Summary

This solution is built in Visual Studio 2015 with C# as programming language.  The architecture is MVC.  There is an inventory controller that have add item, remove item and check expiration functions.  Adding an item will go through validation to check label and expiration date.  These functions will serve as end points for the API.  Currently we are passing the inventory object for testing. Inventory should be data in a relational database.

1.       How to use the program to test add item and remove item methods.

Step1. Open solution in visual studio 2015 (Main method will pre load items to inventory object)

Step2. Test by adding and removing items with add item, remove item method.  (There is a background worker that will check expiration dates on items in inventory.  It runs every 10 seconds).

2. Objects

Item: Contains attributes for label, type of item, and expiration date

Inventory: Contains list of items

Notification: Contains string attribute for regular notifying (item added, item removed) and a special string list for when checking for expired items.

Error: Contains a Boolean and description of the error. This captures all other errors such as invalid input.

3. Methods

AddItem: Validates the request first by checking for unique label, valid expiration date, etc. before trying to add the item to inventory and returning an appropriate notification.

RemoveItem: Accepts a string variable and checks the inventory for a matching string in the label field. If no matching label is found, a message saying so is returned, otherwise the item is removed from inventory and the user is notified of the removal.

CheckExpiration: Checks each item in the inventory and adds any expired items to the list of messages in the notification that will be displayed to user.

Validation: Method used by AddItem to check for duplicate entries and valid expiration date (checking for duplicate entries makes all characters in label string upper case for the duration of the check to avoid “milk” and “Milk” to be both available).