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Assignment No 12

OkHTTP

- **Okhttp** is an open source project designed to be an efficient HTTP client. It supports the SPDY protocol. SPDY is the basis for HTTP 2.0 and allows multiple HTTP requests to be multiplexed over one socket connection.
- If you are using Maven or Gradle as build system you can simply add a dependency to group ID com.squareup.okhttp, artifactId, okhttp and the version 2.5.0 (current as of this writing).
- HTTP is the way modern applications network. It's how we exchange data & media. Doing HTTP efficiently makes your stuff load faster and saves bandwidth.

OkHttp is an HTTP client that's efficient by default:

- HTTP/2 support allows all requests to the same host to share a socket.
- Connection pooling reduces request latency (if HTTP/2 isn't available).
- Transparent GZIP shrinks download sizes.
- Response caching avoids the network completely for repeat requests.
- OkHttp perseveres when the network is troublesome: it will silently recover from common connection problems. If your service has multiple IP addresses OkHttp will attempt alternate addresses if the first connect fails. This is necessary for IPv4+IPv6 and services hosted in redundant data centers. OkHttp supports modern TLS features (TLS 1.3, ALPN, certificate pinning). It can be configured to fall back for broad connectivity.
- Using OkHttp is easy. Its request/response API is designed with fluent builders and immutability. It supports both synchronous blocking calls and async calls with callbacks.

In this Project we required following Dependency in your build.gradle:

```
implementation 'com.squareup.okhttp3:okhttp:4.9.0'
```

Don't forget to take permission of Internet Connection. ? ?

```
<uses-permission android:name="android.permission.INTERNET" />
<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
<uses-permission android:name="android.permission.ACCESS_WIFI_STATE" />
```

To Check Internet InternetConnection.java:

```
/** CHECK WHETHER INTERNET CONNECTION IS AVAILABLE OR NOT */
public static boolean checkConnection(@NonNull Context context) {
    return ((ConnectivityManager) context.getSystemService
        (Context.CONNECTIVITY_SERVICE)).getActiveNetworkInfo() != null;
}
```

Model Class.java

```
public class MyDataModel {

    private int id;

    private String name;

    private String image;

    private String email;

    private String phone;

    public int getId() {
        return id;
    }

    public void setId(int id) {
        this.id = id;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public String getImage() {
        return image;
    }

    public void setImage(String image) {
        this.image = image;
    }

    public String getEmail() {
        return email;
    }

    public void setEmail(String email) {
        this.email = email;
    }
}
```

```

    public String getPhone() {
        return phone;
    }

    public void setPhone(String phone) {
        this.phone = phone;
    }
}

```

item.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="wrap_content"
    android:orientation="vertical">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:layout_margin="5dp"
        android:src="@mipmap/ic_launcher" />

    <LinearLayout
        android:layout_width="match_parent"
        android:orientation="vertical"
        android:layout_centerVertical="true"
        android:layout_height="wrap_content"
        android:layout_toRightOf="@+id/imageView">

        <TextView
            android:id="@+id/textViewName"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:textAppearance="?android:textAppearanceLarge"
            tools:text="TextView" />

        <TextView
            android:id="@+id/textViewEmail"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:textAppearance="?android:textAppearanceMedium"
            tools:text="TextView" />

    </LinearLayout>
</RelativeLayout>

```

Activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.coordinatorlayout.widget.CoordinatorLayout
    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:id="@+id/parentLayout"
    android:layout_height="match_parent"
    android:fitsSystemWindows="true"
    tools:context=".MainActivity">

    <com.google.android.material.appbar.AppBarLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:theme="@style/AppTheme.AppBarOverlay">

        <androidx.appcompat.widget.Toolbar
            android:id="@+id/toolbar"
            android:layout_width="match_parent"
            android:layout_height="?attr/actionBarSize"
            android:background="?attr/colorPrimary"
            app:popupTheme="@style/AppTheme.PopupOverlay" />

    </com.google.android.material.appbar.AppBarLayout>

    <ListView app:layout_behavior="@string/appbar_scrolling_view_behavior"
        android:id="@+id/listView"
        android:layout_width="fill_parent"
        android:layout_height="match_parent" />

    <com.google.android.material.floatingactionbutton.FloatingActionButton
        android:id="@+id/fab"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="bottom|end"
        android:layout_margin="@dimen/fab_margin"
        android:src="@android:drawable/stat_sys_download" />

</androidx.coordinatorlayout.widget.CoordinatorLayout>
```

MAdapter.java

```
package com.androidbuts.jsonparsing.adapter;

import android.content.Context;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.ArrayAdapter;
import android.widget.ImageView;
import android.widget.RelativeLayout;
import android.widget.TextView;

import com.androidbuts.jsonparsing.R;
import com.androidbuts.jsonparsing.model.MyDataModel;
```

```

import com.squareup.picasso.Picasso;

import java.util.List;

public class MyArrayAdapter extends ArrayAdapter<MyDataModel> {

    List<MyDataModel> modellist;
    Context context;
    private LayoutInflater mInflater;

    // Constructors
    public MyArrayAdapter(Context context, List<MyDataModel> objects) {
        super(context, 0, objects);
        this.context = context;
        this.mInflater = LayoutInflater.from(context);
        modellist = objects;
    }

    @Override
    public MyDataModel getItem(int position) {
        return modellist.get(position);
    }

    @Override
    public View getView(int position, View convertView, ViewGroup parent) {
        final ViewHolder vh;
        if (convertView == null) {
            View view = mInflater.inflate(R.layout.layout_row_view, parent,
false);
            vh = ViewHolder.create((RelativeLayout) view);
            view.setTag(vh);
        } else {
            vh = (ViewHolder) convertView.getTag();
        }

        MyDataModel item = getItem(position);

        vh.textViewName.setText(item.getName());
        vh.textViewEmail.setText(item.getEmail());

        Picasso.with(context).load(item.getImage()).placeholder(R.mipmap.ic_launcher).error(R.mipmap.ic_launcher).into(vh.imageView);

        return vh.rootView;
    }

    /**
     * ViewHolder class for layout.<br />
     * <br />
     * Auto-created on 2016-01-05 00:50:26 by Android Layout Finder
     * (http://www.buzzingandroid.com/tools/android-layout-finder)
     */
    private static class ViewHolder {
        public final RelativeLayout rootView;
        public final ImageView imageView;
        public final TextView textViewName;
        public final TextView textViewEmail;

        private ViewHolder(RelativeLayout rootView, ImageView imageView, TextView

```

```

textViewName, TextView textViewEmail) {
    this.rootView = rootView;
    this.imageView = imageView;
    this.textViewName = textViewName;
    this.textViewEmail = textViewEmail;
}

    public static ViewHolder create(RelativeLayout rootView) {
        ImageView imageView = (ImageView)
rootView.findViewById(R.id.imageView);
        TextView textViewName = (TextView)
rootView.findViewById(R.id.textViewName);
        TextView textViewEmail = (TextView)
rootView.findViewById(R.id.textViewEmail);
        return new ViewHolder(rootView, imageView, textViewName,
textViewEmail);
    }
}
}

```

JSONParser.Java

```

package com.androidbuts.jsonparsing.parser;

import android.util.Log;

import androidx.annotation.NonNull;

import com.squareup.okhttp.FormEncodingBuilder;
import com.squareup.okhttp.OkHttpClient;
import com.squareup.okhttp.Request;
import com.squareup.okhttp.RequestBody;
import com.squareup.okhttp.Response;

import org.json.JSONException;
import org.json.JSONObject;

import java.io.IOException;

public class JSONParser {

    /**
     * URLS
     */
    private static final String MAIN_URL = "http://www.json-
generator.com/api/json/get/claZLRqTiq?indent=2";

    /**
     * TAGs Defined Here...
     */
    public static final String TAG = "TAG";

    /**

```

```

        * Key to Send
        */
private static final String KEY_USER_ID = "user_id";

/**
 * Response
 */
private static Response response;

/
*
* @return JSON Object
*/
public static JSONObject getDataFromWeb() {
    try {
        OkHttpClient client = new OkHttpClient();
        Request request = new Request.Builder()
            .url(MAIN_URL)
            .build();
        response = client.newCall(request).execute();
        return new JSONObject(response.body().string());
    } catch (@NonNull IOException | JSONException e) {
        Log.e(TAG, "" + e.getLocalizedMessage());
    }
    return null;
}

/**
 * Get Particular Record
 *
 * @param userId UserId
 * @return JSONObject
 */
public static JSONObject getDataById(int userId) {

    try {
        OkHttpClient client = new OkHttpClient();

        RequestBody formBody = new FormEncodingBuilder()
            .add(KEY_USER_ID, Integer.toString(userId))
            .build();

        Request request = new Request.Builder()
            .url(MAIN_URL)
            .post(formBody)
            .build();

        response = client.newCall(request).execute();
        return new JSONObject(response.body().string());

    } catch (IOException | JSONException e) {
        Log.e(TAG, "" + e.getLocalizedMessage());
    }
    return null;
}
}

```

Keys.java

```
//keys to acces the data
public class Keys {

    public static final String KEY_CONTACTS = "contacts";
    public static final String KEY_NAME = "name";
    public static final String KEY_PHONE = "phone";
    public static final String KEY_MOBILE = "mobile";
    public static final String KEY_PROFILE_PIC = "profile_pic";
    public static final String KEY_EMAIL = "email";

}
```

MainActivity.java

```
public class MainActivity extends AppCompatActivity {

    private ListView listView;
    private ArrayList<MyDataModel> list;
    private MyArrayAdapter adapter;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Toolbar toolbar = (Toolbar) findViewById(R.id.toolbar);
        setSupportActionBar(toolbar);

        /**
         * Array List for Binding Data from JSON to this List
         */
        list = new ArrayList<>();
        /**
         * Binding that List to Adapter
         */
        adapter = new MyArrayAdapter(this, list);

        /**
         * Getting List and Setting List Adapter
         */
        listView = (ListView) findViewById(R.id.listView);
        listView.setAdapter(adapter);
        listView.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int
position, long id) {
                Snackbar.make(findViewById(R.id.parentLayout),
list.get(position).getName() + " => " + list.get(position).getPhone(),
Snackbar.LENGTH_LONG).show();
            }
        });

        /**
         * Just to know onClick and Printing Hello Toast in Center.
         */
    }
}
```



```

        Toast toast = Toast.makeText(getApplicationContext(), "Click on
FloatingActionButton to Load JSON", Toast.LENGTH_LONG);
        toast.setGravity(Gravity.CENTER, 0, 0);
        toast.show();

        FloatingActionButton fab = (FloatingActionButton) findViewById(R.id.fab);
        fab.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(@NonNull View view) {

                /**
                 * Checking Internet Connection
                 */
                if (InternetConnection.checkConnection(getApplicationContext())) {
                    new GetDataTask().execute();
                } else {
                    Snackbar.make(view, "Internet Connection Not Available",
Snackbar.LENGTH_LONG).show();
                }
            }
        });
    }

    /**
     * Creating Get Data Task for Getting Data From Web
     */
    class GetDataTask extends AsyncTask<Void, Void, Void> {

        ProgressDialog dialog;

        @Override
        protected void onPreExecute() {
            super.onPreExecute();
            /**
             * Progress Dialog for User Interaction
             */
            dialog = new ProgressDialog(MainActivity.this);
            dialog.setTitle("Hey Wait Please...");
            dialog.setMessage("I am getting your JSON");
            dialog.show();
        }

        @Nullable
        @Override
        protected Void doInBackground(Void... params) {

            /**
             * Getting JSON Object from Web Using okHttp
             */
            JSONObject jsonObject = JSONParser.getDataFromWeb();

            try {
                /**
                 * Check Whether Its NULL???
                 */
                if (jsonObject != null) {
                    /**
                     * Check Length...
                     */

```

```

        if(jsonObject.length() > 0) {
            /**
             * Getting Array named "contacts" From MAIN Json Object
             */
            JSONArray array =
jsonObject.getJSONArray(Keys.KEY_CONTACTS);

            /**
             * Check Length of Array...
             */
            int lenArray = array.length();
            if(lenArray > 0) {
                for(int jIndex = 0; jIndex < lenArray; jIndex++) {

                    /**
                     * Creating Every time New Object
                     * and
                     * Adding into List
                     */
                    MyDataModel model = new MyDataModel();

                    /**
                     * Getting Inner Object from contacts array...
                     * and
                     * From that We will get Name of that Contact
                     */
                    JSONObject innerObject =
array.getJSONObject(jIndex);
                    String name =
innerObject.getString(Keys.KEY_NAME);
                    String email =
innerObject.getString(Keys.KEY_EMAIL);
                    String image =
innerObject.getString(Keys.KEY_PROFILE_PIC);

                    /**
                     * Getting Object from Object "phone"
                     */
                    JSONObject phoneObject =
innerObject.getJSONObject(Keys.KEY_PHONE);
                    String phone =
phoneObject.getString(Keys.KEY_MOBILE);

                    model.setName(name);
                    model.setEmail(email);
                    model.setPhone(phone);
                    model.setImage(image);

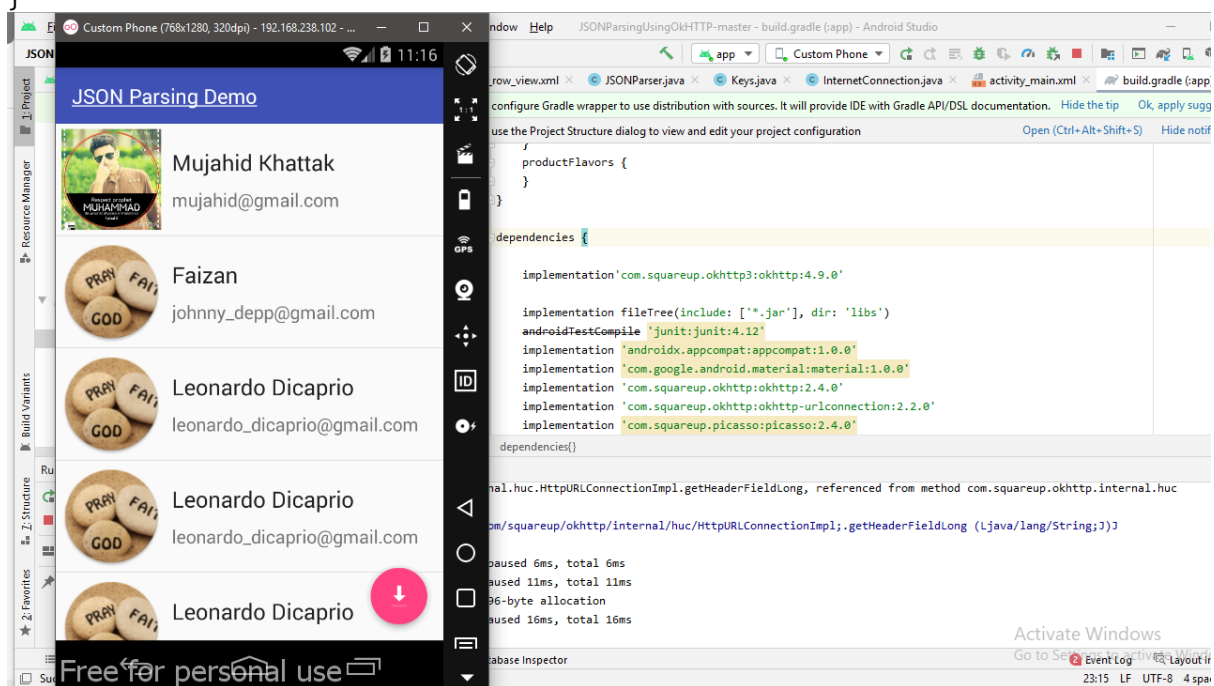
                    /**
                     * Adding name and phone concatenation in List...
                     */
                    list.add(model);
                }
            }
        } else {
    
```

```

    } catch (JSONException je) {
        Log.i(JSONParser.TAG, "" + je.getLocalizedMessage());
    }
    return null;
}

@Override
protected void onPostExecute(Void aVoid) {
    super.onPostExecute(aVoid);
    dialog.dismiss();
    /**
     * Checking if List size if more than zero then
     * Update ListView
     */
    if(list.size() > 0) {
        adapter.notifyDataSetChanged();
    } else {
        Snackbar.make(findViewById(R.id.parentLayout), "No Data Found",
        Snackbar.LENGTH_LONG).show();
    }
}
}
}

```



Now Run The Emulator

OutPut:

