

# CS355

## Mobile Application Development การพัฒนาโปรแกรมประยุกต์สำหรับอุปกรณ์พกพา



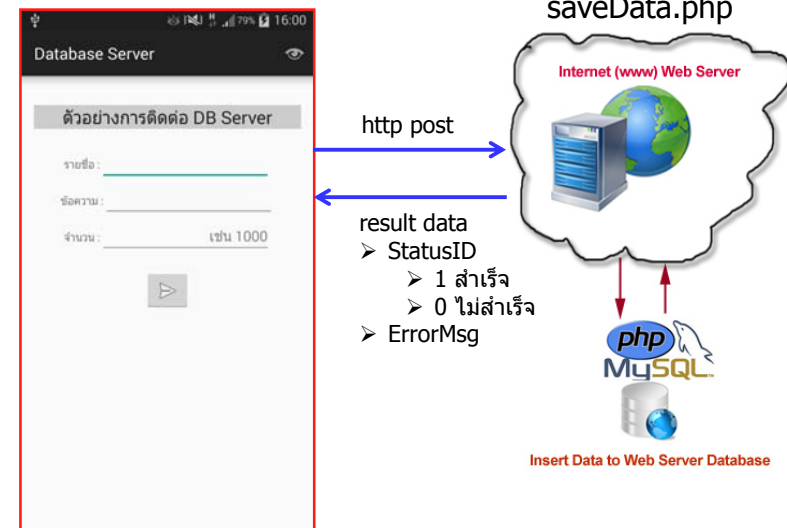
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### MA14: Database Server Connection การติดต่อฐานข้อมูลออนไลน์

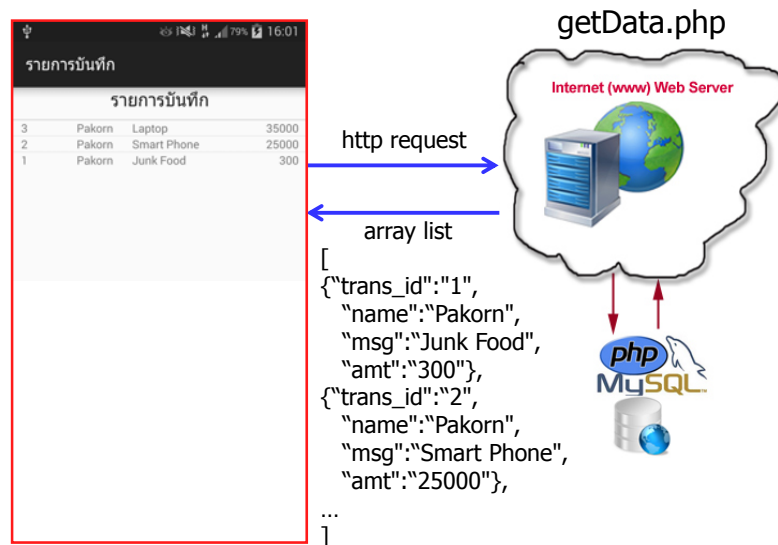
1

## Store (Save) Data to Database Server



2

## Retrieve (Read) Data from Database Server



3

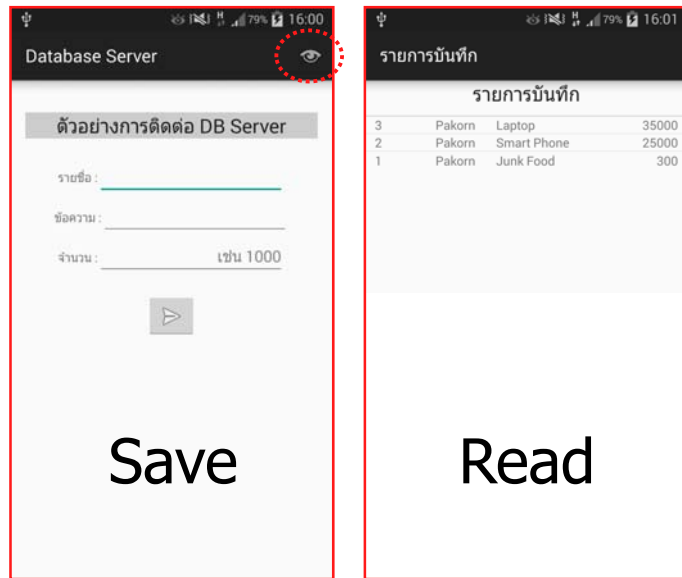
## Script Files at Server Site

The screenshot shows a file manager interface for a server directory. A red box highlights the files 'getData.php' and 'saveData.php', which are marked with red checkmarks. A red text overlay indicates the directory path: '/public\_html/android'. Below the table, a red dashed box highlights the 'saveData.php' file.

Type	Name	Size	Perms	Action	Date	UID	GID	Select
Folder	./ Up a Level	4.00K	755	Protect	Oct 14 13:57 2015	ltpchco	ltpchco	
Folder	app	4.00K	755	Protect				
Folder	mysql	4.00K	755	Protect				
File	UploadToServer.php	0.54K	644	Edit				
File	abc.php	0.43K	644	Edit				
File	app.zip	0.931M	644	Extra				
File	cs355.txt	0.02K	644	Edit				
File	getData.php	0.54K	644	Edit	Nov 22 13:55 2015	ltpchco	ltpchco	
File	getMsg.php	0.54K	644	Edit	Nov 9 14:54 2015	ltpchco	ltpchco	
File	getSQL.php	0.54K	644	Edit	Jun 8 19:18 2014	ltpchco	ltpchco	
File	msg.php	0.59K	644	Edit	Sep 28 21:38 2015	ltpchco	ltpchco	
File	pki_20151030_162439.jpg	7.06K	644	Rename   Copy	Oct 30 16:21 2015	ltpchco	ltpchco	
File	pki_20151103_163706.jpg	6.85K	644	Rename   Copy	Nov 3 16:31 2015	ltpchco	ltpchco	
File	pki_20151103_192301.jpg	8.26K	644	Rename   Copy	Nov 3 19:17 2015	ltpchco	ltpchco	
File	pki_20151104_111340.jpg	6.00K	644	Rename   Copy	Nov 4 11:08 2015	ltpchco	ltpchco	
File	pki_20151104_111545.jpg	9.04K	644	Rename   Copy	Nov 4 11:12 2015	ltpchco	ltpchco	
File	save.php	2.40K	644	Edit	Sep 28 16:36 2015	ltpchco	ltpchco	
File	saveAddData.php	1.55K	644	Edit	Jun 8 19:18 2014	ltpchco	ltpchco	
File	saveData.php	0.63K	644	Edit	Nov 9 15:00 2015	ltpchco	ltpchco	

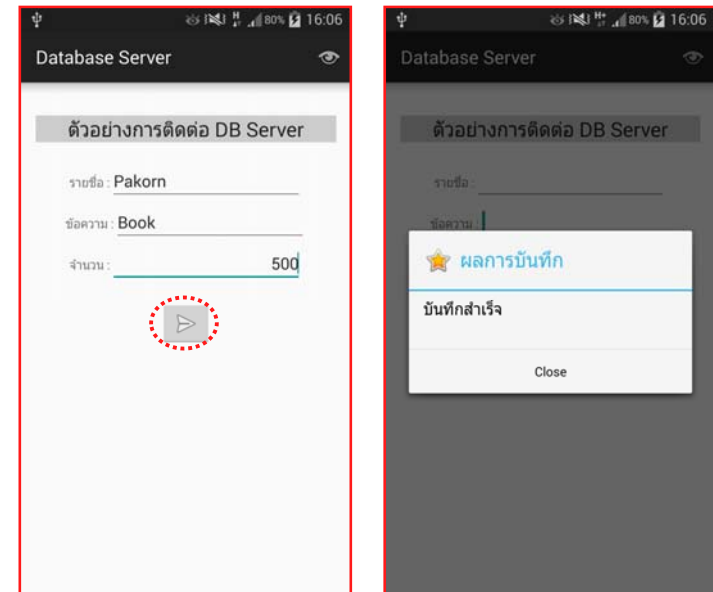
4

## Run on Mobile Device



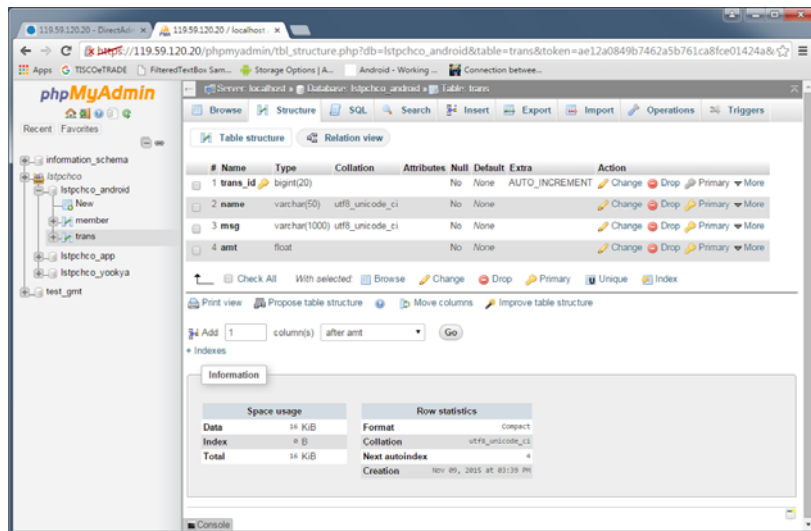
5

## Run on Mobile Device : Save Record Data



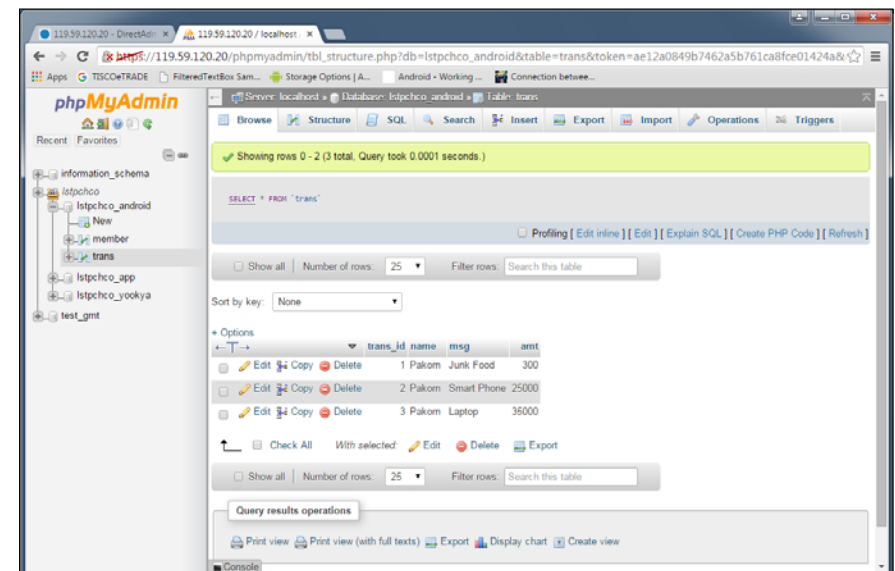
6

## Database : Table



7

## Content of 'trans' Table



8

## Content of 'trans' Table after Save Record Data

trans_id	name	msg	amt
1	Pakorn	Junk Food	300
2	Pakorn	Smart Phone	25000
3	Pakorn	Laptop	35000
4	Pakorn	Book	500

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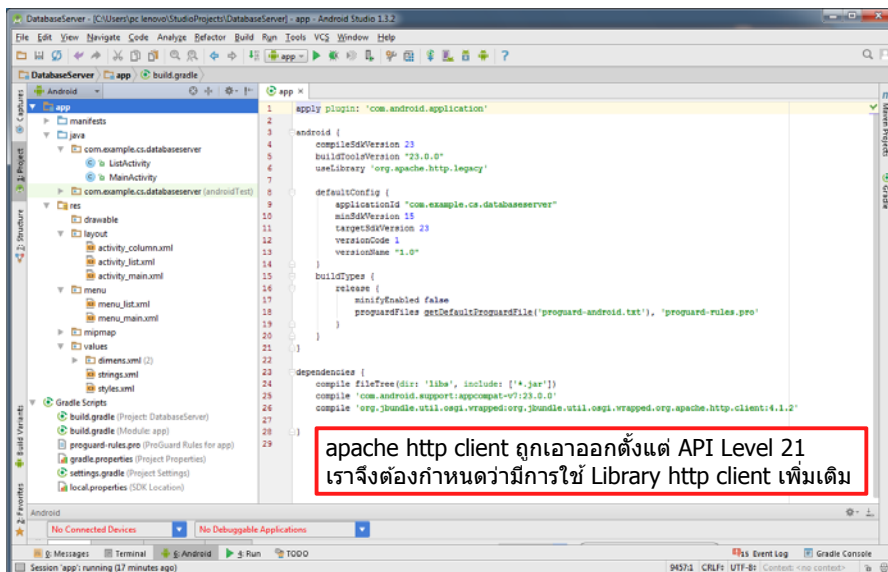
## Run on Mobile Device : View Record Data

trans_id	name	msg	amt
4	Pakorn	Book	500
3	Pakorn	Laptop	35000
2	Pakorn	Smart Phone	25000
1	Pakorn	Junk Food	300

รายละเอียด  
เลขที่รายการ : 4  
ชื่อ : Pakorn  
รายการ : Book  
จำนวนเงิน : 500

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## Gradle Script



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## Gradle Script (Project: DatabaseServer)

```

1  // Top-level build file where you can add configuration options common to all sub-projects/modules.
2
3  buildscript {
4      repositories {
5          jcenter()
6      }
7      dependencies {
8          classpath 'com.android.tools.build:gradle:2.1.3'
9      }
10
11     // NOTE: Do not place your application dependencies here; they belong
12     // in the individual module build.gradle files
13 }
14
15 allprojects {
16     repositories {
17         jcenter()
18     }
19 }

```

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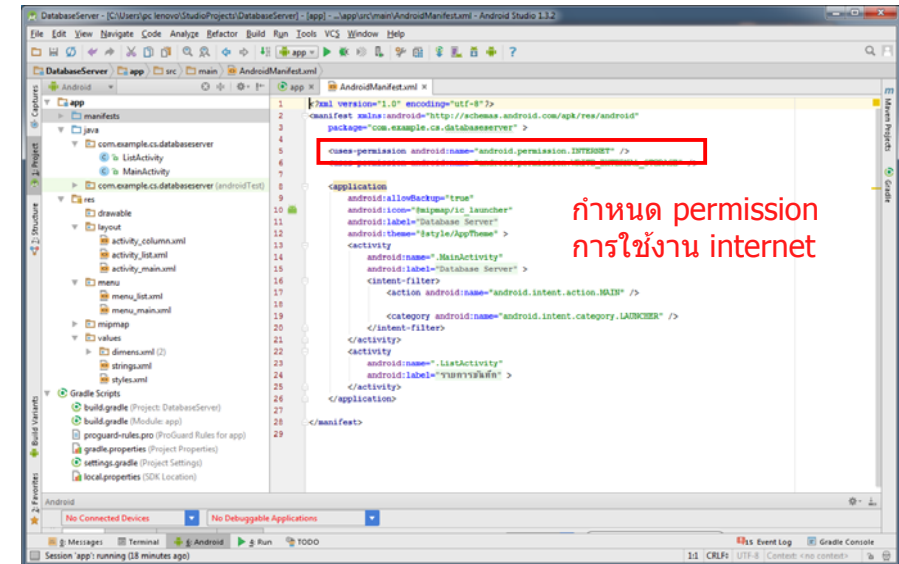
## Gradle Script (Module: app)

```

1  apply plugin: 'com.android.application'
2
3  android {
4      compileSdkVersion 25
5      buildToolsVersion "25.0.3"
6      useLibrary 'org.apache.http.legacy'
7
8      defaultConfig {
9          applicationId "com.example.cs.databaseserver"
10         minSdkVersion 15
11         targetSdkVersion 25
12         versionCode 1
13         versionName "1.0"
14     }
15     buildTypes {
16         release {
17             minifyEnabled false
18             proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.pro'
19         }
20     }
21 }
22
23 dependencies {
24     compile fileTree(dir: 'libs', include: ['*.jar'])
25     compile 'com.android.support:appcompat-v7:25.1.0'
26     compile 'org.apache.httpcomponents:httpclient:4.5'
27
28 }

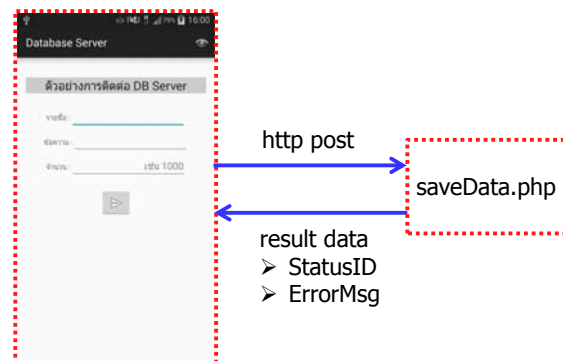
```

## AndroidManifest.xml



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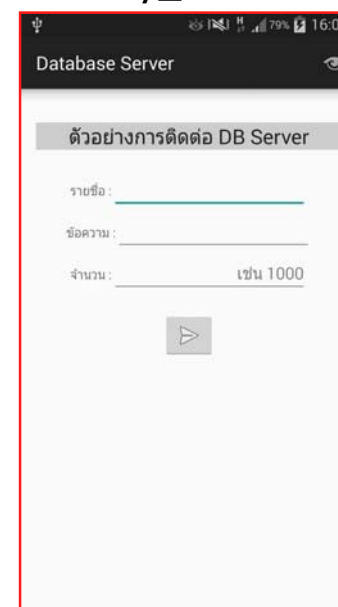
## Store (Save) Data to Database Server



### Files

- ✓ Code : MainActivity.java
- ✓ Layout : activity\_main.xml
- ✓ Menu : menu\_main.xml

## activity\_main.xml



```

<ScrollView>
<LinearLayout
<View
    android:orientation="vertical">
    android:layout_height="0dip"
    android:background="#CCCCCC"/>
    android:text="@string/header_str"
    android:background="#CCCCCC"/>
    android:layout_height="0dip"
    android:background="#CCCCCC"/>
    android:orientation="horizontal">
    android:text="@string/name_str"/>
    android:id="@+id/name"
    android:inputType="textCapWords">
    <requestFocus />
    </EditText>
</LinearLayout>
<LinearLayout
    android:orientation="horizontal">
    android:text="@string/msg_str" />
    android:id="@+id/msg"
    android:inputType="textMultiLine">
    </EditText>
</LinearLayout>
<LinearLayout
    android:orientation="horizontal">
    android:text="@string/paid_amt" />
    android:id="@+id/amt"
    android:inputType="number"
    android:hint="@string/amt_hint">
    </EditText>
</LinearLayout>
<ImageButton
    android:id="@+id/button"
    android:src="@android:drawable/ic_menu_send" />
</LinearLayout>
</ScrollView>

```

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## MainActivity.java (1/3)

```

@SuppressLint("NewApi")
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    if (android.os.Build.VERSION.SDK_INT > 9) {
        StrictMode.ThreadPolicy policy = new StrictMode.ThreadPolicy.Builder().permitAll().build();
        StrictMode.setThreadPolicy(policy);
    }
    final ImageButton btn = (ImageButton) findViewById(R.id.button);
    btn.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            if (SaveDataO) {
                if (v != null) {
                    InputMethodManager imm = (InputMethodManager)
                        getSystemService(Context.INPUT_METHOD_SERVICE);
                    imm.hideSoftInputFromWindow(v.getWindowToken(), 0);
                    final EditText txtMsg = (EditText) findViewById(R.id.msg);
                    txtMsg.requestFocus();
                }
            }
        }
    });
}

```

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## MainActivity.java (2/3)

```

public boolean SaveData(){
    final EditText txtName = (EditText) findViewById(R.id.name);
    final EditText txtMsg = (EditText) findViewById(R.id.msg);
    final EditText txtAmt = (EditText) findViewById(R.id.amt);

    final AlertDialog.Builder dialog = new AlertDialog.Builder(this);
    dialog.setTitle(R.string.err_title);
    dialog.setIcon(android.R.drawable.btn_star_big_on);
    dialog.setPositiveButton("Close", null);

    if(txtName.getText().length() == 0){
        dialog.setMessage(R.string.input_name);
        dialog.show();
        txtName.requestFocus();
        return false;
    }

    ...
}

```

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## MainActivity.java (3/3)

```

String url = "http://www.lstpch.com/android/saveData.php";
List<NameValuePair> params = new ArrayList<NameValuePair>();
params.add(new BasicNameValuePair("sName", txtName.getText().toString()));
params.add(new BasicNameValuePair("sMsg", txtMsg.getText().toString()));
params.add(new BasicNameValuePair("sAmt", txtAmt.getText().toString()));
String resultServer = getHttpPost(url, params);
String strStatusID = "0"; String strError = "Unknow Status!";
JSONObject c;
try {
    c = new JSONObject(resultServer);
    strStatusID = c.getString("StatusID");
    strError = c.getString("Error");
} catch (JSONException e) {
    e.printStackTrace();
    Toast.makeText(MainActivity.this, "Submission Error!", Toast.LENGTH_LONG).show();
}
if(strStatusID.equals("0")){
    dialog.setMessage(strError);
    dialog.show(); return false;
} else {
    dialog.setTitle(R.string.submit_title);
    dialog.setMessage(R.string.submit_result);
    dialog.show(); txtName.setText(""); txtMsg.setText(""); txtAmt.setText(""); return true;
}
} // end SaveData()

```

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## saveData.php

```

1. <? date_default_timezone_set('Asia/Bangkok');
2. $objConnect = mysql_connect("localhost","?????","?????");
3. $objDB = mysql_select_db("lstpchco_android");
4. mysql_query("SET NAMES UTF-8");
5. $strName = $_REQUEST["sName"];
6. $strMsg = $_REQUEST["sMsg"];
7. $strAmt = $_REQUEST["sAmt"];
8. $strSQL = "INSERT INTO trans(name, msg, amt)
9.          VALUES('".$strName."','".$strMsg."','".$strAmt."')";
10. $objQuery = mysql_query($strSQL);
11. if(!$objQuery){
12.     $arr['StatusID'] = "0";
13.     $arr['Error'] = "Cannot save data!";
14. }else{
15.     $arr['StatusID'] = "1";
16.     $arr['Error'] = "";
17. }
18. mysql_close($objConnect);
19. echo json_encode($arr);
20. ?>

```

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## Menu : menu\_main.xml



```
@Override
public boolean onCreateOptionsMenu(Menu menu) {
    getMenuInflater().inflate(R.menu.menu_main, menu);
    return true;
}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    switch(item.getItemId()){
        case R.id.view_record:
            startActivity(new Intent(this, ListActivity.class));
            return false;
        default:
            return super.onOptionsItemSelected(item);
    }
}
```

```
<menu 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" tools:context=".MainActivity">
    <item
        android:id="@+id/view_record"
        android:title="@string/view_record"
        app:showAsAction="ifRoom"
        android:icon="@android:drawable/ic_menu_view" />
</menu>
```

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## Retrieve (Read) Data from Database Server

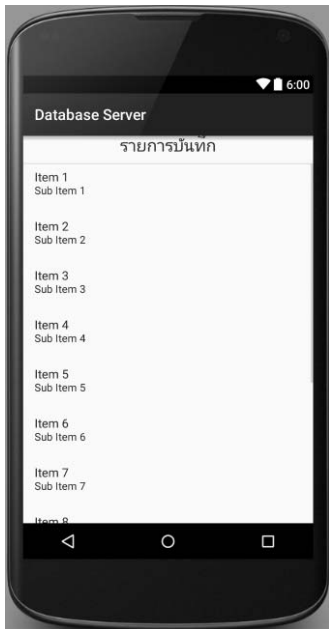


### Files

- ✓ Code : ListActivity.java
- ✓ Layout : activity\_list.xml
- ✓ Layout : activity\_column.xml

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## activity\_list.xml



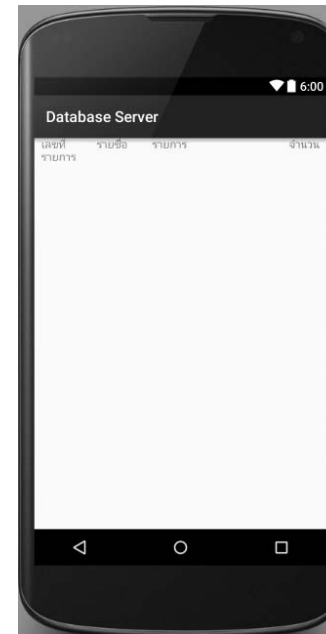
```
<LinearLayout android:orientation="vertical" >
    <TextView
        android:id="@+id/textView"
        android:text="@string/hdtx" />

    <View
        android:layout_height="1dip"
        android:background="#CCCCCC" />

    <LinearLayout
        android:orientation="horizontal"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1">
        <ListView
            android:id="@+id/listView"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" />
    </LinearLayout>
</LinearLayout>
```

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## activity\_column.xml



```
<LinearLayout>
    <TextView
        android:id="@+id/col_trans_id"
        android:layout_weight="1"
        android:text="@string/col_trans_id_str"/>
    <TextView
        android:id="@+id/col_name"
        android:layout_weight="1"
        android:text="@string/col_name_str"/>
    <TextView
        android:id="@+id/col_msg"
        android:layout_weight="2"
        android:text="@string/col_msg_str" />
    <TextView
        android:id="@+id/col_amt"
        android:layout_weight="1"
        android:text="@string/col_amt_str" />
</LinearLayout>
```

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## ListActivity.java (1/2)

```
DecimalFormat formatter = new DecimalFormat("#,###.##");
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_list);
    ...
    final ListView listView = (ListView)findViewById(R.id.listView);
    String url = "http://www.lstpch.com/android/getData.php";
    try {
        JSONArray data = new JSONArray(getJSONurl(url));
        final ArrayList<HashMap<String, String>> MyArrList = new ArrayList<HashMap<String, String>>();
        HashMap<String, String> map;
        for(int i = 0; i < data.length(); i++){
            JSONObject c = data.getJSONObject(i);
            map = new HashMap<String, String>();
            map.put("trans_id", c.getString("trans_id"));
            map.put("name", c.getString("name"));
            map.put("msg", c.getString("msg"));
            map.put("amt", c.getString("amt"));
            MyArrList.add(map);
        }
        SimpleAdapter sAdap;
        sAdap = new SimpleAdapter(ListActivity.this, MyArrList, R.layout.activity_column,
            new String[] {"trans_id", "name", "msg", "amt"},
            new int[] {R.id.col_trans_id, R.id.col_name, R.id.col_msg,
                R.id.col_amt});

        listView.setAdapter(sAdap);
    }
}
```

## ListActivity.java (2/2)

```
final AlertDialog.Builder viewDetail = new AlertDialog.Builder(this);
listView.setOnItemClickListener(new OnItemClickListener() {
    public void onItemClick(AdapterView<?> myAdapter, View myView,
        int position, long mylng) {
        String sTransID = MyArrList.get(position).get("trans_id").toString();
        String sName = MyArrList.get(position).get("name").toString();
        String sMsg = MyArrList.get(position).get("msg").toString();
        String sAmt = MyArrList.get(position).get("amt").toString();
        viewDetail.setIcon(android.R.drawable.btn_star_big_on);
        viewDetail.setTitle("รายละเอียด");
        viewDetail.setMessage("เลขที่รายการ : " + sTransID + "\n"
            + "ชื่อ : " + sName + "\n" + "รายการ : " + sMsg + "\n"
            + "จำนวนเงิน : " + formatter.format(Double.parseDouble(sAmt)));
        viewDetail.setPositiveButton("OK",
            new DialogInterface.OnClickListener() {
                public void onClick(DialogInterface dialog, int which) {
                    dialog.dismiss();
                }
            });
        viewDetail.show();
    }
});
} catch (JSONException e) {
    e.printStackTrace();
}
} //end onCreate()
```

## getData.php

```
1. <? $objConnect = mysql_connect("localhost","??????","??????");
2. $objDB = mysql_select_db("lstpchco_android");
3. $strSQL = "SELECT * FROM trans ORDER BY trans_id DESC";
4. $objQuery = mysql_query($strSQL);
5. $intNumField = mysql_num_fields($objQuery);
6. $resultArray = array();
7. while($objResult = mysql_fetch_array($objQuery)){
8.     $arrCol = array();
9.     for($i=0;$i<$intNumField;$i++){
10.         $arrCol[mysql_field_name($objQuery,$i)] = $objResult[$i];
11.     }
12.     array_push($resultArray,$arrCol);
13. }
14. mysql_close($objConnect);
15. echo json_encode($resultArray);
16. ?>
```

## References

- <http://developer.android.com>
- <http://www.thaicreate.com/mobile/android-add-insert-save-data-web-server.html>
- <http://www.thaicreate.com/mobile/android-json-from-url.html>