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.

The program starts with a few items already added.

The program starts with a check for expired items and will continue to check every 10 seconds.

One of the items added into the inventory is set to expire 12 seconds after program start, so the 3rd expiration check should return that item.

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

Step1. Open solution in visual studio 2015

Step2. Test AddItem by editing the line of code below //item to add. The constructor is set up as follows: Item(String label, String type, DateTime expirationDate)

Step3. Test RemoveItem by editing the line of code below //remove item. Just change the string in the quotation marks (it is pre-filled with “xxx-000”)

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).