Handheld Application Development

Lec 14: Network II (JSON + PHP + Mysql)

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Objective

- To connect android application to server

Setting up a server I: hosting

1. Open Application > XAMPP > manager-osx

2. Start mysql & webserver service

3. Test in browser by typing http://localhost

4. Create a folder "mobile" inside "/Applications/XAMPP/htdocs/"

5. Open DreamWeaver → Create hello.html (File → New → HTML) to print "Hello"

Setting up a server II: Server-side database

//Create a database named PeopleData

CREATE TABLE 'people' (

    'id' INT NOT NULL AUTO_INCREMENT PRIMARY KEY,

    'name' VARCHAR(100) NOT NULL,

    'sex' BOOL NOT NULL DEFAULT '1',

    'birthyear' INT NOT NULL

)

The above sql create a table people which includes four columns, i.e., id, name, sex, birthyear.

Setting up a server III: Server-side script

```php
<?php //mobile/getAllPeopleBornAfter.php


    mysql_connect('localhost', 'root', '', '');


    mysql_select_db("PeopleData");


    $q=mysql_query( "SELECT * FROM people WHERE birthyear >' " . $_REQUEST['year'] . " ' ");

    while( $e = mysql_fetch_assoc($q) )
    {
        $output [ ] = $e;
    }


    print( json_encode($output) );

    mysql_close ( );
?>
```

Android app

1.Create a new project

2.Create Client.java in the same path with MainActivity

3.Implement AsyncTask<Void, Void, Void> on Client.java

      1.Insert onPostExecute method inside Client.java

4.Inside onCreate function of MainActivity

      1.TextView tv = (TextView)findViewById(R.id.textView);

      2.Client c = new Client();

      3.c.tv = tv;

      4.c.execute();

Android app

```
//1. Put these two lines above (out of) doInBackground
public TextView tv;
String result = "";

//2. Inside doInBackground
HttpClient a = new DefaultHttpClient();
ArrayList<NameValuePair> nameValuePairs = new ArrayList<NameValuePair>();
nameValuePairs.add(new BasicNameValuePair("year","1980"));
    try{
                HttpClient httpclient = new DefaultHttpClient();
                HttpPost httppost = new  HttpPost("http://10.0.2.2/mobile/getAllPeopleBornAfter.php");
                httppost.setEntity(new UrlEncodedFormEntity(nameValuePairs));
                HttpResponse response = httpclient.execute(httppost);
                HttpEntity entity = response.getEntity();
                InputStream is = entity.getContent();

                BufferedReader reader = new BufferedReader(new
                InputStreamReader(is,"UTF-8"),8);
                StringBuilder sb = new StringBuilder();
                String line = null;
                while ((line = reader.readLine()) != null) {
                            sb.append(line + "\n");
                }
                is.close();

                JSONArray jArray = new JSONArray(sb.toString());
                 for(int i=0;i<jArray.length();i++) {
                            JSONObject json_data = jArray.getJSONObject(i);
                            result += "\n\n id: "+json_data.getInt("id")+
                                "\n name: "+json_data.getString("name")+
                                "\n sex: "+json_data.getInt("sex")+
                                "\n birthyear: "+json_data.getInt("birthyear");
                } //
    }catch(JSONException e){
      Log.e("log_tag", "Error parsing data "+e.toString());
    }
}
```

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Android app

```
@Override
protected void onPostExecute(Void aVoid) {
    super.onPostExecute(aVoid);
    tv.setText(result); //show result inside textview
}
```

Android send data to server

```java
OutputStream os = null;
HttpURLConnection conn = null;
try {
    URL url = new URL("http://10.0.2.2/mobile/sendData.php");
    JSONObject jsonObject = new JSONObject();
    jsonObject.put("name", "Peter");
    jsonObject.put("sex", "0");
    jsonObject.put("birthyear", "1980");
    String message = jsonObject.toString();
    conn = (HttpURLConnection) url.openConnection();
    conn.setReadTimeout( 10000 /*milliseconds*/ );
    conn.setConnectTimeout( 15000 /* milliseconds */ );
    conn.setRequestMethod("POST");
    conn.setDoInput(true);
    conn.setDoOutput(true);
    conn.setFixedLengthStreamingMode(message.getBytes().length);
    conn.setRequestProperty("Content-Type", "application/json;charset=utf-8");
    conn.setRequestProperty("X-Requested-With", "XMLHttpRequest");
    conn.connect();
    os = new BufferedOutputStream(conn.getOutputStream());
    os.write(message.getBytes());
    os.flush();
} catch (IOException e) {
    e.printStackTrace();
} catch (JSONException e) {
    e.printStackTrace();
} finally {
    try {
        os.close(); is.close();
    } catch (IOException e) {
        e.printStackTrace();
    }
    conn.disconnect();
}
```

Server side (sendData.php)

```
$json = file_get_contents('php://input');
$obj = json_decode($json);
$name = $obj->{'name'};
$sex = $obj->{'sex'};
$birthyear = $obj->{'birthyear'};

$sql = "INSERT INTO people (name, sex, birthyear)
VALUES ('".name."','".sex."','".birthyear."')";

mysql_query($sql);

mysql_close ( );
```