CSL702 - Mobile App. Development Tech. Lab
Experiment 13

Name: Hayden Cordeiro Roll No: 05 Class: BE COMPS

AIM: Develop an application that uses GPS location information

Description:

1) Open eclipse or android studio and select new android project
2) Give project name and select next
3) Choose the android version.Choose the lowest android version(Android 2.2) and select next
4) Enter the package name.package name must be two word seprated by comma and click finish
5) Go to package explorer in the left hand side.select our project.
6) Go to res folder and select layout.Double click the main.xml file.Add the code

ANDROID CODE:

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.hayden.experiment13">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Experiment13">
        <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>

    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
    <uses-permission android:name="android.permission.ACCESS_MOCK_LOCATION"
/>
```

```
    <uses-permission
android:name="android.permission.ACCESS_COARSE_LOCATION" />

</manifest>
```

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/activity_main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/retrieve_location_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:text="GET LOCATION"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

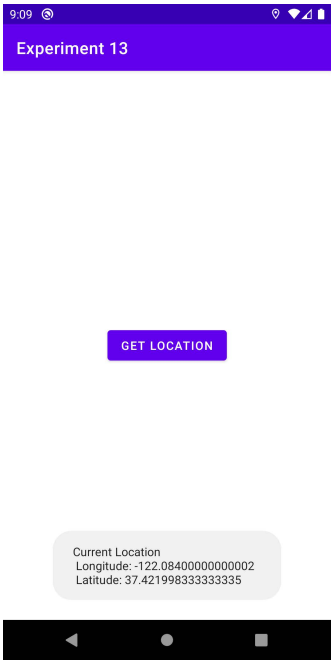
```
package com.hayden.experiment13;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;

import android.Manifest;
import android.content.pm.PackageManager;
import android.os.Bundle;
import android.app.Activity;
import android.content.Context;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Bundle;
import android.view.View;
```

```
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

   private static final long MINIMUM_DISTANCE_CHANGE_FOR_UPDATES = 1; // in
Meters
   private static final long MINIMUM_TIME_BETWEEN_UPDATES = 1000; // in
Milliseconds

   protected LocationManager locationManager;

   protected Button retrieveLocationButton;

   @Override
   public void onCreate(Bundle savedInstanceState) {

      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      retrieveLocationButton = (Button) findViewById(R.id.retrieve_location_button);

      locationManager = (LocationManager)
getSystemService(Context.LOCATION_SERVICE);

      if (ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) !=
PackageManager.PERMISSION_GRANTED &&
ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION) !=
PackageManager.PERMISSION_GRANTED) {
         // TODO: Consider calling
         //    ActivityCompat#requestPermissions
         // here to request the missing permissions, and then overriding
         //   public void onRequestPermissionsResult(int requestCode, String[] permissions,
         //                                          int[] grantResults)
         // to handle the case where the user grants the permission. See the documentation
         // for ActivityCompat#requestPermissions for more details.
         return;
      }
      locationManager.requestLocationUpdates(
            LocationManager.GPS_PROVIDER,
            MINIMUM_TIME_BETWEEN_UPDATES,
            MINIMUM_DISTANCE_CHANGE_FOR_UPDATES,
            new MyLocationListener()
      );
```

```
        retrieveLocationButton.setOnClickListener(new OnClickListener() {
            @Override
            public void onClick(View v) {
                showCurrentLocation();
            }
        });
    }
    protected void showCurrentLocation() {

        if (ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) !=
PackageManager.PERMISSION_GRANTED &&
ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION) !=
PackageManager.PERMISSION_GRANTED) {
            // TODO: Consider calling
            //    ActivityCompat#requestPermissions
            // here to request the missing permissions, and then overriding
            //   public void onRequestPermissionsResult(int requestCode, String[] permissions,
            //                                          int[] grantResults)
            // to handle the case where the user grants the permission. See the documentation
            // for ActivityCompat#requestPermissions for more details.
            return;
        }
        Location location =
locationManager.getLastKnownLocation(LocationManager.GPS_PROVIDER);

        if (location != null) {
            String message = String.format(
                    "Current Location \n Longitude: %1$s \n Latitude: %2$s",
                    location.getLongitude(), location.getLatitude()
            );
            Toast.makeText(MainActivity.this, message,
                    Toast.LENGTH_LONG).show();
        }

    }

    private class MyLocationListener implements LocationListener {

        public void onLocationChanged(Location location) {
            String message = String.format(
                    "New Location \n Longitude: %1$s \n Latitude: %2$s",
                    location.getLongitude(), location.getLatitude()
            );
            Toast.makeText(MainActivity.this, message, Toast.LENGTH_LONG).show();
```

```
        }
        public void onStatusChanged(String s, int i, Bundle b) {
            Toast.makeText(MainActivity.this, "Provider status changed",
                    Toast.LENGTH_LONG).show();
        }
        public void onProviderDisabled(String s) {
            Toast.makeText(MainActivity.this,
                    "Provider disabled by the user. GPS turned off",
                    Toast.LENGTH_LONG).show();
        }
        public void onProviderEnabled(String s) {
            Toast.makeText(MainActivity.this,
                    "Provider enabled by the user. GPS turned on",
                    Toast.LENGTH_LONG).show();
        }
    }
}
```

Output



Conclusion: We have sucessfully implemented an android app that gets latitude and longitude of a user