

20CYS404

Android Application Development

END SEM LAB

**Name:** Vaanusha R

**Roll No:** CH.EN.U4CYS21088

**Experiment Number :** 01

**Aim:**

**Code:**

To Get and store the Latitude and Longitude to Google Maps API

# activity\_main.xml:

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout [xmlns:android="http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) [xmlns:app="http://schemas.android.com/apk/res](http://schemas.android.com/apk/res-auto)-auto" [xmlns:tools="http://schemas.android.com/tools"](http://schemas.android.com/tools) android:id="@+id/main"

android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:background="@drawable/map" tools:context=".MainActivity">

<!-- Header Logo (Profile Image) -->

<ImageView

android:id="@+id/header\_logo" android:layout\_width="64dp" android:layout\_height="64dp" android:src="@drawable/img" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintStart\_toStartOf="parent" android:layout\_marginTop="16dp" android:layout\_marginStart="16dp"/>

<!-- User Name -->

<TextView

android:id="@+id/header\_names" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Vaanusha R" android:textColor="#212121" android:textSize="20sp" android:textStyle="bold"

app:layout\_constraintStart\_toEndOf="@id/header\_logo" app:layout\_constraintTop\_toTopOf="@id/header\_logo" android:layout\_marginStart="16dp"/>

<!-- Registration Number -->

<TextView

android:id="@+id/header\_namesR" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="CH.EN.U4CYS21088" android:textColor="#212121" android:textSize="14sp"

app:layout\_constraintStart\_toStartOf="@id/header\_names" app:layout\_constraintTop\_toBottomOf="@id/header\_names" android:layout\_marginTop="4dp"/>

<!-- Amrita Logo -->

<ImageView

android:id="@+id/header\_logoamrita" android:layout\_width="102dp" android:layout\_height="80dp" android:layout\_marginStart="292dp" android:layout\_marginTop="16dp" android:src="@drawable/amrita" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintEnd\_toEndOf="parent" android:layout\_marginEnd="16dp"/>

<!-- Latitude Text -->

<TextView

android:id="@+id/latitude\_text" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Latitude: " android:textColor="#212121" android:textSize="20sp" android:textStyle="bold" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintStart\_toStartOf="parent" android:layout\_marginTop="100dp" android:layout\_marginStart="16dp" />

<!-- Longitude Text -->

<TextView

android:id="@+id/longitude\_text" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Longitude: " android:textColor="#212121" android:textSize="20sp" android:textStyle="bold"

app:layout\_constraintTop\_toBottomOf="@id/latitude\_text" app:layout\_constraintStart\_toStartOf="parent" android:layout\_marginTop="16dp" android:layout\_marginStart="16dp" />

<!-- Get Location Button (Red Color) -->

<Button

android:id="@+id/get\_location\_btn" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_marginTop="80dp" android:text="Get Location"

android:backgroundTint="@android:color/holo\_red\_dark" app:layout\_constraintTop\_toBottomOf="@id/longitude\_text" app:layout\_constraintStart\_toStartOf="parent" android:layout\_marginStart="156dp" />

<!-- Navigate to Google Maps Button (Red Color) -->

<Button

android:id="@+id/navigate\_btn" android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" android:layout\_marginTop="56dp" android:text="Navigate to Google Maps" android:backgroundTint="@android:color/holo\_red\_dark"

app:layout\_constraintTop\_toBottomOf="@id/get\_location\_btn" app:layout\_constraintStart\_toStartOf="parent" android:layout\_marginStart="116dp" />

</androidx.constraintlayout.widget.ConstraintLayout>

# MainActivity.java:

package com.example.endsemlab; import android.Manifest;

import android.annotation.SuppressLint; import android.content.Intent;

import android.content.pm.PackageManager; import android.location.Location;

import android.net.Uri; import android.os.Bundle; import android.widget.Button;

import android.widget.TextView;

import androidx.activity.result.ActivityResultLauncher;

import androidx.activity.result.contract.ActivityResultContracts; import androidx.appcompat.app.AppCompatActivity;

import androidx.core.app.ActivityCompat;

import com.google.android.gms.location.FusedLocationProviderClient; import com.google.android.gms.location.LocationServices;

import com.google.android.gms.tasks.OnSuccessListener; import com.google.firebase.database.DatabaseReference; import com.google.firebase.database.FirebaseDatabase;

public class MainActivity extends AppCompatActivity {

private FusedLocationProviderClient fusedLocationClient; private FirebaseDatabase database;

private DatabaseReference locationRef; private TextView latitudeText, longitudeText; private Button getLocationBtn, navigateBtn;

@Override

protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState); setContentView(R.layout.*activity\_main*);

// Initialize views

latitudeText = findViewById(R.id.*latitude\_text*); longitudeText = findViewById(R.id.*longitude\_text*); getLocationBtn = findViewById(R.id.*get\_location\_btn*);

navigateBtn = findViewById(R.id.*navigate\_btn*);

// Initialize Firebase

database = FirebaseDatabase.getInstance(); locationRef = database.getReference("Locations");

// Initialize Location Client fusedLocationClient =

LocationServices.getFusedLocationProviderClient(this);

// Check for permission and fetch location getLocationBtn.setOnClickListener(v -> {

if (ActivityCompat.*checkSelfPermission*(this, Manifest.permission.*ACCESS\_FINE\_LOCATION*) != PackageManager.*PERMISSION\_GRANTED*) {

requestPermissionLauncher.launch(Manifest.permission.*ACCESS\_FINE\_LO CATION*);

} else {

getLocation();

}

});

// Navigate to Google Maps navigateBtn.setOnClickListener(v -> {

double latitude = Double.*parseDouble*(latitudeText.getText().toString());

double longitude = Double.*parseDouble*(longitudeText.getText().toString());

Uri gmmIntentUri = Uri.*parse*("google.navigation:q=" + latitude + "," + longitude);

Intent mapIntent = new Intent(Intent.*ACTION\_VIEW*, gmmIntentUri);

mapIntent.setPackage("com.google.android.apps.maps"); startActivity(mapIntent);

});

}

private final ActivityResultLauncher<String> requestPermissionLauncher =

registerForActivityResult(new ActivityResultContracts.RequestPermission(), isGranted -> {

if (isGranted) { getLocation();

}

});

@SuppressLint("MissingPermission") private void getLocation() {

fusedLocationClient.getLastLocation()

.addOnSuccessListener(this, new OnSuccessListener<Location>() {

@Override

public void onSuccess(Location location) { if (location != null) {

double latitude =

location.getLatitude(); location.getLongitude();

double longitude =

// Update UI

latitudeText.setText(String.*valueOf*(latitude)); longitudeText.setText(String.*valueOf*(longitude));

// Store in Firebase

locationRef.child("location1").setValue(new LatLng(latitude, longitude));

}

}

});

}

// LatLng class to store the location in Firebase public static class LatLng {

public double latitude; public double longitude;

public LatLng(double latitude, double longitude) { this.latitude = latitude;

this.longitude = longitude;

}

}

}

# AndriodManifest.xml:

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android[="http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app[="http://schemas.android.com/apk/res](http://schemas.android.com/apk/res-auto)-[auto"](http://schemas.android.com/apk/res-auto) xmlns:tools[="http://schemas.android.com/tools"](http://schemas.android.com/tools) android:id="@+id/main"

android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:background="@drawable/map" tools:context=".MainActivity">

<ImageView

android:id="@+id/header\_logo" android:layout\_width="64dp" android:layout\_height="64dp" android:src="@drawable/img" app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintStart\_toStartOf="parent" android:layout\_marginTop="16dp" android:layout\_marginStart="16dp"/>

<TextView

android:id="@+id/header\_names" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Vaanusha R" android:textColor="#212121" android:textSize="20sp" android:textStyle="bold"

app:layout\_constraintStart\_toEndOf="@id/header\_logo" app:layout\_constraintTop\_toTopOf="@id/header\_logo" android:layout\_marginStart="16dp"/>

<TextView

android:id="@+id/latitude\_text" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Latitude: " app:layout\_constraintTop\_toTopOf="parent" app:layout\_constraintStart\_toStartOf="parent" android:textColor="#212121" android:textSize="20sp" android:textStyle="bold" android:layout\_marginTop="100dp" android:layout\_marginStart="16dp" />

<TextView

android:id="@+id/header\_namesR" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:textColor="#212121" android:textSize="14sp"

app:layout\_constraintStart\_toStartOf="@id/header\_names" app:layout\_constraintTop\_toBottomOf="@id/header\_names" android:layout\_marginTop="4dp"/>

<ImageView

android:id="@+id/header\_logoamrita" android:layout\_width="102dp" android:layout\_height="80dp" android:layout\_marginStart="292dp" android:layout\_marginTop="16dp" android:src="@drawable/amrita" app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

<TextView

android:id="@+id/longitude\_text" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="Longitude: " app:layout\_constraintTop\_toBottomOf="@id/latitude\_text" app:layout\_constraintStart\_toStartOf="parent" android:textColor="#212121"

android:textSize="20sp" android:textStyle="bold" android:layout\_marginTop="16dp" android:layout\_marginStart="16dp" />

<Button

android:id="@+id/get\_location\_btn" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_marginStart="156dp" android:layout\_marginTop="80dp" android:text="Get Location" app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@id/longitude\_text" />

<Button

android:id="@+id/navigate\_btn" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_marginStart="116dp" android:layout\_marginTop="56dp" android:text="Navigate to Google Maps" app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@id/get\_location\_btn"

/>

</androidx.constraintlayout.widget.ConstraintLayout>

# Build.gradle.kts(:app)

plugins **{**

id("com.android.application")

id("com.google.gms.google-services") // Firebase services

**}**

*android* **{**

namespace = "com.example.endsemlab" compileSdk = **34**

defaultConfig **{**

applicationId = "com.example.endsemlab" minSdk = **24**

targetSdk = **34**

versionCode = **1**

versionName = "1.0"

testInstrumentationRunner = "androidx.test.runner.AndroidJUnitRunner"

**}**

buildTypes **{**

*release* **{**

isMinifyEnabled = false proguardFiles(

getDefaultProguardFile("proguard-android-

optimize.txt")**,**

)

**}**

**}**

"proguard-rules.pro"

compileOptions **{**

sourceCompatibility = JavaVersion.*VERSION\_1\_8* targetCompatibility = JavaVersion.*VERSION\_1\_8*

**}**

**}**

*dependencies* **{**

*implementation*("androidx.appcompat:appcompat:1.7.0") // Check for the latest version

*implementation*("com.google.android.material:material:1.10.0")

// Latest version

*implementation*("androidx.activity:activity:1.7.0") // Latest version

*implementation*("androidx.constraintlayout:constraintlayout:2.1.4")

// Latest version

*testImplementation*("junit:junit:4.13.2") // Latest version

*androidTestImplementation*("androidx.test.ext:junit:1.1.5") // Latest version

*androidTestImplementation*("androidx.test.espresso:espresso- core:3.5.1") // Latest version

// Firebase Realtime Database and Analytics dependencies *implementation*("com.google.firebase:firebase-database:20.3.0") *implementation*("com.google.firebase:firebase-analytics:21.3.0")

// Optional: Firebase Authentication (if needed)

*implementation*("com.google.firebase:firebase-auth:22.1.1")

// Google Play Services Location dependency

*implementation*("com.google.android.gms:play-services-

location:21.0.1") // Ensure you have the latest version

**}**

*apply*(**plugin =** "com.google.gms.google-services")

# build.gradle.kts (project)

// Top-level build file where you can add configuration options common to all sub-projects/modules.

buildscript {

*repositories* {

google() // Ensure this is included mavenCentral() // Ensure this is included

}

dependencies {

*classpath*("com.android.tools.build:gradle:8.1.0") // Updated to a newer version

*classpath*("com.google.gms:google-services:4.3.15") // Ensure you have the latest version

}

}

# Settings.gradle.kts (project)

pluginManagement **{**

repositories **{**

google() // Make sure to include Google's Maven repository mavenCentral() // Include Maven Central

**}**

**}**

dependencyResolutionManagement **{**

repositories **{** google() mavenCentral()

**}**

**}**

*rootProject*.*name* = "EndsemLab" // Change this to your project name include(":app") // Include your app module or other modules as needed

**Output:**

