**[ 2CEIT5PE5: MOBILE APPLICATION DEVELOPMENT]**

Practical:10



**AIM:** Create an application to create JSON URL for Contact which have field(id, Name(First Name,

Last Name), Phone No, Address) and should be minimum five contact details & display

received contact data in RecyclerView. Add Google Map Activity which displays location

which is received in JSON Data in google Maps activity and set the zoom level to 10.

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**Department of Computer Engineering/Information Technology**

**Practical-10**

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**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"

package="com.example.madpractical10\_20012021015">

<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.MADPRACTICAL10\_20012021015"

tools:targetApi="31">

<!--

TODO: Before you run your application, you need a Google Maps API key.

To get one, follow the directions here:

https://developers.google.com/maps/documentation/android-sdk/get-api-key

Once you have your API key (it starts with "AIza"), define a new property in your

project's local.properties file (e.g. MAPS\_API\_KEY=Aiza...), and replace the

"YOUR\_API\_KEY" string in this file with "${MAPS\_API\_KEY}".

-->

<meta-data

android:name="com.google.android.geo.API\_KEY"

android:value="AIzaSyBS8MoTbcBZZo8\_MrNVubYyT8ZophOijFA" />

<activity

android:name=".MapsActivity"

android:exported="false"

android:label="@string/title\_activity\_maps" />

<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>

<meta-data

android:name="android.app.lib\_name"

android:value="" />

</activity>

</application>

</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:layout\_width="match\_parent"

android:layout\_height="match\_parent"

tools:context=".MainActivity">

<androidx.recyclerview.widget.RecyclerView

android:id="@+id/recyclerView"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

app:layoutManager="androidx.recyclerview.widget.LinearLayoutManager"

android:layout\_marginTop="50dp"

tools:listitem="@layout/user\_view\_design"

tools:itemCount="5"

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

<com.google.android.material.floatingactionbutton.FloatingActionButton

android:id="@+id/refresh"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_gravity="bottom|end"

android:layout\_marginEnd="30dp"

android:layout\_marginBottom="56dp"

app:srcCompat="@drawable/ic\_baseline\_autorenew\_24"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

**MainActivity.kt :**

package com.example.madpractical10\_20012021015

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import androidx.core.view.WindowCompat

import com.example.madpractical10\_20012021015.databinding.ActivityMainBinding

import kotlinx.coroutines.CoroutineScope

import kotlinx.coroutines.Dispatchers

import kotlinx.coroutines.launch

import kotlinx.coroutines.withContext

import org.json.JSONArray

import org.json.JSONException

import org.json.JSONObject

import java.util.ArrayList

class MainActivity : AppCompatActivity() {

private lateinit var binding: ActivityMainBinding

override fun onCreate(savedInstanceState: Bundle?) {

WindowCompat.setDecorFitsSystemWindows(window, false)

super.onCreate(savedInstanceState)

binding = ActivityMainBinding.inflate(layoutInflater)

setContentView(binding.root)

binding.refresh.setOnClickListener {

CoroutineScope(Dispatchers.IO).launch {

try {

val data = HttpRequest().makeServiceCall(

"https://api.json-generator.com/templates/wuIoxGWw4EPH/data",

"uk0y9lm454oepdbo64fkqwvlzcpay9axp4jporyg")

withContext(Dispatchers.Main) {

try {

if(data != null)

runOnUiThread{getPersonDetailsFromJson(data)}

} catch (e: Exception) {

e.printStackTrace()

}

}

} catch (e: Exception) {

e.printStackTrace()

}

}

}

}

private fun getPersonDetailsFromJson(sJson: String?) {

val personList = ArrayList<Person>()

try {

val jsonArray = JSONArray(sJson)

for (i in 0 until jsonArray.length()) {

val jsonObject = jsonArray[i] as JSONObject

val person = Person(jsonObject)

personList.add(person)

}

binding.recyclerView.adapter = PersonViewAdapter(this, personList)

} catch (ee: JSONException) {

ee.printStackTrace()

}

}

}

**activity\_maps.xml :**

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

<fragment 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=".MapsActivity" />

**MapsActivity.kt :**

package com.example.madpractical10\_20012021015

import android.os.Bundle

import android.util.Log

import androidx.appcompat.app.AppCompatActivity

import com.example.madpractical10\_20012021015.databinding.ActivityMapsBinding

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

class MapsActivity : AppCompatActivity(), OnMapReadyCallback {

private val TAG = "MapActivity"

private lateinit var mMap: GoogleMap

private lateinit var binding: ActivityMapsBinding

private var lat = -34.0

private var log = 151.0

private var title = "Marker in Sydney"

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

val obj = intent.getSerializableExtra("Object") as Person

Log.i(TAG, "onCreate: Object:$obj")

lat = obj.Latitude

log = obj.Longitude

title = obj.Name

binding = ActivityMapsBinding.inflate(layoutInflater)

setContentView(binding.root)

// Obtain the SupportMapFragment and get notified when the map is ready to be used.

val mapFragment = supportFragmentManager

.findFragmentById(R.id.map) as SupportMapFragment

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 fun onMapReady(googleMap: GoogleMap) {

mMap = googleMap

// Add a marker in Sydney and move the camera

val sydney = LatLng(lat, log)

//googleMap.uiSettings.isZoomGesturesEnabled = true;

mMap.addMarker(MarkerOptions().position(sydney).title(title))

mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(sydney,8.0f))

}

}

**user\_view\_design.xml :**

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

xmlns:app="http://schemas.android.com/apk/res-auto"

android:orientation="horizontal"

android:layout\_marginHorizontal="10dp">

<com.google.android.material.card.MaterialCardView

android:id="@+id/cardView"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

style="?attr/materialCardViewElevatedStyle"

android:layout\_marginVertical="10dp"

android:layout\_marginHorizontal="5dp"

app:cardElevation="5dp"

app:cardCornerRadius="10dp">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal">

<ImageView

android:id="@+id/icon"

android:layout\_width="45dp"

android:layout\_height="45dp"

android:padding="7dp"

android:layout\_gravity="center"

android:layout\_marginStart="10dp"

android:src="@drawable/ic\_baseline\_person\_24"

android:background="@drawable/shape" />

<LinearLayout

android:layout\_width="0dp"

android:layout\_height="wrap\_content"

android:orientation="vertical"

android:layout\_margin="5dp"

android:layout\_weight="15">

<TextView

android:id="@+id/textViewName"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Medium Text"

android:textStyle="bold"

android:textSize="18sp"

android:padding="2dp" />

<TextView

android:id="@+id/textViewPhoneNo"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="TextView"

android:padding="2dp" />

<TextView

android:id="@+id/textViewEmail"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="TextView"

android:padding="2dp" />

<TextView

android:id="@+id/textViewAddress"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="TextView"

android:padding="2dp" />

</LinearLayout> <com.google.android.material.floatingactionbutton.FloatingActionButton

android:id="@+id/locationBtn"

android:layout\_width="45dp"

android:layout\_height="45dp"

android:layout\_gravity="center\_vertical"

app:srcCompat="@drawable/ic\_baseline\_location\_on\_24"

android:layout\_marginEnd="15dp"

app:fabCustomSize="45dp"

app:layout\_anchorGravity="center" />

</LinearLayout>

</com.google.android.material.card.MaterialCardView>

</LinearLayout>

**HttpRequest.kt :**

package com.example.madpractical10\_20012021015

import android.util.Log

import java.io.\*

import java.net.HttpURLConnection

import java.net.MalformedURLException

import java.net.ProtocolException

import java.net.URL

class HttpRequest {

private val TAG = "HttpRequest"

fun makeServiceCall(reqUrl: String?,token:String?=null): String? {

var response: String? = null

try {

val url = URL(reqUrl)

val conn = url.openConnection() as HttpURLConnection

if(token != null){

conn.setRequestProperty("Authorization","Bearer $token");

conn.setRequestProperty("Content-Type","application/json");

}

conn.requestMethod = "GET"

response = convertStreamToString(BufferedInputStream(conn.inputStream))

} catch (e: MalformedURLException) {

Log.e(TAG, "MalformedURLException: " + e.message)

} catch (e: ProtocolException) {

Log.e(TAG, "ProtocolException: " + e.message)

} catch (e: IOException) {

Log.e(TAG, "IOException: " + e.message)

} catch (e: Exception) {

Log.e(TAG, "Exception: " + e.message)

}

return response

}

private fun convertStreamToString(`is`: InputStream): String {

val reader = BufferedReader(InputStreamReader(`is`))

val sb = StringBuilder()

var line: String?

try {

while (reader.readLine().also { line = it } != null) {

sb.append(line).append('\n')

}

} catch (e: IOException) {

e.printStackTrace()

} finally {

try {

`is`.close()

} catch (e: IOException) {

e.printStackTrace()

}

}

return sb.toString()

}

}

**Person.kt :**

package com.example.madpractical10\_20012021015

import org.json.JSONObject

import java.io.Serializable

class Person (jsonObject: JSONObject) :Serializable {

var id:String

var Name: String

var EmailId: String

var PhoneNo: String

var Address: String

var Latitude: Double

var Longitude:Double

init {

id = jsonObject.getString("id")

EmailId = jsonObject.getString("email")

PhoneNo = jsonObject.getString("phone")

val profileJson = jsonObject.getJSONObject("profile")

Name = profileJson.getString("name")

Address = profileJson.getString("address")

val locationJson = profileJson.getJSONObject("location")

Latitude = locationJson.getDouble("lat")

Longitude = locationJson.getDouble("long")

}

override fun toString(): String {

return "$Name\n$PhoneNo\n$EmailId\n$Address\nlat:$Latitude\nlog:$Longitude"

}

}

**PersonViewAdapter.kt :**

package com.example.madpractical10\_20012021015

import org.json.JSONObject

import java.io.Serializable

class Person (jsonObject: JSONObject) :Serializable {

var id:String

var Name: String

var EmailId: String

var PhoneNo: String

var Address: String

var Latitude: Double

var Longitude:Doublepackage com.example.madpractical10\_20012011059

import android.content.Context

import android.content.Intent

import android.view.LayoutInflater

import android.view.ViewGroup

import android.widget.Toast

import androidx.recyclerview.widget.RecyclerView

import com.example.madpractical10\_20012021015.databinding.UserViewDesignBinding

import java.io.Serializable

class PersonViewAdapter (private val context: Context, private val array:ArrayList<Person>):

RecyclerView.Adapter<PersonViewAdapter.PersonViewHolder>() {

inner class PersonViewHolder(val binding: UserViewDesignBinding): RecyclerView.ViewHolder(binding.root)

override fun onCreateViewHolder(parent: ViewGroup, viewType: Int): PersonViewHolder {

val binding = UserViewDesignBinding.inflate(LayoutInflater.from(parent.context), parent, false)

return PersonViewHolder(binding)

}

override fun onBindViewHolder(holder: PersonViewHolder, position: Int) {

with(holder){

with(array[position]){

binding.textViewPhoneNo.text = this.PhoneNo

binding.textViewName.text = this.Name

binding.textViewEmail.text = this.EmailId

binding.textViewAddress.text = this.Address

val obj = this as Serializable

binding.locationBtn.setOnClickListener {

Intent(this@PersonViewAdapter.context, MapsActivity::class.java).apply {

putExtra("Object",obj)

this@PersonViewAdapter.context.startActivity(this)

}

//Toast.makeText(this@PersonAdapter.context, "Clicked on "+binding.textViewName+", Location: Lat:"+this.Latitude+"Long:"+this.Longitude, Toast.LENGTH\_SHORT).show()

}

}

}

}

override fun getItemCount(): Int {

return array.size

}

}

init {

id = jsonObject.getString("id")

EmailId = jsonObject.getString("email")

PhoneNo = jsonObject.getString("phone")

val profileJson = jsonObject.getJSONObject("profile")

Name = profileJson.getString("name")

Address = profileJson.getString("address")

val locationJson = profileJson.getJSONObject("location")

Latitude = locationJson.getDouble("lat")

Longitude = locationJson.getDouble("long")

}

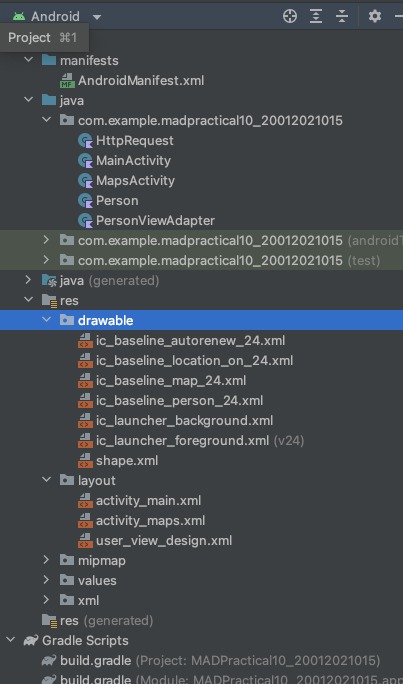
override fun toString(): String {

return "$Name\n$PhoneNo\n$EmailId\n$Address\nlat:$Latitude\nlog:$Longitude"

}

}

**Structure Tree :**



**Output :**

