General Instructions: Put the entire app directory into one zip file and submit as an attachment under Content → Homework 7 for this course on the Blackboard Learn system by the above deadline. Note that you may submit multiple times, but only the most recent entry submitted before the above deadline will be graded.

For this homework you will add alerts and notifications to the HW5 Food App. I have posted my solution to HW5 on Blackboard Learn. You can start from my solution or your own. The overall functionality of the app is as follows: When you tap on a row in the list of food items, an alert will appear asking if you want to schedule a notification for this food item. If you select “Yes”, then the food item name’s color is changed to Red and a notification is scheduled for five seconds in the future. If the user responds to the notification, then that food item name’s color is changed back to Black. See screenshots below. Specifically,

1. You will need to uniquely identify a food item other than by its name or index in the food items array. Add an “id” String property to the FoodItem class and set it to “UUID().uuidString” when the food item is first created. This id string is guaranteed to be unique. You will probably want to also add a property to indicate whether a notification has been scheduled for this food item.
2. Implement the tableView:didSelectRowAt method. This method should first check if notifications are enabled, and if so, generate an alert asking the user if they would like to schedule a notification. The alert title should be “Food Notification”, and the message should be “Do you want to schedule a notification for <food_name>?” The alert should have two actions: “Yes” and “No”. If they select “No”, then nothing happens. If they select “Yes”, then the food item name’s color should be set to Red, and a notification should be scheduled to trigger in five seconds.
3. The notification should have title “Food Alert” and body “Time to eat <food_name>.” You will also want to pass along the food item’s unique id in the notification content’s userInfo dictionary.
4. In the main table view controller, implement a method called “handleNotification” that takes a UNNotificationResponse, extracts the food item id from the response, and if that food item still exists in the food item array (it might have been deleted in the last five seconds), then set the food name color back to Black.
5. In the AppDelegate, conform the class to the UNUserNotificationCenterDelegate. Be sure to set the notification center’s delegate to self inside the didFinishLaunchingWithOptions method.
6. Also in the didFinishLaunchingWithOptions method, request authorization to send the user notifications. Your app should function properly whether the user allows notifications or not. Your app should also function properly if the user enables or disables notifications in the device settings while the app is running (i.e., by checking if notifications are enabled as described in #2 above).
7. Also in the AppDelegate, implement the didReceive and willPresent methods. The didReceive method should call the handleNotification method described in #4 above, passing in the response, and then call the completionHandler. The willPresent method should call the completionHandler with the [.alert] argument, so that notifications are still shown even if you are still in the app.
8. Be sure that auto layout constraints are set so that all elements in all views are appropriately displayed (i.e., no overlap, occlusion, or cutoff at edges) regardless of device orientation.
9. Your app should run in Xcode 11 using Swift 5 and iOS 13. Your app will be tested using Xcode’s iPhone 8 device simulator, so make sure your layout constraints work for that device.

Storyboard (same as HW5):
Simulator:

First time app is run:

Main Table View:

After adding some Food:

After tap on Ice Cream row:

Selected “Yes” in alert:

Notification while in app:
Notification while not in app:  
Device notifications view:  
Delete (same as HW5):

Normal landscape orientation:  
Alert in landscape orientation:

Notification in landscape orientation: