

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.

Submitted By: chaudhari Yogita
Enrollment number: 21012012004



**Ganpat
University**

॥ विद्यया समाजोत्कर्षः ॥

**U.V. Patel
College of
Engineering**

**Department of Computer
Engineering/Information Technology**

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/listView1"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        app:layoutManager="androidx.recyclerview.widget.LinearLayoutManager"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:layout_marginHorizontal="10dp"
        android:layout_marginBottom="60dp"
        android:layout_marginTop="75dp"
        app:layout_constraintBottom_toBottomOf="parent"
    >
    </androidx.recyclerview.widget.RecyclerView>
    <com.google.android.material.floatingactionbutton.FloatingActionButton
        android:id="@+id/fab"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="60dp"
        android:layout_marginEnd="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        android:src="@drawable/ic_baseline_sync_24"/>
</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" />
```

person_item_view.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">
    <com.google.android.material.card.MaterialCardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        style="?attr/materialCardViewElevatedStyle"
    >
    <androidx.constraintlayout.widget.ConstraintLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent">
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent">

        </LinearLayout>
        <ImageView
            android:id="@+id/imageView"
            android:layout_gravity="center"
            android:layout_width="48dp"
            android:layout_height="48dp"
            android:padding="10dp"
            android:src="@drawable/ic_round_person_24"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintEnd_toStartOf="@id/imageView"
            app:layout_constraintTop_toTopOf="parent"
            app:layout_constraintBottom_toBottomOf="parent"
        />
        <LinearLayout
            android:id="@+id/linear_content"
            android:layout_margin="10dp"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            app:layout_constraintStart_toEndOf="@id/imageView"
            app:layout_constraintTop_toTopOf="parent"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toStartOf="@id/button_map"
            android:orientation="vertical">
```

```
<TextView
    android:id="@+id/textView_name"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="18sp"
    android:textStyle="bold"
    android:text="Guerra Rodgers"/>
<TextView
    android:id="@+id/textView_phone_no"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="+919289635723" />
<TextView
    android:id="@+id/textView_email"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="guerra_rodgers@gnu.ac.in" />
<TextView
    android:id="@+id/textView_address"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="88 College Place, Umapine, Oregon" />

</LinearLayout>
<ImageButton
    android:id="@+id/button_map"
    android:layout_gravity="center"
    android:layout_width="60dp"
    android:layout_height="60dp"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintStart_toEndOf="@id/linear_content"
    app:layout_constraintEnd_toEndOf="parent"
    style="?attr/materialIconButtonFilledStyle"
    android:src="@drawable/ic_baseline_location_on_24"
    android:layout_marginEnd="10dp"
/>
</androidx.constraintlayout.widget.ConstraintLayout>
</com.google.android.material.card.MaterialCardView>
</LinearLayout>
```

HttpRequest.kt

```
package com.example.madpractical10_21012012004

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()
    }
}
```

MainActivity.kt

```
Package com.example.madpractical10_21012012004

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import androidx.core.view.WindowCompat
import com.example.madpractical10_21012022022.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.fab.setOnClickListener {
            CoroutineScope(Dispatchers.IO).launch {
                try {
                    val data = HttpRequest().makeServiceCall(
                        "https://api.json-generator.com/templates/qjeKFdjKXCdK/data",
                        "dchj8v1b6qqdjz bqood1jgpachyfzlw58r540gru")
                    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.listView1.adapter = PersonAdapter(this, personList)
        } catch (ee: JSONException) { ee.printStackTrace() }
    }
}
```

MapsActivity.kt

```
package com.example.madpractical10_21012012004

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.util.Log
import com.example.madpractical10_21012012004.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)
        val mapFragment = supportFragmentManager
            .findFragmentById(R.id.map) as SupportMapFragment
        mapFragment.getMapAsync(this)
    }

    override fun onMapReady(googleMap: GoogleMap) {
        mMap = googleMap
        val sydney = LatLng(lat, log)
        mMap.addMarker(MarkerOptions().position(sydney).title("Marker in Sydney"))
        mMap.moveCamera(CameraUpdateFactory.newLatLng(sydney))
    }
}
```

Person.kt

```
package com.example.madpractical10_21012012004

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"
    }
}
```


PersonAdapter.kt

```
package com.example.madpractical10_21012012004

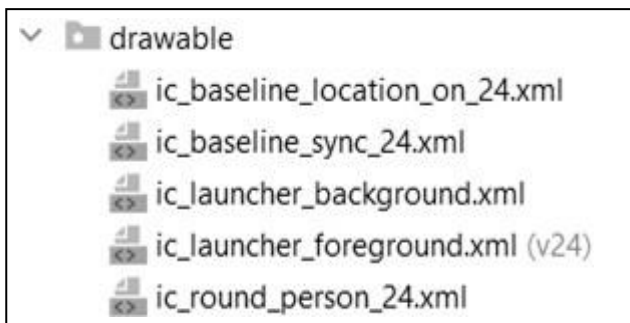
import android.content.Context
import android.content.Intent
import android.view.LayoutInflater
import android.view.ViewGroup
import androidx.recyclerview.widget.RecyclerView
import com.example.madpractical10_21012012004.databinding.PersonItemViewBinding
import java.io.Serializable

class PersonAdapter (private val context: Context, private val array:ArrayList<Person>):
    RecyclerView.Adapter<PersonAdapter.PersonViewHolder>() {
    inner class PersonViewHolder(val binding: PersonItemViewBinding):
        RecyclerView.ViewHolder(binding.root)
        override fun onCreateViewHolder(parent: ViewGroup, viewType: Int): PersonViewHolder {
            val binding = PersonItemViewBinding.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.buttonMap.setOnClickListener {
                        Intent(this@PersonAdapter.context, MapsActivity::class.java).apply {
                            putExtra("Object",obj)
                            this@PersonAdapter.context.startActivity(this)
                        }
                    }
                }
            }
        }
    }
    override fun getItemCount(): Int {
        return array.size
    }
}
```

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">
    <uses-permission android:name="android.permission.INTERNET"/>
    <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:supportRtl="true"
        android:theme="@style/Theme.MADPractical10_21012022022"
        tools:targetApi="31">
        <meta-data
            android:name="com.google.android.geo.API_KEY"
            android:value="AIzaSyC3T6FnhyH0hZ_vcrT2EtaQFwf0MSc7hh4" />
        <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>
```

Resources:



Practical: 10

Output:

