

ASSIGNMENT 6

GPS Location Tracker

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27th September, 2021

Learning Objective

Develop a native application that uses GPS location information

XML (activity_main.xml)

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     tools:context=".MainActivity"
8     android:orientation="vertical"
9     android:gravity="center_horizontal">
10
11     <TextView
12         android:layout_width="match_parent"
13         android:layout_height="wrap_content"
14         android:fontFamily="@font/roboto"
15         android:text="Enter the name of any place to get its Latitude and
16         Longitude values"
17         android:textSize="25sp"
18         android:layout_margin="20dp"/>
19
20     <EditText
21         android:id="@+id/placeEditText"
22         android:layout_width="match_parent"
23         android:layout_height="wrap_content"
24         android:hint="Place Name"
25         android:fontFamily="@font/roboto"
```

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25         android:textSize="20sp"
26         android:layout_margin="20dp"
27         android:inputType="text"
28         android:maxLines="1"/>
29
30     <TextView
31         android:id="@+id/latitudeTxt"
32         android:layout_width="match_parent"
33         android:layout_height="wrap_content"
34         android:fontFamily="@font/roboto"
35         android:textSize="20sp"
36         android:layout_margin="20dp" />
37
38     <TextView
39         android:id="@+id/longitudeTxt"
40         android:layout_width="match_parent"
41         android:layout_height="wrap_content"
42         android:fontFamily="@font/roboto"
43         android:textSize="20sp"
44         android:layout_margin="20dp" />
45
46     <Button
47         android:id="@+id/getBtn"
48         android:layout_width="wrap_content"
49         android:layout_height="wrap_content"
50         android:fontFamily="@font/roboto"
51         android:text="Get Coordinates"/>
52
53 </LinearLayout>

```

Java (MainActivity.java)

```
1 package com.madlab.gpslocationtracker;
2
3 import androidx.annotation.NonNull;
4 import androidx.appcompat.app.AppCompatActivity;
5 import androidx.core.app.ActivityCompat;
6
7 import android.Manifest;
8 import android.app.AlertDialog;
9 import android.content.Context;
10 import android.content.DialogInterface;
11 import android.content.Intent;
12 import android.content.pm.PackageManager;
13 import android.location.Address;
14 import android.location.Geocoder;
15 import android.location.Location;
16 import android.location.LocationListener;
17 import android.location.LocationManager;
18 import android.net.ConnectivityManager;
19 import android.net.NetworkInfo;
20 import android.os.Bundle;
21 import android.view.View;
22 import android.widget.Button;
23 import android.widget.EditText;
24 import android.widget.TextView;
25 import android.widget.Toast;
26
27 import java.net.HttpURLConnection;
28 import java.net.URL;
29 import java.util.List;
30
31 public class MainActivity extends AppCompatActivity implements
    LocationListener {
32     TextView latitudeTxt;
33     TextView longitudeTxt;
34
35     @Override
36     protected void onCreate(Bundle savedInstanceState) {
37         super.onCreate(savedInstanceState);
38         setContentView(R.layout.activity_main);
39
40         final EditText placeEditText = findViewById(R.id.placeEditText);
41         latitudeTxt = findViewById(R.id.latitudeTxt);
42         longitudeTxt = findViewById(R.id.longitudeTxt);
43         final Button getButton = findViewById(R.id.getBtn);
44
45         LocationManager locationManager = (LocationManager)
            getSystemService(Context.LOCATION_SERVICE);
46
```

```

47         boolean fineLocationPermission = ActivityCompat.
checkSelfPermission(this, Manifest.permission.ACCESS_FINE_LOCATION) ==
PackageManager.PERMISSION_GRANTED;
48         boolean coarseLocationPermission = ActivityCompat.
checkSelfPermission(this, Manifest.permission.ACCESS_COARSE_LOCATION)
== PackageManager.PERMISSION_GRANTED;
49
50         if (!coarseLocationPermission && !fineLocationPermission) {
51             Toast.makeText(MainActivity.this, "Locations Services aren't
enabled!", Toast.LENGTH_SHORT).show();
52             ActivityCompat.requestPermissions(MainActivity.this, new
String[]{
53                 Manifest.permission.ACCESS_FINE_LOCATION
54             }, 100);
55             return;
56         }
57
58         locationManager.requestLocationUpdates(LocationManager.
GPS_PROVIDER, 0, 0, (LocationListener) this);
59         getButton.setOnClickListener(new View.OnClickListener() {
60             @Override
61             public void onClick(View view) {
62                 try {
63                     Geocoder geocoder = new Geocoder(MainActivity.this);
64                     List<Address> list = geocoder.getFromLocationName(
placeEditText.getText().toString(), 1);
65                     if (list != null && list.size() > 0) {
66                         Address address = list.get(0);
67                         String latitudeValue = String.format("%.2f",
address.getLatitude());
68                         String longitudeValue = String.format("%.2f",
address.getLongitude());
69                         latitudeTxt.setText("Latitude: " + latitudeValue);
70                         longitudeTxt.setText("Longitude: " +
longitudeValue);
71                     }
72                     } catch (Exception e) {
73                         e.printStackTrace();
74                     }
75                 }
76             });
77         }
78
79         @Override
80         public void onLocationChanged(@NonNull Location location) {
81             latitudeTxt.setText(Double.toString(location.getLatitude()));
82             longitudeTxt.setText(Double.toString(location.getLongitude()));
83         }
84
85         @Override
86         public void onLocationChanged(@NonNull List<Location> locations) {

```

```
87
88     }
89
90     @Override
91     public void onFlushComplete(int requestCode) {
92
93     }
94
95     @Override
96     public void onStatusChanged(String provider, int status, Bundle extras
97 ) {
98
99     }
100
101     @Override
102     public void onProviderEnabled(@NonNull String provider) {
103
104     }
105
106     @Override
107     public void onProviderDisabled(@NonNull String provider) {
108
109     }
110
111     @Override
112     public void onPointerCaptureChanged(boolean hasCapture) {
113
114     }
```

App Screenshots

