Experiment 31

Q. Navigating to a Specific Location, Set/Unset Zoom Controls

ACTIVITY_MAPS.XML:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical"
   android:weightSum="10"
   xmlns:android="http://schemas.android.com/apk/res/android">
   <fragment
      android:layout_weight="2"
      xmlns:android="http://schemas.android.com/apk/res/android"
      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=".MapsActivity" />
   <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:layout_weight="8">
      <LinearLayout
         android:layout_width="wrap_content"
         android:layout_height="match_parent"
         android:gravity="center"
         android:orientation="vertical">
      <EditText
         android:id="@+id/ed_lat"
         android:layout_width="200dp"
         android:layout_height="wrap_content"
         android:hint="Latitude"/>
         <EditText
            android:id="@+id/ed_long"
            android:layout_width="200dp"
            android:layout_height="wrap_content"
            android:hint="Longitude"/>
      </LinearLayout>
      <Button
         android:id="@+id/b1"
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:layout_gravity="center"
         android:layout_margin="20dp"
         android:text="Locate"/>
```

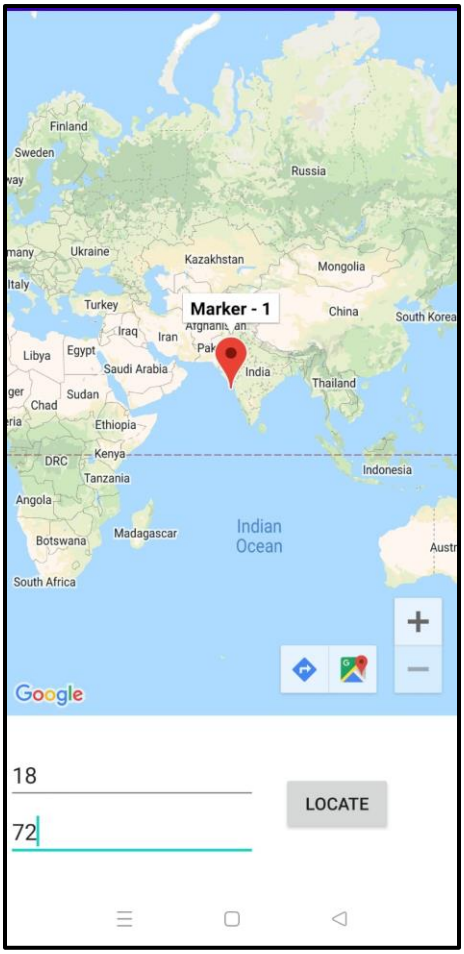
```
    </LinearLayout>
</LinearLayout>
```

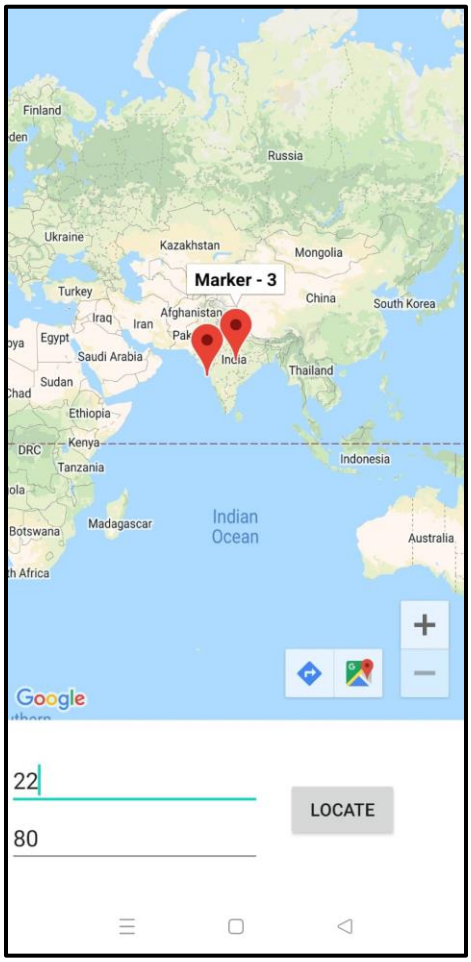
MAPSACTIVITY.JAVA:

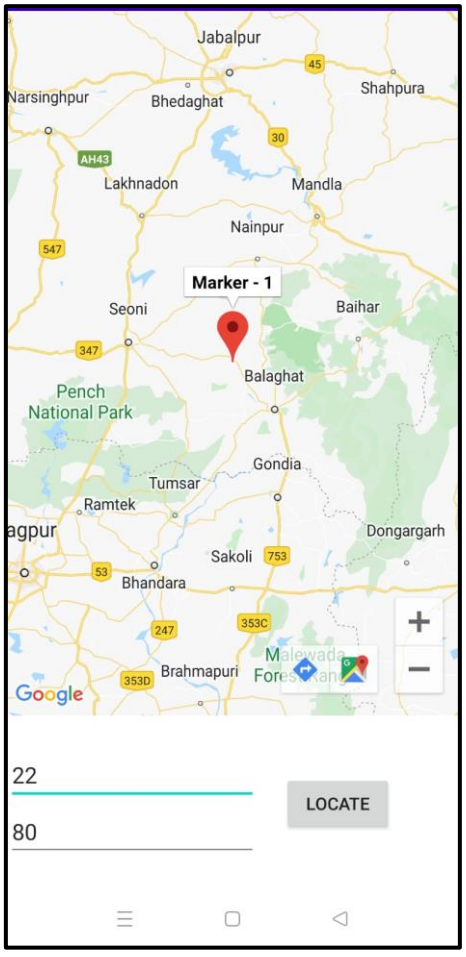
```
package com.example.test99;
import androidx.core.app.ActivityCompat;
import androidx.fragment.app.FragmentActivity;
import android.Manifest;
import android.content.pm.PackageManager;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
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;
import com.example.test99.databinding.ActivityMapsBinding;
public class MapsActivity extends FragmentActivity implements OnMapReadyCallback {
    private GoogleMap mMap;
    private ActivityMapsBinding binding;
    EditText la, lo;
    int count = 0;
    Button b1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        binding = ActivityMapsBinding.inflate(getLayoutInflater());
        setContentView(binding.getRoot());
        // Obtain the SupportMapFragment and get notified when the map is ready to be used.
        SupportMapFragment mapFragment = (SupportMapFragment) getSupportFragmentManager()
                .findFragmentById(R.id.map);
        mapFragment.getMapAsync(this);
    }
    /**
     * 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;
        lo = findViewById(R.id.ed_long);
```

```
        la = findViewById(R.id.ed_lat);
        b1 = findViewById(R.id.b1);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                count++;
                LatLng temp = new LatLng(Float.parseFloat(la.getText().toString()), Float.parseFloat(lo.getText().toString()));
                mMap.addMarker(new MarkerOptions().position(temp).title("Marker - " + count));
                mMap.moveCamera(CameraUpdateFactory.newLatLng(temp));
            }
        });
        mMap.getUiSettings().setZoomControlsEnabled(true);
        //displays + - option used to zoom in & out on map (default - false)
        mMap.getUiSettings().setZoomGesturesEnabled(false);
        //sets the pinch in & out gestures (default - true)
        mMap.getUiSettings().setCompassEnabled(false);
        //sets the compass gesture, visible when map is rotated (default - true)

    }
}
```

OUTPUT:







Q. Geocoding & Reverse Geocoding

ACTIVITY_MAPS.XML:

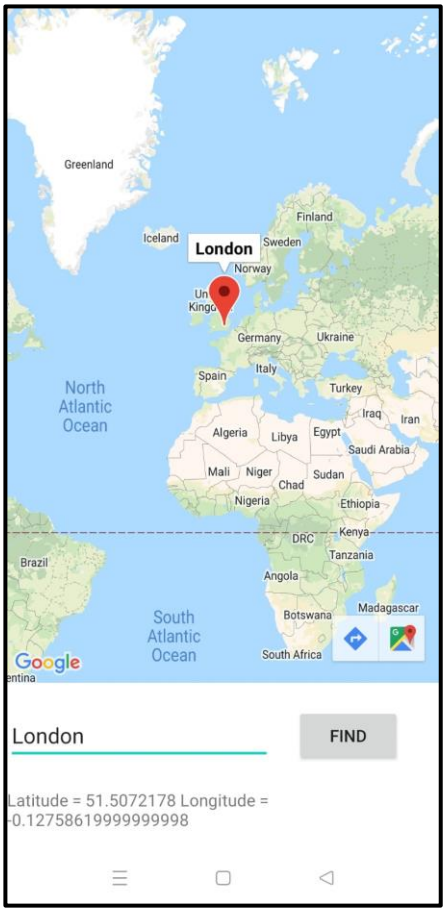
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
android:weightSum="10"
xmlns:android="http://schemas.android.com/apk/res/android">
   <fragment xmlns:android="http://schemas.android.com/apk/res/android"
      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_weight="2"
      android:layout_height="match_parent"
      tools:context=".MapsActivity" />
<LinearLayout
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical">
   <LinearLayout
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:gravity="center">
      <EditText
         android:id="@+id/ed_ad"
         android:layout_width="220dp"
         android:layout_height="wrap_content"
         android:hint="Address"/>
      <Button
         android:id="@+id/b1"
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:layout_gravity="center"
         android:layout_margin="20dp"
         android:text="FIND"/>
   </LinearLayout>
   <TextView
      android:id="@+id/t1"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:text=""/>
</LinearLayout>

</LinearLayout>
```

MAPSACTIVITY.JAVA:

```
package com.example.test999;

import androidx.annotation.NonNull;
import androidx.fragment.app.FragmentActivity;
import android.location.Address;
import android.location.Geocoder;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
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;
import com.example.test999.databinding.ActivityMapsBinding;
import java.io.IOException;
import java.util.List;

public class MapsActivity extends FragmentActivity implements OnMapReadyCallback {
   private GoogleMap mMap;
   private ActivityMapsBinding binding;
   private Geocoder geo;
   EditText ed_ad;
   Button b1;
   TextView t1;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      binding = ActivityMapsBinding.inflate(getLayoutInflater());
      setContentView(binding.getRoot());
      // Obtain the SupportMapFragment and get notified when the map is ready to be used.
      SupportMapFragment mapFragment = (SupportMapFragment) getSupportFragmentManager()
            .findFragmentById(R.id.map);
      mapFragment.getMapAsync(this);
      geo = new Geocoder(this);
      ed_ad = findViewById(R.id.ed_ad);
      b1 = findViewById(R.id.b1);
      t1 = findViewById(R.id.t1);
   }

      @Override
   public void onMapReady(GoogleMap googleMap) {
      mMap = googleMap;
```

```
    //Geocoding to find lat,long from address
    b1.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View v) {
        try {
          List<Address> addresses = geo.getFromLocationName(ed_ad.getText().toString(), 1);
          if(addresses.size()>0){
          Address ads = addresses.get(0);
          LatLng latlo = new LatLng(ads.getLatitude(), ads.getLongitude());
          t1.setText("Latitude = "+ads.getLatitude()+" Longitude = "+ads.getLongitude());
          mMap.addMarker(new MarkerOptions().position(latlo).title(ads.getLocality()));
          mMap.moveCamera(CameraUpdateFactory.newLatLng(latlo));
          }
        } catch (IOException e) {
          e.printStackTrace();
        }
      }
    });

    //REVERSE GEO-CODING (to find address from lat,long)
    mMap.setOnMapLongClickListener(new GoogleMap.OnMapLongClickListener() {
      @Override
      public void onMapLongClick(@NonNull LatLng latLng) {
        Toast.makeText(getApplicationContext(), latLng.toString(), Toast.LENGTH_SHORT).show();
        try {
          List<Address> addresses = geo.getFromLocation(latLng.latitude, latLng.longitude, 1);
          if (addresses.size()>0){
            Address ads = addresses.get(0);
            String txt = ads.getAddressLine(0);
            mMap.addMarker(new MarkerOptions().position(latLng).title(txt));
            t1.setText(txt);
          }
        } catch (IOException e) {
          e.printStackTrace();
        }
      }
    });

  }
}
```

OUTPUT:


London
Greenland
Iceland
Finland
Sweden
Norway
Germany
Ukraine
Spain
Italy
Turkey
Iraq
Iran
Algeria
Libya
Egypt
Saudi Arabia
Mali
Niger
Chad
Sudan
Nigeria
Ethiopia
Kenya
DRC
Tanzania
Angola
Brazil
Botswana
Madagascar
South Africa
North Atlantic Ocean
South Atlantic Ocean
Google
London
FIND
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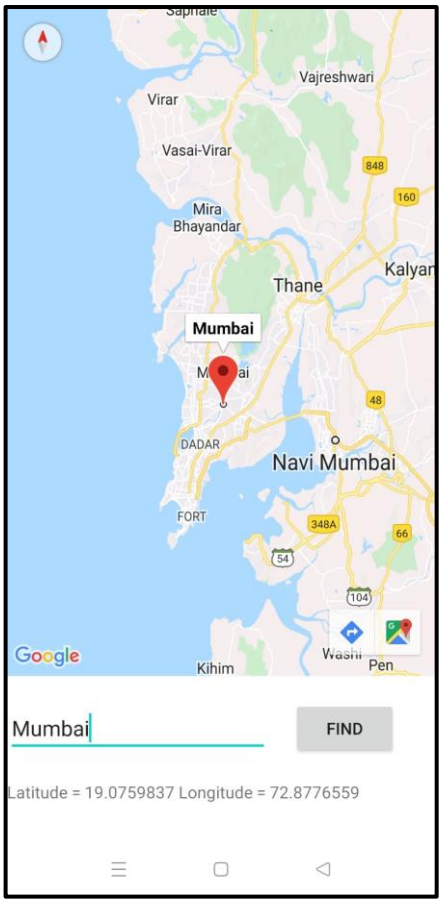
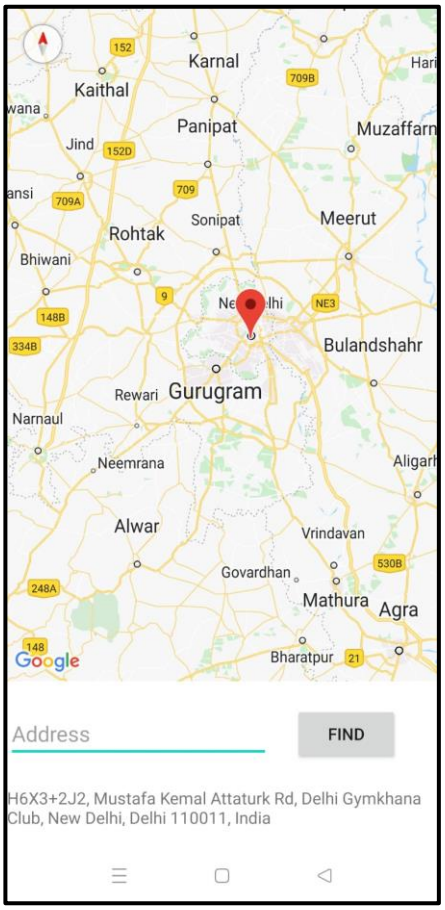

Vajreshwari
Virar
Vasai-Virar
Mira Bhayandar
Thane
Mumbai
DADAR
Navi Mumbai
FORT
Kihim
Google
Mumbai
FIND
Latitude = 19.0759837 Longitude = 72.8776559


Karnal
Kaithal
Panipat
Muzaffarn
Jind
Sonipat
Meerut
Rohtak
Bhiwani
Bulandshahr
Rewari
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Neemrana
Alwar
Vrindavan
Govardhan
Mathura
Agra
Bharatpur
Google
Address
FIND
H6X3+2J2, Mustafa Kemal Attaturk Rd, Delhi Gymkhana Club, New Delhi, Delhi 110011, India


Tehran
Baghdad
Iraq
Iran
Kuwait
Persian Gulf
Bahrain
Qatar
Dubai
Saudi Arabia
Oman
Google
Address
FIND
7293 Gharsa, 3864, As Sulay, Riyadh 14264, Saudi Arabia