Android User Interface

Agenda

- The Location Object in Android App
- Get the Current Location using Android App
- Get the Updated Location using Android App
- Location Quality of Service in Android App

Location Based service in Android

- Android location APIs make it simple for you to develop location-aware applications.
- The ability to add location awareness to your app through automatic location tracking, geofencing, and spatial activity identification is made possible with the aid of Google Play services.

Google Maps in Android

- We can incorporate Google Maps' services into our app thanks to Android.
- Any place or a variety of routes can be displayed on a map.
- The map can also be altered to suit your own business requirements.

Google Maps - AndroidManifest File

```
<!--Permissions-->
<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
<uses-permission android:name="com.google.android.providers.gsf.permission.READ_GSERVICES" />
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.INTERNET" />
<!--Google MAP API key-->
<meta-data
android:value="AIzaSyDKymeBXNeiFWY5jRUejv6zItpmr2MVyQ0"
android:name="com.google.android.maps.v2.API_KEY“
/>
```

Google Maps - Layout File

```
<fragment

   android:id="@+id/map“

   android:layout_width="match_parent“

   android:layout_height="match_parent"

   android:name="com.google.android.gms.maps.MapFragment"

/>
```

Customizing Google Maps in Android App

Adding Marker

Marker can be used to specify a place with writing over it that shows where you are on a map. You can accomplish it by using the addMarker() method.

An example is given below:-

```
final LatLng DC = new LatLng(34 , 76);

Marker TP = googleMap.addMarker(new MarkerOptions().position(DC).title("DC"));
```

Customizing Google Maps in Android App

Different Map Types in Android

- In Android Maps There are four types of maps, and you can switch between them to get a different perspective on the map.
- The four types of maps are given below:-
    - GoogleMap.MAP_TYPE_NORMAL
    - GoogleMap.MAP_TYPE_SATELLITE
    - GoogleMap.MAP_TYPE_TERRAIN
    - GoogleMap.MAP_TYPE_HYBRID

Customizing Google Maps

Activate/Deactivate Maps zoom Feature

- **setZoomControlsEnabled(boolean)** method is used to acticate/deactivate Zoom Feature in Android App
- The coding syntax is given below:-

```
googleMap.getUiSettings().setZoomGesturesEnabled(true);
```

Location Object in Android

- The LocationRequest object is used to ask the LocationClient for a quality of service (QoS) for location updates.
- The following helpful setting techniques can be used to manage QoS.
- To obtain location-specific information, you can use the following practical techniques with the Location object:

  - ***float distanceTo(Location dest)***
  - ***float getAccuracy()***
  - ***double getAltitude()***
  - ***float getBearing()***
  - ***double getLatitude()***
  - ***double getLongitude()***
  - ***float getSpeed()***
  - ***boolean hasAccuracy()***
  - ***boolean hasAltitude()***
  - ***boolean hasBearing()***
  - ***boolean hasSpeed()***
  - ***void reset()***
  - ***void setAccuracy(float accuracy)***
  - ***void setAltitude(double altitude)***
  - ***void setBearing(float bearing)***
  - ***void setLatitude(double latitude)***
  - ***void setLongitude(double longitude)***
  - ***void setSpeed(float speed)***
  - ***String toString()***

Get the current Location in Android

- Create a LocationClient object and connect it to Location Services using the connect() method to obtain the current location.
- You may then use its getLastLocation() function.
- However, in order to incorporate location-based functionality into your activity, you must use the next two interfaces:

    - **GooglePlayServicesClient.ConnectionCallbacks**
    - **GooglePlayServicesClient.OnConnectionFailedListener**

Get the uodated Location in Android

- The LocationListener interface must be implemented in addition to the previously listed interfaces if you want your app to receive location updates.
- You will implement or override the one callback function of this interface in your activity class.

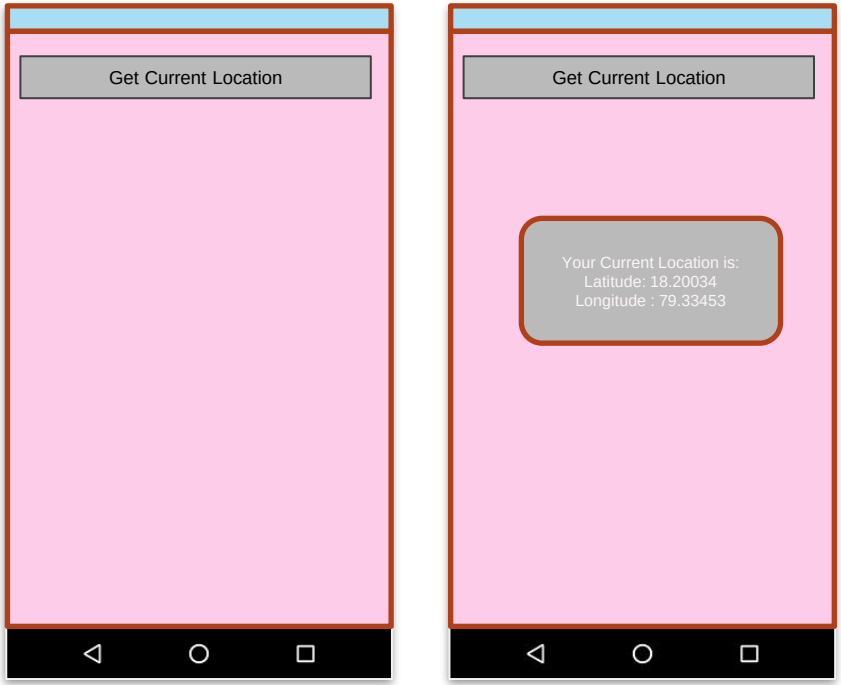
```
abstract void onLocationChange(Location location)
```

Location Quality of service in Android

- The LocationRequest object is used to create the LocationClient for a quality of service (QoS) for location updates.
- The following helpful setting techniques can be used to manage QoS.

- ***setExpirationDuration(long millis)***
- ***setExpirationTime(long millis)***
- ***setFastestInterval(long millis)***
- ***setInterval(long millis)***
- ***setNumUpdates(int numUpdates)***
- ***setPriority(int priority)***

Location Quality of service in Android



Questions