to pick.
  + The system allows scanning of UPC for removing items from a given location in the warehouse.
* Ship Customer Orders
  + The system provides persistence and UI for selecting an order to ship.
  + The system allows scanning of UPC for adding cases to a running list.
  + The system provides persistence and UI for displaying the running total and expected amount for each case.
  + The system provides automatic calculations of differences in quantities.
  + The system provides persistence and UI for recounting and confirming count differences.
* Deliver Customer Orders
  + The system provides automatically generated maps for the route a driver will be taking on a given day.
  + The system provides automatically directions for the driver based on the generated map.
* Inventory Count
  + The system allows scanning of UPC for checking the item quantities in a given location in the warehouse.
  + The system provides persistence and UI for displaying the running total and expected amount for each location.
  + The system provides automatic calculations of differences in quantities.
  + The system provides persistence and UI for recounting and confirming count differences.
* Control access to all management functions (maintenance and reports)
  + System provides mechanism for maintaining users
  + System provides access control to functions based on user
  1. **Design Goals (that meet Non-Functional Requirements)**
* The system shall be easy for both clients and inventory clerks to use so that orders and inventory can be updated quickly.
  + Target
    - An inventory clerk should be able to add or remove an item from the system in under a minute.
    - An inventory clerk should be able to update the information of an item in under 30 seconds.
    - An inventory clerk should be able to use the system with only thirty minutes of training.
    - Customers should be able to use the system without training.
  + Approach
    - The system has been designed to have an easy to use, standard UI.
* The system shall be highly reliable since, if the system is not available, customers cannot place orders and inventory cannot be updated.
  + Target
    - The system should be available 99.99% of the warehouse open hours.
  + Approach
    - The system has been designed to be very reliable using industry standard technology. The system will be tested to minimize defects that would prevent the system from reaching the target.
* The system shall have a high level of performance.
  + Target
    - All updates to information shall be performed in under 1 second.
  + Approach
    - The system architecture will provide this level of performance.
* The system shall automatically install updates received from the software development team.
  + Approach
    - The system architecture will provide automatic update support.
* The system shall support interfacing with supplier’s online order submission software.
  + Approach
    - The system will deliver files of the order data to supplier’s in their preferred csv format.
* The system shall support interfacing with customer’s store software.
  + Approach
    - The system will allow customers to create orders directly on the system, instead of generating it on an external document.
* The system shall not require training for customer use and should only require thirty minutes of training for clerk use.
  + Approach
    - The UI is designed to be easy for non-computer users to use and to make it easy to train new users.
  1. **The system design meets the objectives as stated in the requirements**.
     + The system will reduce the amount of paper used to record data by storing and accessing the data on a database.
     + The system will improve the accuracy of records on the current inventory by updating inventory data as it is changed and reducing the number of human recordings needed.
     + The system will improve the speed of storing and picking items by using UPC scanners to count the items and by ordering the list of items by aisle location.
     + The system will reduce the time spent checking orders by using UPC scanners to count the items and by automatically comparing actual and expected quantities.
     + The system will improve the accuracy of when a given supply needs to be restocked by automatically checking which items are below their minimum quantity.
     + The system will improve customer satisfaction by making it easier to place orders through an online user interface.
     + The system will improve inventory management by tracking where items are stored and listing items based on these storage locations.
     + The system will reduce labor by allowing price changes to be scheduled ahead of time.
     + The system will reduce the number of times and the amount of time that the warehouse is out of stock for an item by tracking the stock of items and generating orders for items that are low on stock.

# Technology Solution

*This section describes the technology plan for the solution. This includes the system architecture and technology components.*

The system will have several sub systems.

(component diagram)



The system will use a client-server architecture.

(deployment diagram)

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This system will be a client-server solution. It has these features:

* Database Server
* GUI Interface
* Web Access

This system will use the following technologies:

* Java
* Java Swing UI framework
* Java JPA framework
* HTML/JavaScript
* MySQL database
* Run on Windows, iOS, or Android

The system is designed to function on an Apache web server with 4GB of RAM and 100GB of storage, Tomcat application server with 4GB of RAM and 200GB of storage, and MySQL database server with 4GB of RAM and 400GB of storage. The system is designed to be accessed on a desktop running Windows 10 with 4GB of RAM and 400 GB of storage and an Android tablet with 2 GB of RAM and 64 GB of storage.

# User Interface

*This section describes the menus, screens and reports provided by the system. This includes menu hierarchy diagrams, screen layout wire frames, and report layouts.*

**Sign-In Menu**

Customer

Manager

Warehouse Clerk

Inventory Clerk

Shipping Clerk

Driver

Sign-In

**Manager Menu**

Employee Edit

Review Orders

Supplier Edit

Supplier Selection

Supplier Order Edit

Employee Selection

Customer Order Edit

Warehouse Edit

Customer Selection

Customer Edit

Manager

**Inventory Clerk Menu**

UPC Edit

Item Selection

Supplier Order Edit

Supplier Order Selection

Case Edit

Price Edit

Item Edit

Customer Order Edit

Customer Order Selection

Route Edit

Route Selection

Inventory Clerk

**Warehouse Clerk Menu**

Count

Pick Selection

Pick Item

Count Verification

Receive Verification

Receive Item

Receive Selection

Put Away Item

Put Away Selection

Warehouse Clerk

**Other User Menus**

Deliver Verification

Deliver Item

Ship Verification

Deliver Order

Driver

Customer Order Edit

Customer Order Selection

Customer

Ship Selection

Ship Item

Shipping Clerk

**Sign-In**

|  |  |
| --- | --- |
| **Screen** | Sign-In |
| **Description** | Allows users to access the appropriate options |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Username | account.username | Required | | Password | account.password | Required | |
| **Actions** | **Sign-In** – Authorize the user and display the appropriate screen |

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**Manager Home**

|  |  |
| --- | --- |
| **Screen** | Manager Home |
| **Description** | The screen from which managers select options |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Welcome | none | none | | Signed In As | employee.position | none | |
| **Actions** | Menu Selection |

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**Warehouse Edit**

|  |  |
| --- | --- |
| **Screen** | Warehouse Edit |
| **Description** | Edit the properties of the warehouse |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Name | warehouse.name | Required | | Address | warehouse.address | Required | | City | warehouse.city | Required | | ZIP | warehouse.zip | #####, Required | | P.O. Box | warehouse.poBox | ########, Required | | Phone | warehouse.phone | ###-###-####, Required | |
| **Actions** | **Save** – Save changes and return to the user’s home screen  **Cancel** – Discard changes and return to the user’s home screen |

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**Customer Selection**

|  |  |
| --- | --- |
| **Screen** | Customer Selection |
| **Description** | Allows adding a Customer or selecting a Customer to update or delete |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | customer.name | none | |
| **Actions** | **Add** - display Customer Add Screen  **Edit** - display Customer Edit with selected Customer, enable if selected  **Delete** - delete selected Customer, enable if selected and ok to Delete |

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**Customer Edit**

|  |  |
| --- | --- |
| **Screen** | Customer Edit |
| **Description** | Edit the properties of a customer |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Name | customer.name | Required | | Address | customer.address | Required | | Customer Number | customer.custNum | ####, Required | | P.O. Box | customer.poBox | ########, Required | | Customer Order Selection | customer.orders | none | |
| **Actions** | **Save** – Save changes and return to the user’s home screen  **Cancel** – Discard changes and return to the user’s home screen  **Add** - display Customer Order Add Screen  **Edit** - display Customer Order Edit with selected Customer Order, enable if selected  **Delete** - delete selected Customer Order, enable if selected and ok to Delete |

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**Customer Order Selection**

|  |  |
| --- | --- |
| **Screen** | Customer Order Selection |
| **Description** | Allows adding a Customer Order or selecting a Customer Order to update or delete |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | customerOrder.poNum | none | |
| **Actions** | **Add** - display Customer Order Add Screen  **Edit** - display Customer Order Edit with selected Customer Order, enable if selected  **Delete** - delete selected Customer Order, enable if selected and ok to Delete |

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**Customer Order Edit**

|  |  |
| --- | --- |
| **Screen** | Customer Order Edit |
| **Description** | Edit the properties of a Customer Order |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O. Number | customerOrder.poNum | Required | | Driver | customerOrder.driver | Required | | Status | customerOrder.status | Required | | Door | customerOrder.door | ###, Required | | Order Date | customerOrder.datePlaced | Mm/dd/YYYY, Required | | Line Item Edit | customerOrder.lineItems | none | |
| **Actions** | **Save** – Save changes and return to the previous screen  **Cancel** – Discard changes and return to the previous screen |

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**Supplier Selection**

|  |  |
| --- | --- |
| **Screen** | Supplier Selection |
| **Description** | Allows adding a Supplier or selecting a Supplier to update or delete |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | supplier.name | none | |
| **Actions** | **Add** - display Supplier Add Screen  **Edit** - display Supplier Edit with selected Supplier, enable if selected  **Delete** - delete selected Supplier, enable if selected and ok to Delete |

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**Supplier Edit**

|  |  |
| --- | --- |
| **Screen** | Supplier Edit |
| **Description** | Edit the properties of the supplier |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Name | customer.name | Required | | Address | supplier.address | Required | | Supplier Number | supplier.supNum | ####, Required | | P.O. Box | supplier.poBox | ########, Required | | Supplier Order Selection | supplier.orders | none | |
| **Actions** | **Save** – Save changes and return to the user’s home screen  **Cancel** – Discard changes and return to the user’s home screen |

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**Supplier Order Selection**

|  |  |
| --- | --- |
| **Screen** | Supplier Order Selection |
| **Description** | Allows adding a Supplier Order or selecting a Supplier Order to update or delete |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | supplierOrder.poNum | none | |
| **Actions** | **Add** - display Supplier Order Add Screen  **Edit** - display Supplier Order Edit with selected Supplier Order, enable if selected  **Delete** - delete selected Supplier Order, enable if selected and ok to Delete |

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**Supplier Order Edit**

|  |  |
| --- | --- |
| **Screen** | Supplier Order Edit |
| **Description** | Edit the properties of the supplier order |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O. Number | supplierOrder.poNum | Required | | Driver | supplierOrder.driver | Required | | Status | supplierOrder.status | Required | | Door | supplierOrder.door | ###, Required | | Order Date | supplierOrder.datePlaced | Mm/dd/YYYY, Required | | Line Item Edit | supplierOrder.lineItems | none | |
| **Actions** | **Save** – Save changes and return to the previous screen  **Cancel** – Discard changes and return to the previous screen |

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**Employee Selection**

|  |  |
| --- | --- |
| **Screen** | Employee Selection |
| **Description** | Allows adding an Employee or selecting an Employee to update or delete |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | employee.name | none | |
| **Actions** | **Add** - display Employee Add Screen  **Edit** - display Employee Edit with selected Employee, enable if selected  **Delete** - delete selected Employee, enable if selected and ok to Delete |

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Description automatically generated

**Employee Edit**

|  |  |
| --- | --- |
| **Screen** | Employee Edit |
| **Description** | Edit the properties of the employee |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Name | employee.name | Required | | Address | employee.address | Required | | Phone | employee.phone | Required | | Position | employee.position | Required | |
| **Actions** | **Save** – Save changes and return to the user’s home screen  **Cancel** – Discard changes and return to the user’s home screen |

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**Review Orders**

|  |  |
| --- | --- |
| **Screen** | Review Order |
| **Description** | Review supplier orders generated by the system |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Name | warehouse.name | Required | | Address | warehouse.address | Required | | City | warehouse.city | Required | | ZIP | warehouse.zip | Required | | P.O. Box | warehouse.poBox | Required | | Phone | warehouse.phone | Required | |
| **Actions** | **Confirm** – Save changes, send order to supplier, and load next order for review  **Cancel** – Delete order and load next order for review  **Back** – Discard changes and return to the user’s home screen |

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**Inventory Clerk Home**

|  |  |
| --- | --- |
| **Screen** | Inventory Clerk Home |
| **Description** | The screen from which inventory clerks select options |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Welcome | none | none | | Signed In As | employee.position | none | |
| **Actions** | Menu Selection |

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Description automatically generated

**Route Selection**

|  |  |
| --- | --- |
| **Screen** | Route Selection |
| **Description** | Allows adding a Route or selecting a Route to update or delete |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | route.routeNumber | none | |
| **Actions** | **Add** - display Route Add Screen  **Edit** - display Route Edit with selected Route, enable if selected  **Delete** - delete selected Route, enable if selected and ok to Delete |

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**Route Edit**

|  |  |
| --- | --- |
| **Screen** | Route Edit |
| **Description** | Edit the properties of a route |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Customers | warehouse.accounts | isEmployee = false | | Route | route.customers | none | |
| **Actions** | **Add** – Add a customer from the warehouse to the list of customers visited on the route  **Remove** – Remove a customer from the route  **Save** – Save changes and return to the user’s home screen  **Cancel** – Discard changes and return to the user’s home screen |

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Description automatically generated

**Item Selection**

|  |  |
| --- | --- |
| **Screen** | Item Selection |
| **Description** | Allows adding an Item or selecting an Item to update or delete |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | item.warehouseNum | none | | none | item.name | none | |
| **Actions** | **Add** - display Item Add Screen  **Edit** - display Item Edit with selected Item, enable if selected  **Delete** - delete selected Item, enable if selected and ok to Delete |

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**Item Edit**

|  |  |
| --- | --- |
| **Screen** | Item Edit |
| **Description** | Edit the properties of an item |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Warehouse Number | item.warehouseNum | Required | | Description | item.description | Required | | Last Order | item.lastOrdered | Required | | Minimum Number | item.minNum | Required | | Maximum Number | item.maxNum | Required | | Current Number | item.currentNum | Required | | Ordered Number | item.orderedNum | Required | |
| **Actions** | **Add UPC** - display UPC Add Screen  **Edit UPC** - display Item Edit with selected UPC, enable if selected  **Delete UPC** - delete selected UPC, enable if selected and ok to Delete  **Add Case** - display Case Add Screen  **Edit Case** - display Case Edit with selected Case, enable if selected  **Delete Case** - delete selected Case, enable if selected and ok to Delete  **Add Price** - display Price Add Screen  **Edit Price** - display Price Edit with selected Price, enable if selected  **Delete** - delete selected Price, enable if selected and ok to Delete  **Save** – Save changes and return to the user’s home screen  **Cancel** – Discard changes and return to the user’s home screen |

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**Case Edit**

|  |  |
| --- | --- |
| **Screen** | Case Edit |
| **Description** | Edit the properties of a case |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Supplier | case.supplier | Required | | Supplier Number | case.supplierNum | Required | | Item Quantity | case.itemQty | Required | | Price | case.price | Required | |
| **Actions** | **Save** – Save changes and return to the user’s home screen  **Cancel** – Discard changes and return to the user’s home screen |

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**Price Edit**

|  |  |
| --- | --- |
| **Screen** | Price Edit |
| **Description** | Edit the properties of a price |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Price | price.price | Required | | Effective Date | price.effectiveDate | Required | | End Date | promoPrice.endDate | promoPrice is checked, Required | |
| **Actions** | **Save** – Save changes and return to the user’s home screen  **Cancel** – Discard changes and return to the user’s home screen |

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**UPC Edit**

|  |  |
| --- | --- |
| **Screen** | UPC Edit |
| **Description** | Edit the properties of a UPC |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | UPC Number | upc.uPC | Required | |
| **Actions** | **Save** – Save changes and return to the user’s home screen  **Cancel** – Discard changes and return to the user’s home screen |

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**Warehouse Clerk Home**

|  |  |
| --- | --- |
| **Screen** | Warehouse Clerk Home |
| **Description** | The screen from which inventory clerks select options |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Welcome | none | none | | Signed In As | employee.position | none | |
| **Actions** | Menu Selection |

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**Pick Selection**

|  |  |
| --- | --- |
| **Screen** | Pick Selection |
| **Description** | Allows selection of orders to pick |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | customerOrder.poNum | none | | none | customerOrder  .calcEstimatedPickTime() | none | |
| **Actions** | **Pick** – display Pick Item Screen  **Cancel** – Return to the user’s home screen |

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**Pick Item**

|  |  |
| --- | --- |
| **Screen** | Pick Item |
| **Description** | Allows users to scan items to pick for an order |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O Number | customerOrder.poNum | none | | Order Date | customerOrder.orderPlaced | none | | Item | customerOrder.lineItems.item | none | | Current Location | item.bins | none | | UPC | item.uPCs | Required | |
| **Actions** | **Cancel** – Return to previous screen, enable if no items have been picked  **Location Empty** – Load the next location for the current item or move on to next item if inventory is empty |

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**Receive Selection**

|  |  |
| --- | --- |
| **Screen** | Receive Selection |
| **Description** | Allows selection of orders to receive |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | supplierOrder.poNum | none | | none | supplierOrder  .calcEstimatedReceiveTime() | none | |
| **Actions** | **Receive** – display Receive Item Screen  **Cancel** – Return to the user’s home screen |

A screenshot of a cell phone

Description automatically generated

**Receive Item**

|  |  |
| --- | --- |
| **Screen** | Receive Item |
| **Description** | Allows users to scan items to receive an order |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O Number | supplierOrder.poNum | none | | Order Date | supplierOrder.orderPlaced | none | | Item | supplierOrder.lineItems.case.item | none | | Expected Quantity | supplierLineItem.qtyOrdered | none | | Current Quantity | supplierLineItem.qtyReceived | none | | UPC | case.item.uPCs | Required | |
| **Actions** | **Cancel** – Return to previous screen, enable if no items have been received  **Next Item** – Finish scanning given item and move to next item, enable if there are more items to scan  **Finish Order** – Go to Receive Verification Screen, enable if there are no more items to scan |

A screenshot of a cell phone

Description automatically generated

**Receive Verification**

|  |  |
| --- | --- |
| **Screen** | Receive Verification |
| **Description** | Allows users to confirm or recount item quantities that did not match the quantity ordered |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O Number | supplierOrder.poNum | none | | Order Date | supplierOrder.orderPlaced | none | | Item | supplierOrder.lineItems.case.item | none | | Expected Quantity | supplierLineItem.qtyOrdered | none | | Received Quantity | supplierLineItem.qtyReceived | none | |
| **Actions** | **Re-Count** – Go to Receive Item Screen for item  **Confirm Count** – Save the received quantity and either load next incorrect count or save order and go to Receive Selection Screen |

A screenshot of a cell phone

Description automatically generated

**Put Away Selection**

|  |  |
| --- | --- |
| **Screen** | Put Away Selection |
| **Description** | Allows selection of orders to put away |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | supplierOrder.poNum | none | | none | supplierOrder  .calcEstimatedPutawayTime() | none | |
| **Actions** | **Put away** – display Put Away Item Screen  **Cancel** – Return to the user’s home screen |

A screenshot of a cell phone

Description automatically generated

**Put Away Item**

|  |  |
| --- | --- |
| **Screen** | Put Away Item |
| **Description** | Allows users to scan items to put away for an order |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O Number | supplierOrder.poNum | none | | Order Date | supplierOrder.orderPlaced | none | | Item | supplierOrder.lineItems.item | none | | Current Location | item.bins AND item.cases.slots | none | | UPC | item.uPCs | Required | |
| **Actions** | **Cancel** – Return to previous screen, enable if no items have been put away  **Location Full** – Add a new storage location for the current item and display it as the current location |

A screenshot of a cell phone

Description automatically generated

**Count**

|  |  |
| --- | --- |
| **Screen** | Count |
| **Description** | Allows users to scan items to check the count of |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Current Location | item.bins OR item.cases.slots | none | | Current Item | warehouse.items | none | | Expected Quantity | item.currentNum | none | | Current Quantity | none | none | | UPC | warehouse.upcs |  | |
| **Actions** | **Finish** – Return to user’s home screen  **Get Next** – If current quantity and expected quantity are the same, load the next item or next location if all items have been counted. If quantities are different, go to Count Verification Screen |

A screenshot of a cell phone

Description automatically generated

**Count Verification**

|  |  |
| --- | --- |
| **Screen** | Count Verification |
| **Description** | Allows users to confirm or recount item quantities that did not match the inventory count |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Current Location | item.bins OR item.cases.slots | none | | Current Item | warehouse.items | none | | Expected Quantity | item.currentNum | none | | Current Quantity | none | none | |
| **Actions** | **Re-Count** – Go to Count Screen for item  **Confirm Count** – Update the quantity in the inventory and go to the Count Screen for the next item |

A screenshot of a cell phone

Description automatically generated

**Shipping Clerk Home**

|  |  |
| --- | --- |
| **Screen** | Shipping Clerk Home |
| **Description** | The screen from which shipping clerks select options |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Welcome | none | none | | Signed In As | employee.position | none | |
| **Actions** | Ship – Go to the Ship Selection Screen |

A screenshot of a cell phone

Description automatically generated

**Ship Selection**

|  |  |
| --- | --- |
| **Screen** | Receive Selection |
| **Description** | Allows selection of orders to ship |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | none | customerOrder.poNum | none | | none | customerOrder  .calcEstimatedShipTime() | none | |
| **Actions** | **Ship** – display Ship Item Screen  **Cancel** – Return to the user’s home screen |

A screenshot of a cell phone

Description automatically generated

**Ship Item**

|  |  |
| --- | --- |
| **Screen** | Ship Item |
| **Description** | Allows users to scan items to ship an order |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O Number | customerOrder.poNum | none | | Order Date | customerOrder.orderPlaced | none | | Item | customerOrder.lineItems.item | none | | Expected Quantity | customerLineItem.qtyOrdered | none | | Current Quantity | customerLineItem.qtyShipped | none | | UPC | item.uPCs | Required | |
| **Actions** | **Cancel** – Return to previous screen, enable if no items have been received  **Next Item** – Finish scanning given item and move to next item, enable if there are more items to scan  **Finish Order** – Go to Ship Verification Screen, enable if there are no more items to scan |

A screenshot of a cell phone

Description automatically generated

**Ship Verification**

|  |  |
| --- | --- |
| **Screen** | Ship Verification |
| **Description** | Allows users to confirm or recount item quantities that did not match the quantity ordered |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O Number | customerOrder.poNum | none | | Order Date | customerOrder.orderPlaced | none | | Item | customerOrder.lineItems.item | none | | Expected Quantity | customerLineItem.qtyOrdered | none | | Received Quantity | customerLineItem.qtyShipped | none | |
| **Actions** | **Re-Count** – Go to Ship Item Screen for item  **Confirm Count** – Save the shippped quantity and either load next incorrect count or save order and go to Ship Selection Screen |

A screenshot of a cell phone

Description automatically generated

**Customer Home**

|  |  |
| --- | --- |
| **Screen** | Customer Home |
| **Description** | The screen from which customers select options |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Welcome | none | none | | Signed In As | employee.position | none | |
| **Actions** | Menu Selection |

A screenshot of a cell phone

Description automatically generated

**Driver Home**

|  |  |
| --- | --- |
| **Screen** | Driver Home |
| **Description** | The screen from which drivers select options |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | Welcome | none | none | | Signed In As | employee.position | none | |
| **Actions** | **Deliver Order** – Go to the Deliver Order Screen |

A screenshot of a cell phone

Description automatically generated

**Deliver Order**

|  |  |
| --- | --- |
| **Screen** | Deliver Order |
| **Description** | Display locations to deliver an order |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O Number | customerOrder.poNum | none | | Order Date | customerOrder.orderPlaced | none | | Address | customerOrder.customer.address | none | |
| **Actions** | **Arrived** – Go to Deliver Item Screen |

A screenshot of a cell phone

Description automatically generated

**Deliver Item**

|  |  |
| --- | --- |
| **Screen** | Deliver Item |
| **Description** | Allows users to scan items to deliver an order |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O Number | customerOrder.poNum | none | | Order Date | customerOrder.orderPlaced | none | | Item | customerOrder.lineItems.item | none | | Expected Quantity | customerLineItem.qtyShipped | none | | Current Quantity | customerLineItem.qtyDelivered | none | | UPC | item.uPCs | Required | |
| **Actions** | **Cancel** – Return to previous screen, enable if no items have been received  **Next Item** – Finish scanning given item and move to next item, enable if there are more items to scan  **Finish Order** – Go to Deliver Verification Screen, enable if there are no more items to scan |

A screenshot of a cell phone

Description automatically generated

**Deliver Verification**

|  |  |
| --- | --- |
| **Screen** | Deliver Verification |
| **Description** | Allows users to confirm or recount item quantities that did not match the quantity shipped |
| **Fields** | |  |  |  | | --- | --- | --- | | **Label** | **Field** | **Validation** | | P.O Number | customerOrder.poNum | none | | Order Date | customerOrder.orderPlaced | none | | Item | customerOrder.lineItems.item | none | | Expected Quantity | customerLineItem.qtyShipped | none | | Delivered Quantity | customerLineItem.qtyDelivered | none | |
| **Actions** | **Re-Count** – Go to Delivered Item Screen for item  **Confirm Count** – Save the delivered quantity and either load next incorrect count or save order and go to the Deliver Order Screen |

A screenshot of a cell phone

Description automatically generated

# Object Model

**A close up of a map

Description automatically generated***This section is the object model designed for the system.*

# Object Interaction Diagram

*This section is a set of the object interaction diagrams for the system.*

**Is Authorized -** this interaction is used by the Sign-In UI page to determine if the user entered a valid account, and which screen to take them to if the entry was valid.

**A screenshot of a social media post

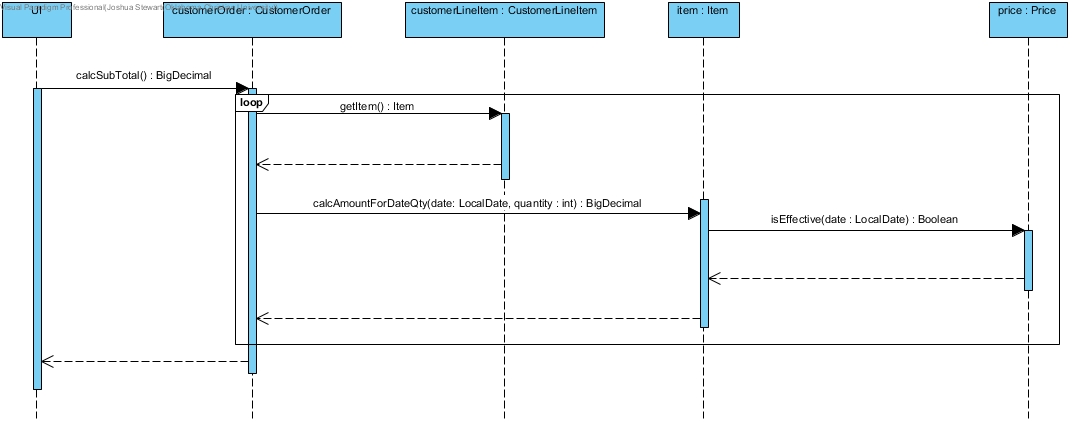
Description automatically generated**

**Calculate Subtotal for Supplier -** this interaction is used by the manager UI page to display the total cost of a Supplier Order.

A screenshot of a social media post

Description automatically generated

**Calculate Subtotal for Customer -** this interaction is used by the customer UI page to display the total cost of an order they have placed.

****

**Generate Supplier Orders -** this interaction is used by the system to generate orders for the Manager to review and place with Suppliers.

A screenshot of a cell phone

Description automatically generated

# Algorithms

*This section contains any special algorithms that need to be expressed. They could be expressed in pseudo-code.*

**Calculate Aisle Order –** This algorithm is used to calculate the order in which items should be picked or put away by ordering the items by aisle.

Perform a sort of line items for the order

The sort should be based on the aisle location within the store, starting with the northmost aisles and lowest and leftmost shelves

Ex. – A-N-1-1 comes before C-S-2-3

**Calculate Items to Order -** This algorithm is used to calculate the items within the inventory that currently need to be restocked.

For each supplier:

Create an order

For each case that supplier provides:

Get the item for the case

{

If the current quantity is less than the minimum quantity:

{

Amount to order = maximum quantity – (current quantity + ordered quantity)

Cases to order = amount to order/primary supplier case quantity //integer division

Add line item of current item with a quantity of the number of cases to order to the order

}

}

# Entity Relationship Diagram

*This section is the ERD for the database design for the system.*

Not required.

# External Interface Specifications

*This section describes in detail the formation and technology for any external interfaces including file interfaces.*

**CSV File Export**

The csv file contains information for supplier orders, including cases, quantities, placement date, etc.

Each row is an instance with Class Name, <data fields for Class>. Some classes have rows that represent instances that are related and are to be added to these instances.

**Order:**

* P.O. Number
* Account Number
* Placement date
* Warehouse name
* Warehouse address
* Warehouse city
* Warehouse ZIP

**Order Line Item:**

* Quantity Ordered

**Case:**

* Supplier Case Number
* Item Name

**Sample Data:**

Order,111222333444,0003,10/30/19,Eagle Wholesale, 123 Any St.,Edmond,73013

OrderLineItem,23,11111111,M&M’s

OrderLineItem,26,22222222,Dr. Pepper

OrderLineItem,10,33333333,Cool Ranch Doritos

# Class Definitions

*This section is a description of classes, attributes and services.*

# 1. Account

An account of information for a user

## 1.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | true |
| Leaf | false |
| Root | false |
| Active | false |

## 1.2. Attributes Summary

| Name | Description |
| --- | --- |
| password | The password to sign in with |
| username | The username to sign in with |

## 1.3. Operations Summary

| Name | Description |
| --- | --- |
| isAuthorized | Check if a given password is authorized |
| isEmployee | Checks if the user is an employee |

## 1.4. Attributes

### 1.4.1. password

The password to sign in with

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 1.4.2. username

The username to sign in with

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

## 1.5. Operations

### 1.5.1. isAuthorized

Check if a given password is authorized

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | Boolean |

### 1.5.2. isEmployee

Checks if the user is an employee

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | Boolean |

## 1.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Account](#xoiDIHaAUR3OCwn.) | [Employee](#oH26IHaAUR3OCwqm) |
| unnamed | [Account](#xoiDIHaAUR3OCwn.) | [Customer](#PYXaIHaAUR3OCwom) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [Account](#xoiDIHaAUR3OCwn.) |

# 2. Bin

A storage location that holds quantities of single items

## 2.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 2.2. Attributes Summary

| Name | Description |
| --- | --- |
| item | The type of item held in the bin |
| quantity | The number of items currently in the bin |

## 2.3. Attributes

### 2.3.1. item

The type of item held in the bin

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Item](#favaIHaAUR3OCwo3) |

### 2.3.2. quantity

The number of items currently in the bin

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

## 2.4. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Storage](#kwH.eHaAUR3OCxAs) | [Bin](#DIAheHaAUR3OCxFM) |
| unnamed | [Item](#favaIHaAUR3OCwo3) | [Bin](#DIAheHaAUR3OCxFM) |

# 3. Case

A set of a given item ordered from a supplier

## 3.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 3.2. Attributes Summary

| Name | Description |
| --- | --- |
| item | The item the case holds |
| itemQty | The number of items inside the case |
| price | The amount the supplier charges for the case |
| slotSections | A list of locations where the case is stored |
| supplier | The company the case is ordered from |
| supplierNum | A unique ID used to order from the supplier |

## 3.3. Operations Summary

| Name | Description |
| --- | --- |
| calcAmountForQty | Calculate the cost for a given quantity of cases |
| calcAmountToOrder | Calculate the number of cases to order when low on stock |

## 3.4. Attributes

### 3.4.1. item

The item the case holds

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Item](#favaIHaAUR3OCwo3) |

### 3.4.2. itemQty

The number of items inside the case

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

### 3.4.3. price

The amount the supplier charges for the case

|  |  |
| --- | --- |
| Visibility | private |
| Type | BigDecimal |

### 3.4.4. slotSections

A list of locations where the case is stored

|  |  |
| --- | --- |
| Visibility | private |
| Type | [SlotSection](#DbY2hnaAUR3OCxZK) |

### 3.4.5. supplier

The company the case is ordered from

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Supplier](#2graIHaAUR3OCwoV) |

### 3.4.6. supplierNum

A unique ID used to order from the supplier

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

## 3.5. Operations

### 3.5.1. calcAmountForQty

Calculate the cost for a given quantity of cases

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | BigDecimal |

### 3.5.2. calcAmountToOrder

Calculate the number of cases to order when low on stock

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | int |

## 3.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Case](#IaDYUHaAUMwspgyY) | [Supplier](#2graIHaAUR3OCwoV) |
| unnamed | [Case](#IaDYUHaAUMwspgyY) | [SlotSection](#DbY2hnaAUR3OCxZK" \o "SlotSection) |
| unnamed | [Item](#favaIHaAUR3OCwo3) | [Case](#IaDYUHaAUMwspgyY) |
| unnamed | [SupplierLineItem](#MRFeeHaAUR3OCw9e" \o "SupplierLineItem) | [Case](#IaDYUHaAUMwspgyY) |

# 4. Customer

A business that orders from the warehouse

## 4.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 4.2. Attributes Summary

| Name | Description |
| --- | --- |
| address | The retail address of the customer |
| custNum | The unique ID for the customer |
| name | The title of the business |
| orders | A list of the orders the customer has placed with the warehouse |
| poBox | The customer's product order box number |

## 4.3. Operations Summary

| Name | Description |
| --- | --- |
| addOrder | Add an order to the list of customer orders |
| findOrderForPO | Search the customer's orders for an order with the given P.O. number |
| isEmployee | Checks if the user is an employee |
| removeOrder | Remove an order from the list of customer orders |

## 4.4. Attributes

### 4.4.1. address

The retail address of the customer

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 4.4.2. custNum

The unique ID for the customer

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 4.4.3. name

The title of the business

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 4.4.4. orders

A list of the orders the customer has placed with the warehouse

|  |  |
| --- | --- |
| Visibility | private |
| Type | [CustomerOrder](#5aU6IHaAUR3OCwpf) |

### 4.4.5. poBox

The customer's product order box number

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

## 4.5. Operations

### 4.5.1. addOrder

Add an order to the list of customer orders

|  |  |
| --- | --- |
| Visibility | public |

### 4.5.2. findOrderForPO

Search the customer's orders for an order with the given P.O. number

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | [CustomerOrder](#5aU6IHaAUR3OCwpf) |

### 4.5.3. isEmployee

Checks if the user is an employee

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | Boolean |

### 4.5.4. removeOrder

Remove an order from the list of customer orders

|  |  |
| --- | --- |
| Visibility | public |

## 4.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Customer](#PYXaIHaAUR3OCwom) | [Route](#w9G6IHaAUR3OCwqV) |
| unnamed | [Account](#xoiDIHaAUR3OCwn.) | [Customer](#PYXaIHaAUR3OCwom) |
| unnamed | [CustomerOrder](#5aU6IHaAUR3OCwpf" \o "CustomerOrder) | [Customer](#PYXaIHaAUR3OCwom) |

# 5. CustomerLineItem

A line of information for a customer order

## 5.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 5.2. Attributes Summary

| Name | Description |
| --- | --- |
| item | The item being ordered |
| qtyDelivered | The amount of the given item delivered |
| qtyOrdered | The number of the given item ordered |
| qtyShipped | The amount of the given item shipped |

## 5.3. Attributes

### 5.3.1. item

The item being ordered

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Item](#favaIHaAUR3OCwo3) |

### 5.3.2. qtyDelivered

The amount of the given item delivered

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

### 5.3.3. qtyOrdered

The number of the given item ordered

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

### 5.3.4. qtyShipped

The amount of the given item shipped

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

## 5.4. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [CustomerLineItem](#4gNzIHaAUR3OCwxI" \o "CustomerLineItem) | [Item](#favaIHaAUR3OCwo3) |
| unnamed | [CustomerOrder](#5aU6IHaAUR3OCwpf" \o "CustomerOrder) | [CustomerLineItem](#4gNzIHaAUR3OCwxI" \o "CustomerLineItem) |

# 6. CustomerOrder

An order of items by a given customer to the warehouse

## 6.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 6.2. Attributes Summary

| Name | Description |
| --- | --- |
| customer | The customer who placed the order |
| lineItems | Lines of information about the quantities of each item ordered |

## 6.3. Operations Summary

| Name | Description |
| --- | --- |
| calcAisleOrder | Calculate the correct order to put line items in |
| calcEstimatedPickTime | Estimate the time to pick |
| calcEstimatedShipTime | Estimate the time to ship |
| calcSubTotal | Calculate the total cost of items ordered before tax |

## 6.4. Attributes

### 6.4.1. customer

The customer who placed the order

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Customer](#PYXaIHaAUR3OCwom) |

### 6.4.2. lineItems

Lines of information about the quantities of each item ordered

|  |  |
| --- | --- |
| Visibility | private |
| Type | [CustomerLineItem](#4gNzIHaAUR3OCwxI) |

## 6.5. Operations

### 6.5.1. calcAisleOrder

Calculate the correct order to put line items in

|  |  |
| --- | --- |
| Visibility | public |

### 6.5.2. calcEstimatedPickTime

Estimate the time to pick

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | int |

### 6.5.3. calcEstimatedShipTime

Estimate the time to ship

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | int |

### 6.5.4. calcSubTotal

Calculate the total cost of items ordered before tax

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | BigDecimal |

## 6.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [CustomerOrder](#5aU6IHaAUR3OCwpf" \o "CustomerOrder) | [Customer](#PYXaIHaAUR3OCwom) |
| unnamed | [CustomerOrder](#5aU6IHaAUR3OCwpf" \o "CustomerOrder) | [CustomerLineItem](#4gNzIHaAUR3OCwxI" \o "CustomerLineItem) |
| unnamed | [Order](#9rMzIHaAUR3OCwvB) | [CustomerOrder](#5aU6IHaAUR3OCwpf" \o "CustomerOrder) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [CustomerOrder](#5aU6IHaAUR3OCwpf" \o "CustomerOrder) |

# 7. Employee

A person who works for the warehouse

## 7.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 7.2. Attributes Summary

| Name | Description |
| --- | --- |
| address | The employee's current home address |
| name | The employee's full legal name |
| phone | The employee's phone number |
| position | The position the employee holds (i.e. Manager) |

## 7.3. Operations Summary

| Name | Description |
| --- | --- |
| isEmployee | Checks if the user is an employee |

## 7.4. Attributes

### 7.4.1. address

The employee's current home address

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 7.4.2. name

The employee's full legal name

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 7.4.3. phone

The employee's phone number

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 7.4.4. position

The position the employee holds (i.e. Manager)

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

## 7.5. Operations

### 7.5.1. isEmployee

Checks if the user is an employee

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | Boolean |

## 7.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Account](#xoiDIHaAUR3OCwn.) | [Employee](#oH26IHaAUR3OCwqm) |

# 8. Item

An object that is sold by the warehouse

## 8.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 8.2. Attributes Summary

| Name | Description |
| --- | --- |
| bins | A list of storage locations associated with the item |
| cases | A list of cases that contain the item |
| currentNum | The current number of the item in stock |
| description | A name or statement explaining what the item is |
| lastOrdered | The last day that the item was ordered |
| maxNum | The maximum number of the item that should be in stock |
| minNum | The minimum number of the item that should be in stock |
| orderedNum | The maximum number of the item on order |
| prices | A list of prices associated with the item |
| uPCs | A list of UPCs associated with the item |
| warehouseNum | A unique ID for customers to order with |

## 8.3. Operations Summary

| Name | Description |
| --- | --- |
| addCase | Add a case to the list of cases |
| addPrice | Add a price to the list of prices |
| addUPC | Add a UPC to the list of UPCs |
| calcAmountForDateQty | Calculate the cost of the item on a given date with a given qunatity |
| calcAmountToOrder | Calculate the number of items to order based on the how far below the minimum stock the item is |
| findCaseForSupplier | Locate a case of the item for a given supplier |
| getPriceForDate | Get the price for the item for a given date |
| removeCase | Remove a case from the list of cases |
| removePrice | Remove a price from the list of prices |
| removeUPC | Remove a UPC from the list of UPCs |

## 8.4. Attributes

### 8.4.1. bins

A list of storage locations associated with the item

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Bin](#DIAheHaAUR3OCxFM) |

### 8.4.2. cases

A list of cases that contain the item

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Case](#IaDYUHaAUMwspgyY) |

### 8.4.3. currentNum

The current number of the item in stock

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

### 8.4.4. description

A name or statement explaining what the item is

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 8.4.5. lastOrdered

The last day that the item was ordered

|  |  |
| --- | --- |
| Visibility | private |
| Type | LocalDateTime |

### 8.4.6. maxNum

The maximum number of the item that should be in stock

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

### 8.4.7. minNum

The minimum number of the item that should be in stock

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

### 8.4.8. orderedNum

The maximum number of the item on order

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

### 8.4.9. prices

A list of prices associated with the item

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Price](#2hGoUHaAUMwspgxx) |

### 8.4.10. uPCs

A list of UPCs associated with the item

|  |  |
| --- | --- |
| Visibility | private |
| Type | [UPC](#rjqoUHaAUMwspgxg) |

### 8.4.11. warehouseNum

A unique ID for customers to order with

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

## 8.5. Operations

### 8.5.1. addCase

Add a case to the list of cases

|  |  |
| --- | --- |
| Visibility | public |

### 8.5.2. addPrice

Add a price to the list of prices

|  |  |
| --- | --- |
| Visibility | public |

### 8.5.3. addUPC

Add a UPC to the list of UPCs

|  |  |
| --- | --- |
| Visibility | public |

### 8.5.4. calcAmountForDateQty

Calculate the cost of the item on a given date with a given qunatity

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | BigDecimal |

### 8.5.5. calcAmountToOrder

Calculate the number of items to order based on the how far below the minimum stock the item is

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | int |

### 8.5.6. findCaseForSupplier

Locate a case of the item for a given supplier

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | [Case](#IaDYUHaAUMwspgyY) |

### 8.5.7. getPriceForDate

Get the price for the item for a given date

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | [Price](#2hGoUHaAUMwspgxx) |

### 8.5.8. removeCase

Remove a case from the list of cases

|  |  |
| --- | --- |
| Visibility | public |

### 8.5.9. removePrice

Remove a price from the list of prices

|  |  |
| --- | --- |
| Visibility | public |

### 8.5.10. removeUPC

Remove a UPC from the list of UPCs

|  |  |
| --- | --- |
| Visibility | public |

## 8.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Item](#favaIHaAUR3OCwo3) | [Case](#IaDYUHaAUMwspgyY) |
| unnamed | [Item](#favaIHaAUR3OCwo3) | [UPC](#rjqoUHaAUMwspgxg) |
| unnamed | [Item](#favaIHaAUR3OCwo3) | [Price](#2hGoUHaAUMwspgxx) |
| unnamed | [Item](#favaIHaAUR3OCwo3) | [Bin](#DIAheHaAUR3OCxFM) |
| unnamed | [CustomerLineItem](#4gNzIHaAUR3OCwxI" \o "CustomerLineItem) | [Item](#favaIHaAUR3OCwo3) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [Item](#favaIHaAUR3OCwo3) |

# 9. Order

An abstract class representing an order of things

## 9.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | true |
| Leaf | false |
| Root | false |
| Active | false |

## 9.2. Attributes Summary

| Name | Description |
| --- | --- |
| datePlaced | The date the order was placed |
| door | The location where the order has placed on palettes |
| driver | The driver who delivered the order |
| poNum | The product order number |
| status | Whether the order has been ordered, received, shipped, etc. |

## 9.3. Operations Summary

| Name | Description |
| --- | --- |
| calcAisleOrder | Calculate the correct order to put line items in |
| calcSubTotal | Calculate the total cost of items ordered before tax |

## 9.4. Attributes

### 9.4.1. datePlaced

The date the order was placed

|  |  |
| --- | --- |
| Visibility | private |
| Type | LocalDateTime |

### 9.4.2. door

The location where the order has placed on palettes

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 9.4.3. driver

The driver who delivered the order

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 9.4.4. poNum

The product order number

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 9.4.5. status

Whether the order has been ordered, received, shipped, etc.

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

## 9.5. Operations

### 9.5.1. calcAisleOrder

Calculate the correct order to put line items in

|  |  |
| --- | --- |
| Visibility | public |

### 9.5.2. calcSubTotal

Calculate the total cost of items ordered before tax

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | BigDecimal |

## 9.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Order](#9rMzIHaAUR3OCwvB) | [SupplierOrder](#Wi_aIHaAUR3OCwpI" \o "SupplierOrder) |
| unnamed | [Order](#9rMzIHaAUR3OCwvB) | [CustomerOrder](#5aU6IHaAUR3OCwpf" \o "CustomerOrder) |

# 10. Price

A price to charge for an item

## 10.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 10.2. Attributes Summary

| Name | Description |
| --- | --- |
| effectiveDate | the date the price can be used after |
| item | The item the price is charged for |
| price | The amount charged for the given item |

## 10.3. Operations Summary

| Name | Description |
| --- | --- |
| calcAmountForQty | Calculate the total cost for a given quantity of items of the price |
| compareTo | Compare the effectiveness of two prices |
| isEffective | Check if the price is in effect on a given date |

## 10.4. Attributes

### 10.4.1. effectiveDate

the date the price can be used after

|  |  |
| --- | --- |
| Visibility | private |
| Type | LocalDate |

### 10.4.2. item

The item the price is charged for

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Item](#favaIHaAUR3OCwo3) |

### 10.4.3. price

The amount charged for the given item

|  |  |
| --- | --- |
| Visibility | private |
| Type | bigDecimal |

## 10.5. Operations

### 10.5.1. calcAmountForQty

Calculate the total cost for a given quantity of items of the price

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | BigDecimal |

### 10.5.2. compareTo

Compare the effectiveness of two prices

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | int |

### 10.5.3. isEffective

Check if the price is in effect on a given date

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | Boolean |

## 10.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Price](#2hGoUHaAUMwspgxx) | [PromoPrice](#ul4MUHaAUMwspg8I" \o "PromoPrice) |
| unnamed | [Item](#favaIHaAUR3OCwo3) | [Price](#2hGoUHaAUMwspgxx) |

# 11. PromoPrice

A limited time price to charge for an item

## 11.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 11.2. Attributes Summary

| Name | Description |
| --- | --- |
| endDate | The date when the price goes out of effect |

## 11.3. Operations Summary

| Name | Description |
| --- | --- |
| compareTo | Compare the effectiveness of two prices |
| isEffective | Check if the price is in effect on a given date |

## 11.4. Attributes

### 11.4.1. endDate

The date when the price goes out of effect

|  |  |
| --- | --- |
| Visibility | private |
| Type | LocalDate |

## 11.5. Operations

### 11.5.1. compareTo

Compare the effectiveness of two prices

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | int |

### 11.5.2. isEffective

Check if the price is in effect on a given date

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | Boolean |

## 11.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Price](#2hGoUHaAUMwspgxx) | [PromoPrice](#ul4MUHaAUMwspg8I" \o "PromoPrice) |

# 12. Route

A set of locations that a driver delivers orders to

## 12.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 12.2. Attributes Summary

| Name | Description |
| --- | --- |
| customers | The customers who are located on the route |
| routeNumber | A number representing the given route |

## 12.3. Operations Summary

| Name | Description |
| --- | --- |
| calcETA | Calculate the estimated time of arrival to the next location |
| directToNextLocation | Generate directions to the next location |

## 12.4. Attributes

### 12.4.1. customers

The customers who are located on the route

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Customer](#PYXaIHaAUR3OCwom) |

### 12.4.2. routeNumber

A number representing the given route

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

## 12.5. Operations

### 12.5.1. calcETA

Calculate the estimated time of arrival to the next location

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | LocalDateTime |

### 12.5.2. directToNextLocation

Generate directions to the next location

|  |  |
| --- | --- |
| Visibility | public |

## 12.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Customer](#PYXaIHaAUR3OCwom) | [Route](#w9G6IHaAUR3OCwqV) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [Route](#w9G6IHaAUR3OCwqV) |

# 13. Slot

A storage location that holds quantities of cases

## 13.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 13.2. Attributes Summary

| Name | Description |
| --- | --- |
| slotSections | Subsections of the slot that hold a given item |

## 13.3. Attributes

### 13.3.1. slotSections

Subsections of the slot that hold a given item

|  |  |
| --- | --- |
| Visibility | private |
| Type | [SlotSection](#DbY2hnaAUR3OCxZK) |

## 13.4. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Slot](#W7xBeHaAUR3OCxC2) | [SlotSection](#DbY2hnaAUR3OCxZK" \o "SlotSection) |
| unnamed | [Storage](#kwH.eHaAUR3OCxAs) | [Slot](#W7xBeHaAUR3OCxC2) |

# 14. SlotSection

A storage location that holds quantities of a given case

## 14.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 14.2. Attributes Summary

| Name | Description |
| --- | --- |
| case | The cases being stored |
| quantity | The number of cases currently in the slot |
| slot | The slot where the cases are being stored |

## 14.3. Attributes

### 14.3.1. case

The cases being stored

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Case](#IaDYUHaAUMwspgyY) |

### 14.3.2. quantity

The number of cases currently in the slot

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

### 14.3.3. slot

The slot where the cases are being stored

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Slot](#W7xBeHaAUR3OCxC2) |

## 14.4. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Slot](#W7xBeHaAUR3OCxC2) | [SlotSection](#DbY2hnaAUR3OCxZK" \o "SlotSection) |
| unnamed | [Case](#IaDYUHaAUMwspgyY) | [SlotSection](#DbY2hnaAUR3OCxZK" \o "SlotSection) |

# 15. Storage

A unit area to store cases or items

## 15.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 15.2. Attributes Summary

| Name | Description |
| --- | --- |
| location | A string representing the aisle, side, and shelf location of the storage area |
| maxQty | The maximum amount of items or cases that can fit in the location |

## 15.3. Attributes

### 15.3.1. location

A string representing the aisle, side, and shelf location of the storage area

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 15.3.2. maxQty

The maximum amount of items or cases that can fit in the location

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

## 15.4. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Storage](#kwH.eHaAUR3OCxAs) | [Slot](#W7xBeHaAUR3OCxC2) |
| unnamed | [Storage](#kwH.eHaAUR3OCxAs) | [Bin](#DIAheHaAUR3OCxFM) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [Storage](#kwH.eHaAUR3OCxAs) |

# 16. Supplier

A business that the warehouse orders from

## 16.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 16.2. Attributes Summary

| Name | Description |
| --- | --- |
| address | The retail address of the supplier |
| name | The title of the supplier |
| orders | A list of the orders the warehouse has placed with the supplier |
| poBox | The supplier's product order box number |
| supNum | The unique ID for the supplier |

## 16.3. Operations Summary

| Name | Description |
| --- | --- |
| generateOrder | Generate an order for the supplier that contains all items from them low on stock |

## 16.4. Attributes

### 16.4.1. address

The retail address of the supplier

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 16.4.2. name

The title of the supplier

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 16.4.3. orders

A list of the orders the warehouse has placed with the supplier

|  |  |
| --- | --- |
| Visibility | private |
| Type | [SupplierOrder](#Wi_aIHaAUR3OCwpI) |

### 16.4.4. poBox

The supplier's product order box number

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 16.4.5. supNum

The unique ID for the supplier

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

## 16.5. Operations

### 16.5.1. generateOrder

Generate an order for the supplier that contains all items from them low on stock

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | [SupplierOrder](#Wi_aIHaAUR3OCwpI) |

## 16.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [SupplierOrder](#Wi_aIHaAUR3OCwpI" \o "SupplierOrder) | [Supplier](#2graIHaAUR3OCwoV) |
| unnamed | [Case](#IaDYUHaAUMwspgyY) | [Supplier](#2graIHaAUR3OCwoV) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [Supplier](#2graIHaAUR3OCwoV) |

# 17. SupplierLineItem

A line of information for a supplier order

## 17.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 17.2. Attributes Summary

| Name | Description |
| --- | --- |
| case | The case being ordered |
| qtyOrdered | The number of the given case ordered |
| qtyReceived | The number of the given case received |

## 17.3. Attributes

### 17.3.1. case

The case being ordered

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Case](#IaDYUHaAUMwspgyY) |

### 17.3.2. qtyOrdered

The number of the given case ordered

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

### 17.3.3. qtyReceived

The number of the given case received

|  |  |
| --- | --- |
| Visibility | private |
| Type | int |

## 17.4. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [SupplierLineItem](#MRFeeHaAUR3OCw9e" \o "SupplierLineItem) | [Case](#IaDYUHaAUMwspgyY) |
| unnamed | [SupplierOrder](#Wi_aIHaAUR3OCwpI" \o "SupplierOrder) | [SupplierLineItem](#MRFeeHaAUR3OCw9e" \o "SupplierLineItem) |

# 18. SupplierOrder

An order of items by the warehouse to a given supplier

## 18.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 18.2. Attributes Summary

| Name | Description |
| --- | --- |
| lineItems | Lines of information about the quantities of each case ordered |
| supplier | The supplier who the order was placed for |

## 18.3. Operations Summary

| Name | Description |
| --- | --- |
| calcAisleOrder | Calculate the correct order to put line items in |
| calcEstimatedPutAwayTime | Estimate the time to put away |
| calcEstimatedReceiveTime | Estimate the time to receive |
| calcSubTotal | Calculate the total cost of items ordered before tax |
| sendToSupplier | Convert the document to the proper format and send it to supplier |

## 18.4. Attributes

### 18.4.1. lineItems

Lines of information about the quantities of each case ordered

|  |  |
| --- | --- |
| Visibility | private |
| Type | [SupplierLineItem](#MRFeeHaAUR3OCw9e) |

### 18.4.2. supplier

The supplier who the order was placed for

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Supplier](#2graIHaAUR3OCwoV) |

## 18.5. Operations

### 18.5.1. calcAisleOrder

Calculate the correct order to put line items in

|  |  |
| --- | --- |
| Visibility | public |

### 18.5.2. calcEstimatedPutAwayTime

Estimate the time to put away

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | int |

### 18.5.3. calcEstimatedReceiveTime

Estimate the time to receive

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | int |

### 18.5.4. calcSubTotal

Calculate the total cost of items ordered before tax

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | BigDecimal |

### 18.5.5. sendToSupplier

Convert the document to the proper format and send it to supplier

|  |  |
| --- | --- |
| Visibility | public |

## 18.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [SupplierOrder](#Wi_aIHaAUR3OCwpI" \o "SupplierOrder) | [Supplier](#2graIHaAUR3OCwoV) |
| unnamed | [SupplierOrder](#Wi_aIHaAUR3OCwpI" \o "SupplierOrder) | [SupplierLineItem](#MRFeeHaAUR3OCw9e" \o "SupplierLineItem) |
| unnamed | [Order](#9rMzIHaAUR3OCwvB) | [SupplierOrder](#Wi_aIHaAUR3OCwpI" \o "SupplierOrder) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [SupplierOrder](#Wi_aIHaAUR3OCwpI" \o "SupplierOrder) |

# 19. UPC

The Universal Product Code for a given item

## 19.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 19.2. Attributes Summary

| Name | Description |
| --- | --- |
| item | The item the UPC is associated with |
| uPC | The universal product code |

## 19.3. Attributes

### 19.3.1. item

The item the UPC is associated with

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Item](#favaIHaAUR3OCwo3) |

### 19.3.2. uPC

The universal product code

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

## 19.4. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Item](#favaIHaAUR3OCwo3) | [UPC](#rjqoUHaAUMwspgxg) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [UPC](#rjqoUHaAUMwspgxg) |

# 20. Warehouse

A company that sells items to customers and orders cases from suppliers

## 20.1. Properties

|  |  |
| --- | --- |
| Visibility | public |
| Abstract | false |
| Leaf | false |
| Root | false |
| Active | false |

## 20.2. Attributes Summary

| Name | Description |
| --- | --- |
| accounts | A list of the accounts that have access to warehouse functions |
| address | The retail address of the warehouse |
| city | The city the warehouse is located in |
| custOrders | A list of orders from customers |
| items | A list of items sold by the warehouse |
| name | The title of the warehouse |
| phone | The phone number of the warehouse |
| poBox | The product order box of the warehouse |
| routes | A list of the routes that the warehouse's drivers take |
| storage | A list of places to store items or cases inside the warehouse |
| supOrders | A list of orders to suppliers |
| suppliers | A list of the suppliers that the warehouse orders from |
| upcs | A list of UPCs for items in the warehouse |
| zip | The ZIP code of the warehouse |

## 20.3. Operations Summary

| Name | Description |
| --- | --- |
| addAccount | Add an account to the list of accounts |
| addCustomerOrder | Add a customer order to the list of customer orders |
| addItem | Add an item to the list of items |
| addRoute | Add a route to the list of routes |
| addStorage | Add a storage location to the list of storage locations |
| addSupplier |  |
| addSupplierOrder | Add a supplier order to the list of supplier orders |
| addUPC | Add a UPC to the list of UPCs |
| findAccountForUsername | Locate an account based on its username |
| findCustomerOrderForPO | Locate a customer order using its P.O. number |
| findItemForNum | Locate an item using its item number |
| findItemForUPC | Locate an item using its UPC |
| findSupplierOrderForPO | Locate a supplier order using its P.O. number |
| generateOrders | Generate orders from all suppliers based on what items are low on stock |
| removeAccount |  |
| removeCustomerOrder | Remove a customer order from the list of customer orders |
| removeItem | Remove an item from the list of items |
| removeRoute | Remove a route from the list of routes |
| removeStorage | Remove a storage location from the list of storage locations |
| removeSupplier |  |
| removeSupplierOrder | Remove a supplier order from the list of supplier orders |
| removeUPC | Remove a UPC from the list of UPCs |

## 20.4. Attributes

### 20.4.1. accounts

A list of the accounts that have access to warehouse functions

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Account](#xoiDIHaAUR3OCwn.) |

### 20.4.2. address

The retail address of the warehouse

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 20.4.3. city

The city the warehouse is located in

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 20.4.4. custOrders

A list of orders from customers

|  |  |
| --- | --- |
| Visibility | private |
| Type | [CustomerOrder](#5aU6IHaAUR3OCwpf) |

### 20.4.5. items

A list of items sold by the warehouse

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Item](#favaIHaAUR3OCwo3) |

### 20.4.6. name

The title of the warehouse

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 20.4.7. phone

The phone number of the warehouse

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 20.4.8. poBox

The product order box of the warehouse

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

### 20.4.9. routes

A list of the routes that the warehouse's drivers take

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Route](#w9G6IHaAUR3OCwqV) |

### 20.4.10. storage

A list of places to store items or cases inside the warehouse

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Storage](#kwH.eHaAUR3OCxAs) |

### 20.4.11. supOrders

A list of orders to suppliers

|  |  |
| --- | --- |
| Visibility | private |
| Type | [SupplierOrder](#Wi_aIHaAUR3OCwpI) |

### 20.4.12. suppliers

A list of the suppliers that the warehouse orders from

|  |  |
| --- | --- |
| Visibility | private |
| Type | [Supplier](#2graIHaAUR3OCwoV) |

### 20.4.13. upcs

A list of UPCs for items in the warehouse

|  |  |
| --- | --- |
| Visibility | private |
| Type | [UPC](#rjqoUHaAUMwspgxg) |

### 20.4.14. zip

The ZIP code of the warehouse

|  |  |
| --- | --- |
| Visibility | private |
| Type | String |

## 20.5. Operations

### 20.5.1. addAccount

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.2. addCustomerOrder

Add a customer order to the list of customer orders

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.3. addItem

Add an item to the list of items

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.4. addRoute

Add a route to the list of routes

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.5. addStorage

Add a storage location to the list of storage locations

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.6. addSupplier

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.7. addSupplierOrder

Add a supplier order to the list of supplier orders

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.8. addUPC

Add a UPC to the list of UPCs

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.9. findAccountForUsername

Locate an account based on its username

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | [Account](#xoiDIHaAUR3OCwn.) |

### 20.5.10. findCustomerOrderForPO

Locate a customer order using its P.O. number

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | [CustomerOrder](#5aU6IHaAUR3OCwpf) |

### 20.5.11. findItemForNum

Locate an item using its item number

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.12. findItemForUPC

Locate an item using its UPC

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | [Item](#favaIHaAUR3OCwo3) |

### 20.5.13. findSupplierOrderForPO

Locate a supplier order using its P.O. number

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | [SupplierOrder](#Wi_aIHaAUR3OCwpI) |

### 20.5.14. generateOrders

Generate orders from all suppliers based on what items are low on stock

|  |  |
| --- | --- |
| Visibility | public |
| Return Type | [SupplierOrder](#Wi_aIHaAUR3OCwpI)[] |

### 20.5.15. removeAccount

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.16. removeCustomerOrder

Remove a customer order from the list of customer orders

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.17. removeItem

Remove an item from the list of items

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.18. removeRoute

Remove a route from the list of routes

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.19. removeStorage

Remove a storage location from the list of storage locations

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.20. removeSupplier

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.21. removeSupplierOrder

Remove a supplier order from the list of supplier orders

|  |  |
| --- | --- |
| Visibility | public |

### 20.5.22. removeUPC

Remove a UPC from the list of UPCs

|  |  |
| --- | --- |
| Visibility | public |

## 20.6. Relationships

| Relationship | From | To |
| --- | --- | --- |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [Account](#xoiDIHaAUR3OCwn.) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [Supplier](#2graIHaAUR3OCwoV) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [Route](#w9G6IHaAUR3OCwqV) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [CustomerOrder](#5aU6IHaAUR3OCwpf" \o "CustomerOrder) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [SupplierOrder](#Wi_aIHaAUR3OCwpI" \o "SupplierOrder) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [Item](#favaIHaAUR3OCwo3) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [UPC](#rjqoUHaAUMwspgxg) |
| unnamed | [Warehouse](#GfxaIHaAUR3OCwoE) | [Storage](#kwH.eHaAUR3OCxAs) |