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1812401160001
Vishwas Acharya

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Assignment - 5

Q1 What is location services and Maps in Android?

Ans - Android location API's make it easy for you to build location-aware applications, without needing to focus on the details of the underlying location technology.

- This becomes possible with the help of Google Play services, which facilitates adding location awareness to your app with automated location tracking, geofencing and activity recognition.

- The location object represents a geographic location which can consist of a latitude, longitute, time stamp, and other information such as bearing, altitude and velocity.

- To get CURRENT LOCATION, create a location client which is LocationClient object, connect it to location services using connect() method, and then call its getLastLocation() method.

- This method returns the most recent location in the form of location object.

- To have location based functionality in your activity, you will have to implement two interfaces

↳ GooglePlayServicesClient.ConnectionCallbacks
↳ GooglePlayServicesClient.OnConnectionFailedListener

- To get UPDATED LOCATION you will need to implement LocationListener interface as well.

- This interface provides following callback method.
  ↳ abstract void onLocationChanged(Location location)

- The LocationRequest object is used to request a quality of service (QoS) for location updates from the LocationClient.

- Hence, this is the required explaination on location services and maps in android.

2) Explain how Google Maps use in Android.

Ans - Android allows us to integrate google maps in our application.
- You can show any location on the map, or can show different routes on the map e.t.c.
- You can also customize the map according to your choices

- Google Map - Layout File

- Now you have to add the map fragment

into xml layout file.

- Syntax

↳ <fragment
android:id="@+id/map"
android:name="com.google.android.gms.maps.mapf"
android:layout_width="match_parent"
android:layout_height="match_parent"/>

- Google Map - AndroidManifest file

- The next thing you need to do is to add some permissions along with the Google Map API key in the Android-Manifest.XML

- Permissions

↳ ACCESS_NETWORK_STATE
↳ INTERNET
↳ READ_GSERVICES
↳ WRITE_EXTERNAL_STORAGE

- API key

↳ name="com.google.android.maps.v2.API_KEY"
↳ value="AIzaDFGrmeBIjkV610TF03hMoD"

=> Hence, this is how Google Maps is used in Android.

3) What is Geocoding and Reverse Geocoding? Explain it in detail.

Ans - A class for geocoding and reverse geocoding. Geocoding is the process of transforming a street address or other description of a location into a (latitude, longitude) coordinate.

- The Geocoder class requires a backend service that is not included in the core android framework
- The Geocoder query methods will return an empty list if there no backend services in the platform.
- Use the isPresent() method to determine whether a Geocoder implementation exists.

- **Public Constructors**

- Geocoder (Context context, Locale locale)
  ↳ It is a geocoder who responses will be localized for the given locale.

- Geocoder (Context context)
  ↳ It is a geocoder whose response will be localized for the default system locale.

- **Public methods**

↳ List<Address>
↳ getFromLocation, getFromLocationName, ...

⊙ Reverse Geocoding

↳ It is the opposite process that takes a latitude and longitude and converts it to an address or place such as (city, state, country, zip, etc).

↳ Coordinates alone doesn't make much sense to us, therefore we must reverse geocode them into an address or a physical location.

↳ Reverse geocoding is commonly used within emergency services, GPS tracking systems or any other location-based application.

↳ For example when you place a 911 call, first responders are able to see you address location be reverse geocoding that coordinates provided by the GPS chip on your phone.

=> Common terms associated with geocoding and reverse geocoding are bulk and/or batch geocoding.
These terms are used when processing large amounts of data stored in some sort of database.
Many geocoding software or API's may offer this feature.