PRACTICAL – 8

Create an application that will retrieve a JSON file, parse it and then display it into the List View.

<https://github.com/18mca8021/JSONParsing>

Activity\_main.xml

*<?*xml version="1.0" encoding="utf-8"*?>*<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <ListView  
 **android:id="@+id/list"  
 android:layout\_width="fill\_parent"  
 android:layout\_height="wrap\_content"** />  
  
</**RelativeLayout**>

MainActivity.java

**package** com.example.jsoneg;  
  
**import** androidx.appcompat.app.AppCompatActivity;  
  
**import** android.app.ProgressDialog;  
**import** android.os.AsyncTask;  
**import** android.os.Bundle;  
**import** android.util.Log;  
**import** android.widget.ListAdapter;  
**import** android.widget.ListView;  
**import** android.widget.SimpleAdapter;  
**import** android.widget.Toast;  
  
**import** org.json.JSONArray;  
**import** org.json.JSONException;  
**import** org.json.JSONObject;  
  
**import** java.util.ArrayList;  
**import** java.util.HashMap;  
  
**public class** MainActivity **extends** AppCompatActivity {  
 **private** String **TAG** = MainActivity.**class**.getSimpleName();  
  
 **private** ProgressDialog **pDialog**;  
 **private** ListView **lv**;  
  
 **private static** String *url* = **"https://api.androidhive.info/contacts/"**;  
  
 ArrayList<HashMap<String, String>> **contactList**;  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate( savedInstanceState );  
 setContentView( R.layout.***activity\_main*** );  
 **contactList** = **new** ArrayList<>();  
 **lv** = findViewById(R.id.***list***);  
 **new** GetContacts().execute();  
 }  
  
 **private class** GetContacts **extends** AsyncTask<Void, Void, Void> {  
  
 @Override  
 **protected void** onPreExecute() {  
 **super**.onPreExecute();  
  
 **pDialog** = **new** ProgressDialog(MainActivity.**this**);  
 **pDialog**.setMessage(**"Please wait..."**);  
 **pDialog**.setCancelable(**false**);  
 **pDialog**.show();  
  
 }  
  
 @Override  
 **protected** Void doInBackground(Void... arg0) {  
 HttpHandler sh = **new** HttpHandler();  
 String jsonStr = sh.makeServiceCall(*url*);  
 Log.*e*(**TAG**, **"Response from URL: "** + jsonStr);  
 **if** (jsonStr != **null**) {  
 **try** {  
 JSONObject jsonObj = **new** JSONObject(jsonStr);  
 JSONArray contacts = jsonObj.getJSONArray(**"contacts"**);  
 **for** (**int** i = 0; i < contacts.length(); i++) {  
 JSONObject c = contacts.getJSONObject(i);  
  
 String name = c.getString(**"name"**);  
 String email = c.getString(**"email"**);  
  
 JSONObject phone = c.getJSONObject(**"phone"**);  
 String mobile = phone.getString(**"mobile"**);  
  
 HashMap<String, String> contact = **new** HashMap<>();  
  
 contact.put(**"name"**, name);  
 contact.put(**"email"**, email);  
 contact.put(**"mobile"**, mobile);  
  
 **contactList**.add(contact);  
 }  
 } **catch** (**final** JSONException e) {  
 Log.*e*(**TAG**, **"Json parsing error: "** + e.getMessage());  
 runOnUiThread(**new** Runnable() {  
 @Override  
 **public void** run() {  
 Toast.*makeText*(getApplicationContext(),  
 **"Json parsing error: "** + e.getMessage(),  
 Toast.***LENGTH\_LONG***)  
 .show();  
 }  
 });  
  
 }  
 } **else** {  
 Log.*e*(**TAG**, **"Couldn't get json from server."**);  
 runOnUiThread(**new** Runnable() {  
 @Override  
 **public void** run() {  
 Toast.*makeText*(getApplicationContext(),  
 **"Couldn't get json from server. Check LogCat for possible errors!"**, Toast.***LENGTH\_LONG***).show();  
 }  
 });  
 }  
 **return null**;  
 }  
  
 @Override  
 **protected void** onPostExecute(Void result) {  
 **super**.onPostExecute(result);  
  
 **if** (**pDialog**.isShowing())  
 **pDialog**.dismiss();  
  
 ListAdapter adapter = **new** SimpleAdapter( MainActivity.**this**, **contactList**, R.layout.***list\_item***, **new** String[]  
 {**"name"**, **"email"**, **"mobile"**}, **new int**[]{R.id.***name***, R.id.***email***, R.id.***mobile***});  
  
 **lv**.setAdapter(adapter);  
 }  
  
 }  
}

list\_item.xml

*<?***xml version="1.0" encoding="utf-8"***?>*<**LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="fill\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical"  
 android:padding="@dimen/activity\_horizontal\_margin"**>  
  
 <**TextView  
 android:id="@+id/name"  
 android:layout\_width="fill\_parent"  
 android:layout\_height="wrap\_content"  
 android:paddingBottom="2dip"  
 android:paddingTop="6dip"  
 android:textColor="@color/colorPrimaryDark"  
 android:textSize="16sp"  
 android:textStyle="bold"** />  
  
 <**TextView  
 android:id="@+id/email"  
 android:layout\_width="fill\_parent"  
 android:layout\_height="wrap\_content"  
 android:paddingBottom="2dip"  
 android:textColor="#039BE5"** />  
  
 <**TextView  
 android:id="@+id/mobile"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:textColor="#E53935"  
 android:textStyle="bold"** />  
  
</**LinearLayout**>

HttpHandler.java

**package** com.example.jsoneg;  
  
**import** android.util.Log;  
  
**import** java.io.BufferedInputStream;  
**import** java.io.BufferedReader;  
**import** java.io.IOException;  
**import** java.io.InputStream;  
**import** java.io.InputStreamReader;  
**import** java.net.HttpURLConnection;  
**import** java.net.MalformedURLException;  
**import** java.net.ProtocolException;  
**import** java.net.URL;  
  
**public class** HttpHandler {  
  
 **private static final** String ***TAG*** = HttpHandler.**class**.getSimpleName();  
  
 **public** HttpHandler() {  
 }  
  
 **public** String makeServiceCall(String reqUrl) {  
 String response = **null**;  
 **try** {  
 URL url = **new** URL(reqUrl);  
 HttpURLConnection conn = (HttpURLConnection) url.openConnection();  
 conn.setRequestMethod(**"GET"**);  
 *// read the response* InputStream in = **new** BufferedInputStream(conn.getInputStream());  
 response = convertStreamToString(in);  
 } **catch** (MalformedURLException e) {  
 Log.*e*(***TAG***, **"MalformedURLException: "** + e.getMessage());  
 } **catch** (ProtocolException e) {  
 Log.*e*(***TAG***, **"ProtocolException: "** + e.getMessage());  
 } **catch** (IOException e) {  
 Log.*e*(***TAG***, **"IOException: "** + e.getMessage());  
 } **catch** (Exception e) {  
 Log.*e*(***TAG***, **"Exception: "** + e.getMessage());  
 }  
 **return** response;  
 }  
  
 **private** String convertStreamToString(InputStream is) {  
 BufferedReader reader = **new** BufferedReader(**new** InputStreamReader(is));  
 StringBuilder sb = **new** StringBuilder();  
  
 String line;  
 **try** {  
 **while** ((line = reader.readLine()) != **null**) {  
 sb.append(line).append(**'\n'**);  
 }  
 } **catch** (IOException e) {  
 e.printStackTrace();  
 } **finally** {  
 **try** {  
 is.close();  
 } **catch** (IOException e) {  
 e.printStackTrace();  
 }  
 }  
 **return** sb.toString();  
 }  
}

Output

