

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

Submitted By :- Krupa Patel
Enrollment number :- 21012021070



**Ganpat
University**

॥ विद्यया समाजोत्कर्षः ॥

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

Department of 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">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"        android:text="@string/app_name"
        android:textSize="20sp"
        android:textAppearance="?attr/textAppearanceHeadline6"
        app:layout_constraintStart_toStartOf="parent"    app:layout_constraintTop_toTopOf="parent"
    />

    <ListView
        android:id="@+id/listview_main"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintTop_toBottomOf="@+id/textView1"
        app:layout_constraintEnd_toEndOf="parent">

    </ListView>

    <com.google.android.material.floatingactionbutton.FloatingActionButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/autorenew_btn"
        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>
```

Practical:10

MainActivity.kt :-

```
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.ListView
import com.google.android.material.floatingactionbutton.FloatingActionButton
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

class MainActivity : AppCompatActivity() {    private
lateinit var personListView : ListView    override fun
onCreate(savedInstanceState: Bundle?) {
    super.onCreate(savedInstanceState)
    setContentView(R.layout.activity_main)
        val btn= findViewById<FloatingActionButton>(R.id.autorenew_btn)
    btn.setOnClickListener(){
        CoroutineScope(Dispatchers.IO).launch {
    try {
        val data = HttpRequest().makeServiceCall(
            "https://api.json-generator.com/templates/qjeKFdjKXCdK/data",
            "rbn0rerl1k0d3mcwgw7dva2xuwk780z1hxvyvrb1")
        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()) {
```

Practical:10

```
        val jsonObject = jsonArray[i] as JSONObject
    val person = Person(jsonObject)
    personList.add(person)
    }
    val personListView=findViewById<ListView>(R.id.listview_main)
    personListView.adapter = PersonAdapter(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: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"
    tools:ignore="MissingClass" />
```

MapsActivity.kt :-

```
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle import android.util.Log
import com.example.mad_practical_10_21012021070.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.BitmapDescriptorFactory import
com.google.android.gms.maps.model.LatLng import
com.google.android.gms.maps.model.MarkerOptions

class MapsActivity : AppCompatActivity(), OnMapReadyCallback {

    private lateinit var mMap: GoogleMap
    private lateinit var binding: ActivityMapsBinding
```

Practical:10

```
private var lat:Double = 0.0
private var log:Double = 0.0
private var title = ""
private val TAG = "MapsActivity"

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
    val mapFragment = supportFragmentManager
        .findFragmentById(R.id.map) as SupportMapFragment
    mapFragment.getMapAsync(this)
}

override fun onMapReady(googleMap: GoogleMap) {
    mMap = googleMap
    mMap.mapType = GoogleMap.MAP_TYPE_SATELLITE
    val sydney = LatLng(lat, log )
    mMap.addMarker(
        MarkerOptions().position(sydney)
        .title(title)
        .snippet(title)
        .icon(BitmapDescriptorFactory.fromResource(R.drawable.img))
    )
    mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(sydney,16.0f))
}
}
```

contact 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">
    <com.google.android.material.card.MaterialCardView
        android:id="@+id/materialCardView"
```

Practical:10

```
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/person_btn"
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" />
```

```
    <LinearLayout
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:orientation="vertical"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toStartOf="@+id/location_btn"
app:layout_constraintStart_toEndOf="@id/person_btn"
app:layout_constraintTop_toTopOf="parent">
```

```
    <TextView
android:id="@+id/name_textView"
android:layout_width="200dp"
android:layout_height="wrap_content"
android:layout_marginStart="10dp"
      android:text="John Gill"
android:textSize="20dp"
      android:textStyle="bold"
      app:layout_constraintBottom_toTopOf="@+id/number_textView"
app:layout_constraintStart_toEndOf="@+id/person_btn"
app:layout_constraintTop_toTopOf="parent" />
```

Practical:10

```
<TextView                android:id="@+id/number_textView"
android:layout_width="200dp"
android:layout_height="wrap_content"
android:layout_marginStart="10dp"                android:text="+91
7983356739"
app:layout_constraintBottom_toTopOf="@+id/email_textView"
app:layout_constraintStart_toStartOf="@+id/name_textView"
app:layout_constraintTop_toBottomOf="@+id/name_textView" />
```

```
<TextView                android:id="@+id/email_textView"
android:layout_width="200dp"
android:layout_height="wrap_content"
android:layout_marginStart="10dp"
android:text="john123@gmail.com"
app:layout_constraintBottom_toTopOf="@+id/address_textView"
app:layout_constraintStart_toStartOf="@+id/name_textView"
app:layout_constraintTop_toBottomOf="@+id/number_textView" />
```

```
<TextView                android:id="@+id/address_textView"
android:layout_width="200dp"
android:layout_height="wrap_content"
android:layout_marginStart="10dp"                android:text="S-2,
Someshwar Banglows, \nAhemdabad"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintStart_toStartOf="@+id/number_textView"
app:layout_constraintTop_toBottomOf="@+id/email_textView" />
```

```
</LinearLayout>
```

```
<com.google.android.material.button.MaterialButton
android:id="@+id/location_btn"
android:layout_width="60dp"
android:layout_height="60dp"
android:layout_marginEnd="4dp"
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>
```

Practical:10

```
</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>
```

Person.kt :-

```
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 :-

```
import android.annotation.SuppressLint
import android.content.Context
import android.content.Intent
import android.view.LayoutInflater
```

Practical:10

```
import android.view.View
import android.view.ViewGroup
import android.widget.AdapterView
import android.widget.TextView
import com.google.android.material.button.MaterialButton
import java.util.ArrayList

class PersonAdapter(context: Context, val Personarray : ArrayList<Person>):
    ArrayAdapter<Person>(context,0,Personarray) {    override fun getView(position: Int,
    convertView: View?, parent: ViewGroup): View {        val
    view=LayoutInflater.from(context).inflate(R.layout.contact_item, parent, false)
    view.findViewById<TextView>(R.id.name_textView).text = Personarray[position].name
    view.findViewById<TextView>(R.id.number_textView).text= Personarray[position].phoneNo
    view.findViewById<TextView>(R.id.email_textView).text= Personarray[position].emailId
    view.findViewById<TextView>(R.id.address_textView).text= Personarray[position].address
    view.findViewById<MaterialButton>(R.id.location_btn).setOnClickListener {
        Intent(context, MapsActivity::class.java).putExtra("Object",Personarray[position]).apply {
    context.startActivity(this) }
    }
    return view
    }
}
```

HttpRequest.kt :-

```
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) {
```

Practical:10

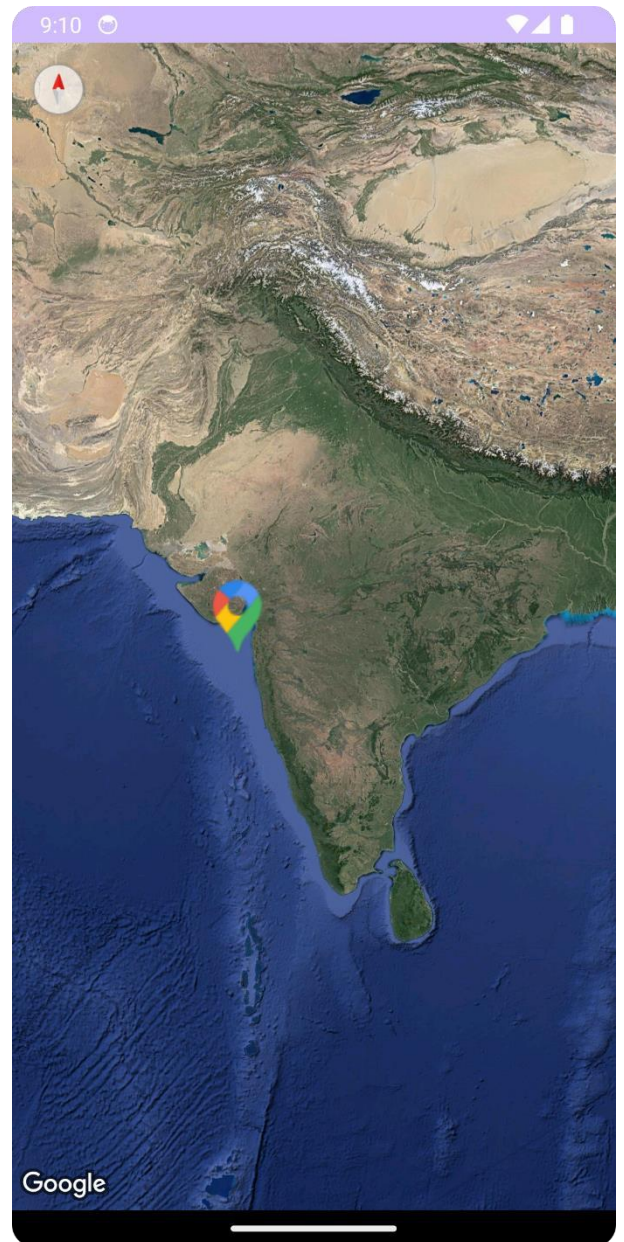
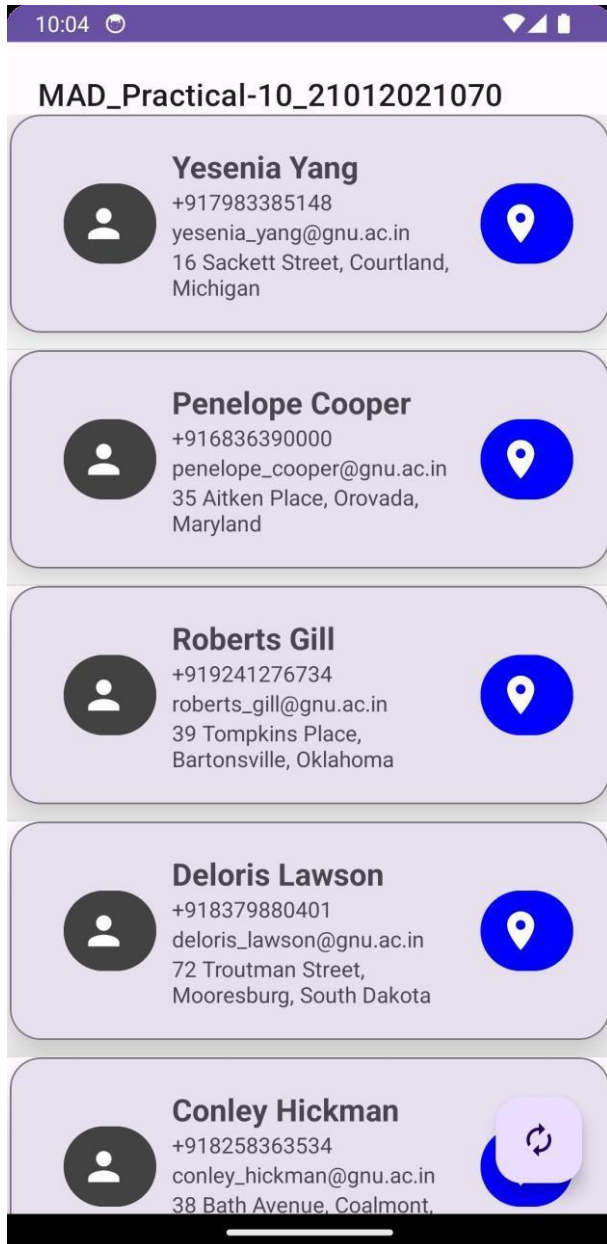
```
        Log.e(TAG, "MalformedURLException: " + e.message)
    } catch (e: ProtocolException) {
        Log.e(TAG, "ProtocolException: " + e.message)
    } catch (e: IOException) {
        Log.e(TAG, "IOException: " + e.message)
    } catch (e: Exception) {
        Log.e(TAG, "Exception:" + .message)
    }
    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()
}
}
```

AndroidManifest.xml :-

<pre><meta-data android:name="com.google.android.geo.API_KEY" android:value="AIzaSyBVgO1713xHQ9FVaLQiV1Pp0AiA3ndOckw" /></pre>
--

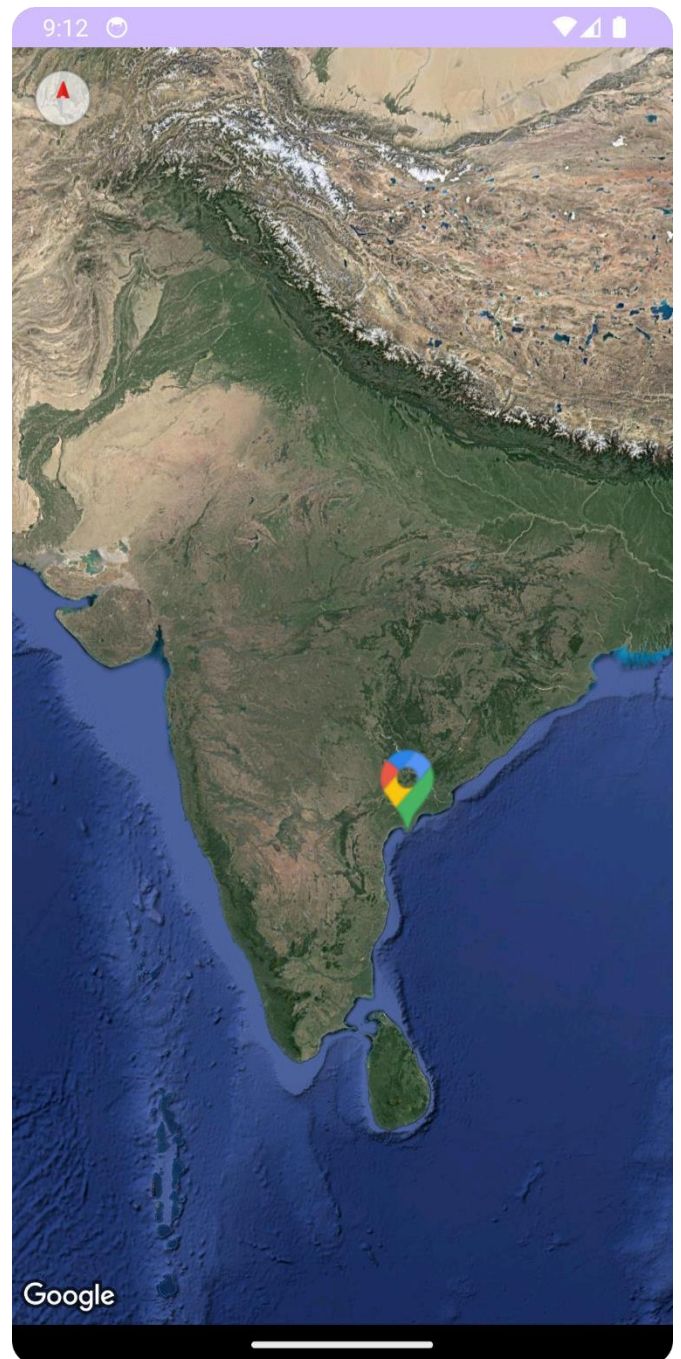
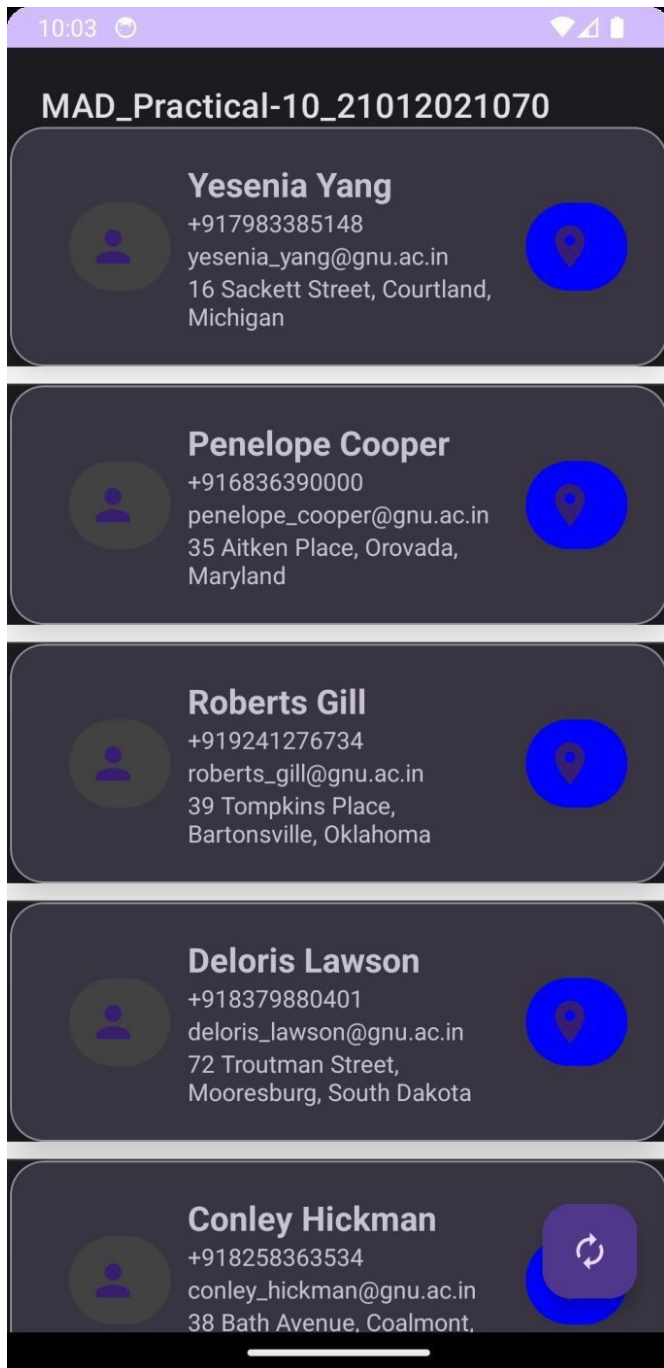
Practical:10

Output :-



LIGHT THEME

Practical:10



DARK THEME