Chapter XII

Using Map View & GPS Data

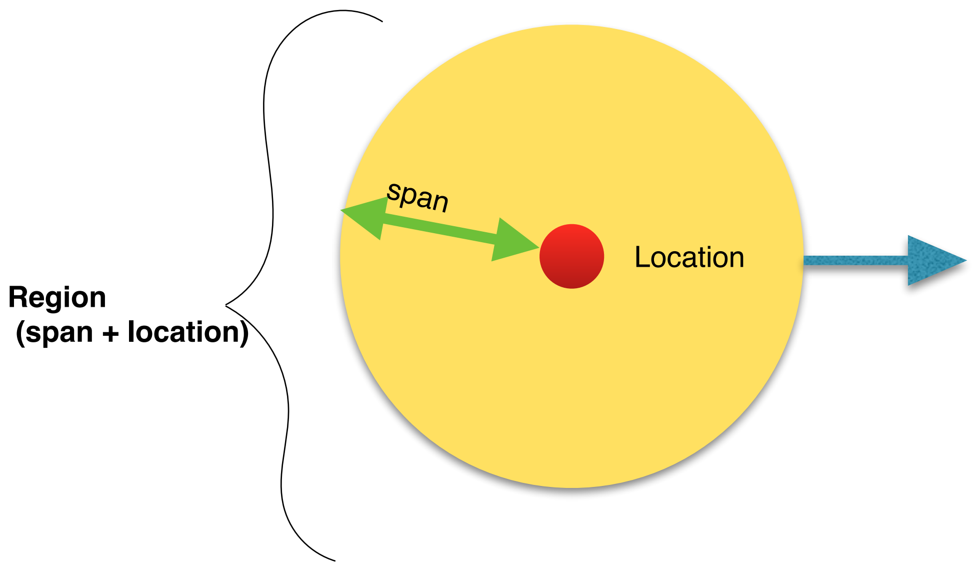
4. Using MapView and Geocoding

I. MapView

To show a location on a map, three properties have to be prepared:

- **location (POINT)**
- **span (RADIUS)**
- **region (POINT + RADIUS)**

in conjunction with CLLocationCoordinate2DMake, MKCoordinateSpanMake and MKCoordinateRegionMake,.



i. Workflow

2. Create two variable using type CLLocationDegrees (latitude & longitude)
3. Create a location using CLLocationCoordinate2DMake with those degree value.
4. Create two variable using type CLLocationDegrees (latitudeDelta & longitudeDelta)
5. Create a span , i.e radius, using MKCoordinateSpanMake with those degree value.
6. Create a region using setRegion function of your map view with those location & span

```
eg.
let latitude:CLLocationDegrees = 16.857095
let longitude:CLLocationDegrees = 96.1546

let locationPoint = CLLocationCoordinate2DMake(latitude, longitude)
let latitudeDelta:CLLocationDegrees = 0.002
let longitudeDelta:CLLocationDegrees = 0.002

let spanRadius = MKCoordinateSpanMake(latitudeDelta, longitudeDelta)
let region = MKCoordinateRegionMake(locationPoint, spanRadius)
yourMapView.setRegion(region, animated: true)
```

ii. Adding Annotation (Pinning)

```
var pinAnnotation = MKPointAnnotation()
myPoint.title = "Your Location Title"
let coordinate = CLLocationCoordinate2DMake(latitude, longitude)
pinAnnotation.coordinate = coordinate
myMap.addAnnotation(myPoint)
```

Geocoding is a way to obtain information about geographical locations. Geocoding can be forward, when we obtain the geographical coordinates (latitude and longitude) from other location data such as postal addresses, or reverse, when we obtain the address of a location by having the latitude and longitude as inputs.

II. Geocoding

Code Snippets (Two Useful function for Geocoding using CLGeocoder)
eg.

```
import AddressBookUI
import Contacts

func forwardGeocoding(address: String) {
   CLGeocoder().geocodeAddressString(address, completionHandler:
{ (placemarks, error) in
      if error != nil {
         print(error)
         return
      }
      if placemarks?.count > 0 {
         let placemark = placemarks?[0]
         let location = placemark?.location
         let coordinate = location?.coordinate
         print("\nlat: \(coordinate!.latitude), long: \(coordinate!.longitude)")
```

```
            if placemark?.areasOfInterest?.count > 0 {
                let areaOfInterest = placemark!.areasOfInterest![0]
                print(areaOfInterest)
            } else {
                print("No area of interest found.")
            }
        }
    })
}
```

CLGeocoder().**reverseGeocodeLocation**(location, completionHandler:
{(placemarks, error) -> Void in

```
            if error != nil {
                print("Reverse geocoder failed with error" )
                return
            }

            if placemarks!.count > 0 {
               let pm = placemarks![0] as! CLPlacemark
                print(pm.locality)
                let address =
                  ABCreateStringWithAddressDictionary(pm.addressDictionary!, false)
                print("\n\(address)")
                if pm.areasOfInterest?.count > 0 {
                    let areaOfInterest = pm.areasOfInterest?[0]
                    print(areaOfInterest!)
                } else {
                    print("No area of interest found.")
                }

            }
            else {
                print("Problem with the data received from geocoder")
            }
        })
```

5. Getting user location

I. Setting Privacy Setting

Getting User Location requires to get the permission from user, stating its purpose

- add new keys: **NSLocationWhenInUseUsageDescription** &
- and optionally **NSLocationAlwaysUsageDescription**

Then user CLLocationManager and its delegated methods let you get the updated location of user while he or she moving.

eg.

```
var locationManager = CLLocationManager( )

//In ViewDid Load
locationManager.delegate = self
locationManager.requestWhenInUseAuthorization()
locationManager.requestAlwaysAuthorization()
locationManager.startUpdatingLocation()

//Delegate Method
func locationManager(manager: CLLocationManager, didUpdateLocations locations:
[CLLocation]) {

        print(locations)
}
```

Note: