Daniel Hauser, Kenneth James, Kyle Kimery, Carlos Loya

CS329E Project Proposal: Neighborhood Quest

Summary: This iPhone app is a location based questing game that allows players to tap on custom MKAnnotations inside Apple maps. After tapping the annotation, the player will move to a quest view. Players can only tap annotations that are located within a CLRegion. MKAnnotations will be distributed as a grid programmatically, allowing any user to find quests no matter their location. After the quest the player is granted experience and items.

Extra Features: After the quest, the annotation will display differently indicating it's been used, and cannot be tapped again for a certain amount of time. The amount of times a player has quested in a particular annotation will be tracked if possible, and repeated quests in the same annotation may change outcomes.

Links of interest:

- https://www.raywenderlich.com/109888/google-maps-ios-sdk-tutorial
- https://www.raywenderlich.com/136165/core-location-geofencing-tutorial
- https://www.hackingwithswift.com/example-code/location/how-to-add-a-button-to-an-mkmapview-annotation
- https://www.raywenderlich.com/30001/overlay-images-and-overlay-views-with-mapkit-tutorial
- http://sugartin.info/2012/02/13/adding-overlays-on-mkmapview-using-mkpolygon-mkpolygonview-mkoverlayview-mkannotationview/

Implementation: (The 5 requirements are bolded)
The app will…

- Ask the user for location permissions while running.
  - NSLocationWhenInUseUsageDescription is the key that will be used to verify the requestWhenInUseAuthorization() method.
  - If the user has not authorized, a popup will request.
    - Authorization will start location monitoring
    - No authorization will close the app
- Utilize core location to determine current location (**Req 4**)
  - This will require the CoreLocationManagerDelegate
    - didUpdateLocations (CLLocation)
  - Receives and handles:
    - Location errors
    - Pauses in location data updates
    - Entering and exiting specified regions (CLRegion)
    - Monitoring for specified regions (CLRegion)
    - Changes in app authorization status
- Use MapKit and MKMapView in the view controller (**Req 5**)
  - The map view controller will implement MKMapViewDelegate protocol
  - MapKit will handle Object rendering of the quest cell overlays (MKOverlay)

- http://www.devfright.com/how-to-use-the-clregion-class-for-geofencing/
- MKTileOverlay and MKTileOverlayRenderer may be how we overlay the grid onto the map.
- MKPolygon also warrants investigation.

- Display a quest view after the play taps on the MKAnnotation within their CLRegion.
  - Currently, the quest event can be thought of similarly to assignment 7's quest view, but will include core graphics (**Req 3**).
  - Player level, Name, Number of times quested, and items will be stored with core data (**Req 2**).
- Have button in the map view controller, which will take the user to a table view that displays their items earned from quests. (Inventory view)
  - Items will be added to the table view after questing.
  - A button within the inventory view to take the player back to the map view.

*The three views will be the map view, quest view, and inventory view (**Req 1**)