**Adding features to an application using GPS**

(http://developer.android.com/training/location/index.html)

Google Location services can be used in an application for:

1. Retrieving current location of device
2. Retrieving location updates
3. Displaying a location address
4. Creating and monitoring Geofences
5. Recognizing user’s current activity(still, walking, bicycling, driving)
6. **Retrieving current location of device:**

Location Services automatically maintains the user's current location, so all your app has to do is retrieve it as needed. The location's accuracy is based on the location permissions you've requested and location sensors that are currently active for the device.

Location Services sends the current location to your app through a location client, which is an instance of the Location Services class [LocationClient](http://developer.android.com/reference/com/google/android/gms/location/LocationClient.html). All requests for location information go through this client.

1. **Retrieving location updates:**

If your app does navigation or tracking, you probably want to get the user's location at regular intervals. You can do this by requesting periodic updates from Location Services. In response, Location Services automatically updates your app with the best available location, based on the currently-available location providers such as WiFi and GPS.

1. **Displaying a location address:**

Android provides a way for converting location’s latitude and longitude into address i.e. Reverse Geocoding. Reverse coding can be done using getFromLocation() method of Geocoder class.

1. **Creating and monitoring Geofences:**

Geofence represents a geographical region of interest. With Google Location Services one can define one or more geofences and detect when the user is close to or inside a geofence.

Geofencing combines awareness of the user's current location with awareness of nearby features, defined as the user's proximity to locations that may be of interest. To mark a location of interest, you specify its latitude and longitude. To adjust the proximity for the location, you add a radius. The latitude, longitude, and radius define a geofence. You can have multiple active geofences at one time.

Location Services treats a geofences as an area rather than as a points and proximity. This allows it to detect when the user enters or exits a geofence. For each geofence, you can ask Location Services to send you entrance events or exit events or both. You can also limit the duration of a geofence by specifying an expiration duration in milliseconds. After the geofence expires, Location Services automatically removes it.

1. **Recognizing user’s current activity:**

Activity recognition tries to detect the user's current physical activity, such as walking, driving, or standing still. Requests for updates go through an activity recognition client, which, while different from the location client used by location or geofencing, follows a similar pattern. Based on the update interval you choose, Location Services sends out activity information containing one or more possible activities and the confidence level for each one.