Exp 10

ActivityMain.xml

```
<androidx.fragment.app.FragmentContainerView
   xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:map="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:id="@+id/map"
   android:name="com.google.android.gms.maps.SupportMapFragment"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity" />
```

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:tools="http://schemas.android.com/tools">
   <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
   <uses-permission
      android:name="android.permission.ACCESS_COARSE_LOCATION"/>
   <uses-permission android:name="android.permission.INTERNET"/>
   <uses-feature android:name="android.hardware.location.gps"/>


   <application
      android:allowBackup="true"
      android:dataExtractionRules="@xml/data_extraction_rules"
      android:fullBackupContent="@xml/backup_rules"
      android:icon="@mipmap/ic_launcher"
      android:label="@string/app_name"
      android:roundIcon="@mipmap/ic_launcher_round"
      android:supportsRtl="true"
      android:theme="@style/Theme.Exp10"
      tools:targetApi="31">
      <meta-data
         android:name="com.google.android.geo.API_KEY"
```

```
        android:value="AIzaSyCBlap-jqb0uC3vp7eBrzJn8iiTKJpxtgM" />
    <activity
        android:name=".MainActivity"
        android:exported="true">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
  </application>

</manifest>
```

MainActivity.java

```
package com.example.exp10;

import android.os.Bundle;
import androidx.annotation.NonNull;
import androidx.core.app.ActivityCompat;
import androidx.fragment.app.FragmentActivity;
import android.content.pm.PackageManager;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.Manifest;
import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;
public class MainActivity extends FragmentActivity implements OnMapReadyCallback {
  private GoogleMap mMap;
  private LocationListener locationListener;
  private LocationManager locationManager;
  private final long MIN_DIST=5;
  private final long MIN_TIME=1000;
  private LatLng latLng;
```

```
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    SupportMapFragment mapFragment =
        (SupportMapFragment)getSupportFragmentManager().findFragmentById(R.id.map);
    mapFragment.getMapAsync(this);
    ActivityCompat.requestPermissions(this, new
String[]{Manifest.permission.ACCESS_FINE_LOCATION},
        PackageManager.PERMISSION_GRANTED);
    ActivityCompat.requestPermissions(this, new
String[]{Manifest.permission.ACCESS_COARSE_LOCATION
    }, PackageManager.PERMISSION_GRANTED);
  }
  /**
   * Manipulates the map once available.
   * This callback is triggered when the map is ready to be used.
   * This is where we can add markers or lines, add listeners or
   move the camera. In this case,
   * we just add a marker near Sydney, Australia.
   * If Google Play services is not installed on the device, the
   user will be prompted to install
   * it inside the SupportMapFragment. This method will only be
   triggered once the user has
   * installed Google Play services and returned to the app.
   */
  @Override
  public void onMapReady (GoogleMap googleMap) {
    mMap = googleMap;
    // Add a marker in Sydney and move the camera
    LatLng sydney = new LatLng(-34, 151);
    mMap.addMarker(new MarkerOptions().position(sydney).title("Marker in Sydney"));
    mMap.moveCamera(CameraUpdateFactory.newLatLng(sydney));
    locationListener = new LocationListener() {
      @Override
      public void onLocationChanged(@NonNull Location location) {
        latLng = new LatLng(location.getLatitude(), location.getLongitude());
        mMap.addMarker(new MarkerOptions().position(latLng).title("My position"));
        mMap.moveCamera(CameraUpdateFactory.newLatLng(latLng));
      }
    };
    locationManager = (LocationManager)getSystemService(LOCATION_SERVICE);
    try {
```

```
            locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER, MIN_TIME,
MIN_DIST, locationListener);
        } catch (SecurityException e) {
            e.printStackTrace();
        }
    }
}
```