General Instructions: Put the entire app directory into one zip file and submit as an attachment under Content → Homework 8 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.

1. For this homework you will create the Location app to demonstrate the use of the Core Location framework and MapKit in iOS. Your app will display the current latitude, longitude and city/state information, as well as show that location on a map. See screenshot for details.
   a. Create a Single View project.
   b. Add the CoreLocation framework and #import <CoreLocation/CoreLocation.h>.
   c. Turn on the Map capability and #import <MapKit/MapKit.h>.
   d. In StoryBoard add a “Location” title label at the top center of the view. Add two labels along the left side for “Latitude:” and “Longitude:”.
   e. Add a Map Kit View that fills the rest of the display. Select attribute Shows: User Location, and the set delegate connection to the View Controller.
   f. Create a location manager, allocate it in viewDidLoad, and turn it on/off via viewDidAppear/viewDidDisappear (see code snippet below). Note that we also set the Map Kit View’s tracking mode to follow the user (otherwise, the map will not move to keep the user’s location in view).
   g. We’ll be a little sloppy and ignore checking for authorization, but we do need to ask initially via requestWhenInUseAuthorization (see code snippet below). And therefore, you will need to add the NSLocationWhenInUseUsageDescription string to the Info.plist.
   h. Finally, implement the didUpdateLocations delegate method, which should get the most recent location and update the latitude and longitude labels accordingly.
   i. If you have a device, take the Location app for a test drive. 😊
Code Snippet:

```swift
- (void)viewDidLoad {
    [super viewDidLoad];
    // Do any additional setup after loading the view, typically from a nib.
    if (_locationManager == nil) {
        _locationManager = [[CLLocationManager alloc] init];
        _locationManager.delegate = self;
        [_locationManager requestWhenInUseAuthorization];
        [_mapView setUserTrackingMode:MKUserTrackingModeFollow animated:YES];
    }
}

-(void)viewDidAppear:(BOOL)animated {
    [_locationManager startUpdatingLocation];
}

-(void)viewDidDisappear:(BOOL)animated {
    [_locationManager stopUpdatingLocation];
}
```

Screenshot:

![Map View with Location Information](image)