**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.**

**To Generate JSON Data, Refer: https://app.json-generator.com/**

**1. Create MainActivity according to below UI design. 2. Use link generated from website for JSON Data**

1. **Create MapActivity by using this instructions.**
2. **Create Class Person with member Variables like id, Name, Phone No, Email Id, Address, Latitude, Longitude. This class should be inherited from Serializable class.**
3. **Generate JSON data format according to below image.**
4. **Use RecyclerView or ListView Adapter**
5. **Add Internet Permission in Manifest file**
6. **Create Class HttpRequest for communicating with Web URL**

**Code:**

**MainActivity.kt:**

package com.example.mad\_practical\_10\_21012021003

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(iss : InputStream): String { val reader = BufferedReader(InputStreamReader(iss))

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 {

iss.close()

} catch (e: IOException) { e.printStackTrace()

}

}

return sb.toString()

}

}

**HttpRequest.kt:**

package com.example.mad\_practical\_10\_21012021003

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(iss : InputStream): String { val reader = BufferedReader(InputStreamReader(iss))

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 { iss.close()

} catch (e: IOException) { e.printStackTrace()

}

}

return sb.toString()

} }

**MapsActivity:**

package com.example.mad\_practical\_10\_21012021003 import androidx.appcompat.app.AppCompatActivity import android.os.Bundle

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.mad\_practical\_10\_21012021003.databinding.ActivityMapsBinding

class MapsActivity : AppCompatActivity(), OnMapReadyCallback {

private lateinit var mMap: GoogleMap private lateinit var binding: ActivityMapsBinding private var lat:Double = 0.0 private var log:Double = 0.0 private var title = ""

override fun onCreate(savedInstanceState: Bundle?) { super.onCreate(savedInstanceState)

binding = ActivityMapsBinding.inflate(*layoutInflater*) setContentView(binding.root)

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

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

lat = obj.latitude log = obj.longitude title = obj.name

// 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)

}

override fun onMapReady(googleMap: GoogleMap) { mMap = googleMap

// Add a marker in Sydney and move the camera

val sydney = LatLng(lat, log ) mMap.addMarker(MarkerOptions().position(sydney).title(title)) mMap.moveCamera(CameraUpdateFactory.newLatLng(sydney))

} } **Person.kt:**

package com.example.mad\_practical\_10\_21012021003

import org.json.JSONObject

import java.io.Serializable

class Person(var id:String, var name:String, var emailId:String, var phoneNo:String, var address:String, var latitude:Double,

var longitude: Double):Serializable {

constructor(jsonObject:JSONObject):this("","","","","",0.0,0.0) {

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")

} }

**PersonAdapter.kt:**

package com.example.mad\_practical\_10\_21012021003

import android.content.Context import android.content.Intent import android.view.LayoutInflater import android.view.View import android.view.ViewGroup import android.widget.ArrayAdapter import android.widget.Button import android.widget.TextView

import com.google.android.material.button.MaterialButton

import java.util.ArrayList

class PersonAdapter(context:Context,val

array:ArrayList<Person>):ArrayAdapter<Person>(context,0,array) { override fun getView(position: Int, convertView: View?, parent: ViewGroup): View {

val view =

LayoutInflater.from(parent.*context*).inflate(R.layout.*person\_item*,parent,false) val person\_data = array.get(position)

view.findViewById<TextView>(R.id.*textView\_name*).*text*=person\_data.name view.findViewById<TextView>(R.id.*textView\_no*).*text*=person\_data.phoneNo view.findViewById<TextView>(R.id.*textView\_email*).*text*=person\_data.emailId view.findViewById<TextView>(R.id.*textView\_address*).*text*=person\_data.address view.findViewById<MaterialButton>(R.id.*btn\_location*).setOnClickListener **{** Intent(parent.*context*,MapsActivity::class.java).putExtra("Object",person\_data).apply **{** *context*.startActivity(this) **}**

**}**

return view

}

}

**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">

<ListView android:id="@+id/listview\_main" android:layout\_width="match\_parent" android:layout\_height="match\_parent" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent">

</ListView>

<com.google.android.material.floatingactionbutton.FloatingActionButton android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:id="@+id/btn\_autorenew" android:src="@drawable/baseline\_autorenew\_24" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" android:layout\_marginBottom="20dp"

android:layout\_marginEnd="20dp"/>

</androidx.constraintlayout.widget.ConstraintLayout>

**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" />

**Activity\_person\_item.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:layout\_editor\_absoluteX="0dp" tools:layout\_editor\_absoluteY="15dp">

<com.google.android.material.card.MaterialCardView android:id="@+id/materialCardView" android:layout\_width="match\_parent" android:layout\_height="wrap\_content" app:cardCornerRadius="20dp" app:cardElevation="20dp"

app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent">

<androidx.constraintlayout.widget.ConstraintLayout android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:padding="20dp"> <com.google.android.material.button.MaterialButton android:id="@+id/btn\_person" style="?materialIconButtonFilledStyle" android:layout\_width="60dp" android:layout\_height="60dp" android:layout\_marginStart="15dp"

android:backgroundTint="@color/cardview\_dark\_background"

android:drawableTint="@color/white" app:icon="@drawable/baseline\_person\_24"

app:iconGravity="textStart" app:iconSize="30dp" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent" />

<TextView android:id="@+id/textView\_name" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_marginStart="20dp"

android:text="Sujal " android:textSize="20dp"

android:textStyle="bold"

app:layout\_constraintBottom\_toTopOf="@+id/textView\_no" app:layout\_constraintStart\_toEndOf="@+id/btn\_person" app:layout\_constraintTop\_toTopOf="parent" />

<TextView android:id="@+id/textView\_no" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="+91 9558297717" app:layout\_constraintBottom\_toTopOf="@+id/textView\_email" app:layout\_constraintStart\_toStartOf="@+id/textView\_name" app:layout\_constraintTop\_toBottomOf="@+id/textView\_name" />

<TextView android:id="@+id/textView\_email" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:text="sujalpatel1882@gmail.com" app:layout\_constraintBottom\_toTopOf="@+id/textView\_address" app:layout\_constraintStart\_toStartOf="@+id/textView\_name" app:layout\_constraintTop\_toBottomOf="@+id/textView\_no" /> <TextView android:id="@+id/textView\_address" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"

android:text="A-2 swastic socity \nsaktinath,bharuch,392001" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintStart\_toStartOf="@+id/textView\_no" app:layout\_constraintTop\_toBottomOf="@+id/textView\_email" />

<com.google.android.material.button.MaterialButton android:id="@+id/btn\_location" style="?materialIconButtonFilledStyle" android:layout\_width="60dp" android:layout\_height="60dp" android:layout\_marginEnd="15dp" android:backgroundTint="#0000ff" android:drawableTint="@color/white" app:icon="@drawable/baseline\_location\_on\_24"

app:iconGravity="textStart" app:iconSize="30dp" app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintTop\_toTopOf="parent" /> </androidx.constraintlayout.widget.ConstraintLayout>

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

<com.google.android.material.divider.MaterialDivider android:layout\_width="wrap\_content" android:layout\_height="10dp"

app:layout\_constraintTop\_toBottomOf="@+id/materialCardView"

app:layout\_constraintStart\_toStartOf="parent" app:dividerColor="@color/white">

</com.google.android.material.divider.MaterialDivider>

</androidx.constraintlayout.widget.ConstraintLayout>

**Output:**

