Populate Dynamic data (Country, State and City) on android spinner from MySQL using php

Hello in this android article i will explain how to populate Country, State/Province and City dynamically on android spinner from MySQL data base using PHP where User can select Country spinner, automatically selected country states/provinces will be populated/added into State spinner and their City will be populated into City spinner dynamically.
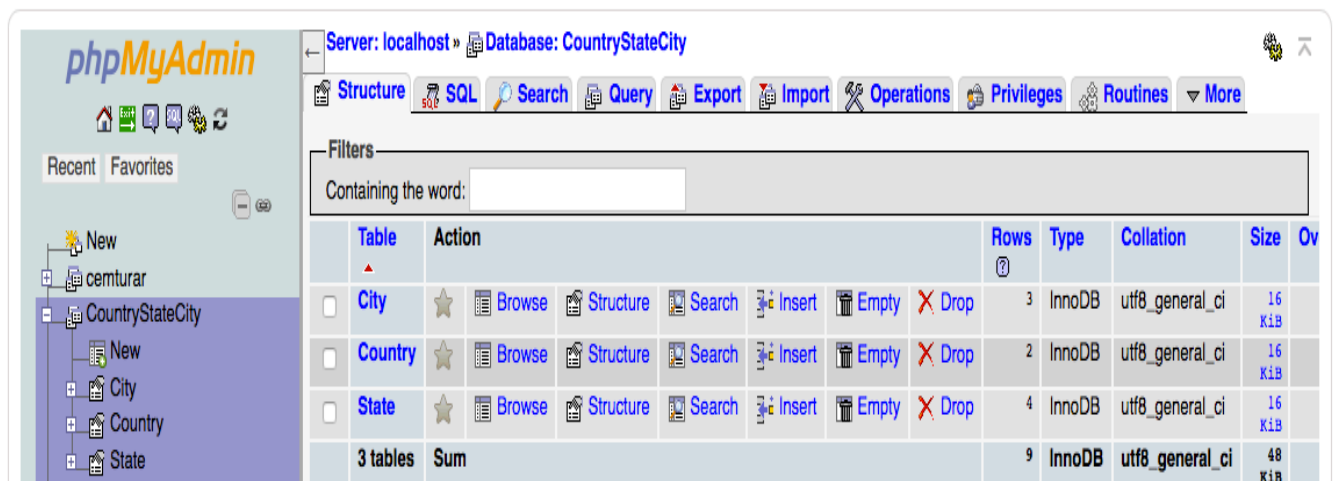
What is Spinner?
Dropdown list is called as Spinner in Android. It is used to show data like dropdown list.

1. **Create a database and table in MySQL. Here database name is CountryStateCity & tables name are Country, State, and City**

Database: `CountryStateCity`

   In this example I used localhost MAMP server on MAC but you can use xamp/wamp processes are same.

2. **Create Country Table**

CREATE TABLE `Country` (
 `country_id` int(11) NOT NULL AUTO_INCREMENT,
 `country_name` text NOT NULL,
PRIMARY KEY(`country_id `)
) ;

3. **Insert Data into Country table**

INSERT INTO `Country` (`country_id`, `country_name`) VALUES
(1, 'India'),
(2, 'Rwanda');

4. Create State Table

```
CREATE TABLE `State` (
  `state_id` int(11) NOT NULL AUTO_INCREMENT,
  `state_name` text NOT NULL,
  `country_id` int(11) NOT NULL,
PRIMARY KEY(`state_id `)

) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

5. Insert data into State Table

```
INSERT INTO `State` (`state_id`, `state_name`, `country_id`) VALUES
(1, 'Bihar', 1),
(2, 'Karnatka', 1),
(3, 'Eastern Province', 2),
(4, 'West Province', 2);
```
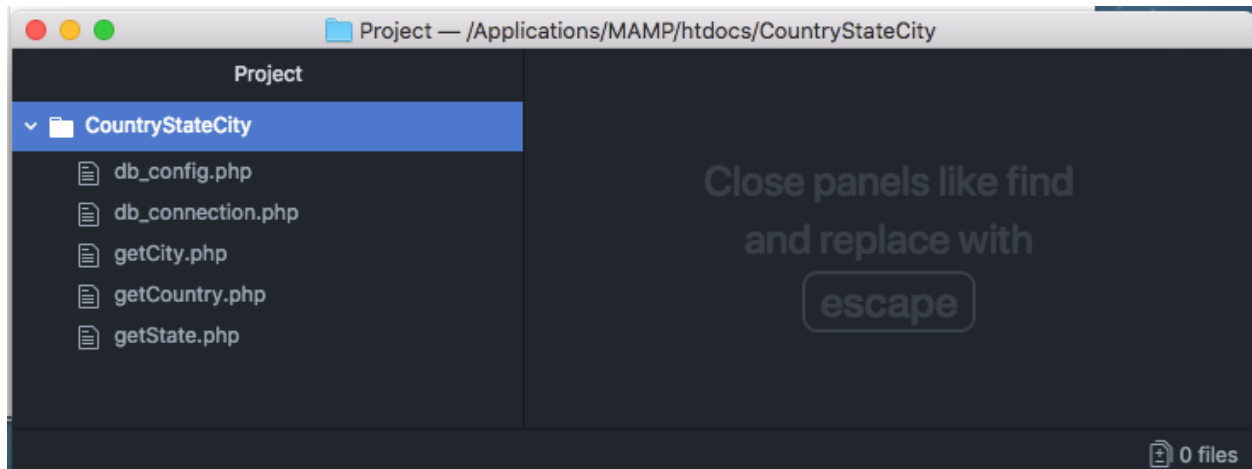
6. Create City Table

```
CREATE TABLE `City` (
  `city_id` int(11) NOT NULL AUTO_INCREMENT,
  `city_name` text NOT NULL,
  `state_id` int(11) NOT NULL,
PRIMARY KEY(`city_id `)

) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

7. Insert Data into City Table

```
INSERT INTO `City` (`city_id`, `city_name`, `state_id`) VALUES
(1, 'Patna', 1),
(2, 'Gaya', 1),
(3, 'Kayonza', 3);
```

8. **Create a php project called, CountryStateCity web root directory of your web server. In My case I have used MAMP, so web root directory is htdocs.**

   But for wamp its www and in xamp its htdocs

9. **Create a php page db_config.php for MySQL database credentials definition**

db_config.php
```php
<?php
define('DB_HOST',"localhost");
define('DB_USER',"root");
define('DB_PASSWORD',"root");
define('DB_DATABASE',"CountryStateCity");
?>
```

10. **Create a php page db_conection.php for MySQL database connectivity get employee name from mysql to android**

db_conection.php
```php
<?php

require_once('db_config.php');

$con  =  mysqli_connect(DB_HOST,DB_USER,DB_PASSWORD,DB_DATABASE)  or
die('Unable to Connect');

?>
```

11. Create a php page getCountry.php to get Country name in JSONArray from mysql to android

getCountry.php

```php
<?php

require_once('db_connection.php');

$sql = "SELECT * FROM Country";

$res = mysqli_query($con,$sql);

$result = array();

while($row = mysqli_fetch_array($res)){

 array_push($result,array(

  'country_id'=>$row['country_id'],

  'country_name'=>$row['country_name']

   ));

}

echo json_encode(array('result'=>$result));

mysqli_close($con);

?>
```

12. Create a php page getState.php to get State name of the selected country in JSONArray from mysql to android

getState.php

```php
<?php

require_once('db_connection.php');

//Assign Varibale fetching from GET Method

$country_id=$_GET['country_id'];
```

```php
$sql = "SELECT * FROM State WHERE country_id = $country_id";

$res = mysqli_query($con,$sql);

$result = array();

while($row = mysqli_fetch_array($res)){

 array_push($result,array(

   'state_id'=>$row['state_id'],

   'state_name'=>$row['state_name'],

   'country_id'=>$row['country_id']

    ));

}

echo json_encode(array('result'=>$result));

mysqli_close($con);

?>
```

13. Create a php page getCity.php to get City name of the selected State in JSONArray from mysql to android

getCity.php

```php
<?php

require_once('db_connection.php');

//Assign Varibale fetching from GET Method

$state_id=$_GET['state_id'];

$sql = "SELECT * FROM City WHERE state_id = $state_id";

$res = mysqli_query($con,$sql);

$result = array();

while($row = mysqli_fetch_array($res)){
```

```php
 array_push($result,array(

   'city_id'=>$row['city_id'],

   'city_name'=>$row['city_name'],

   'state_id'=>$row['state_id']

    ));

}

echo json_encode(array('result'=>$result));

mysqli_close($con);

?>
```

14. Create a new project in android add three spinner (Country, State, City) to activity_main.xml

Here we use volley library for fetch data from mysql database to spinner android.

What is volley?

Volley is an HTTP library that makes networking for Android apps easier and most importantly, faster.

15. Add volley library to android project

Add this line to android project app gradle file
implementation 'com.android.volley:volley:1.1.1'

16. Synch project it will download volley library to your project

17. Add following code on activity_main.xml for Design layout (Like Below)

```xml
 <?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
   android:orientation="vertical"
```

```xml
    android:gravity="center"
    android:paddingLeft="8dp"
    android:paddingRight="8dp"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Country State City"
        android:textStyle="bold"
        android:textSize="30sp"
        android:layout_marginBottom="10dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20sp"
        android:text="Country"/>
    <Spinner
        android:id="@+id/spinCountry"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20sp"
        android:text="State"/>
    <Spinner
        android:id="@+id/spinState"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"/>

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="20sp"
        android:text="City"/>
    <Spinner
        android:id="@+id/spinCity"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />
```

</**LinearLayout**>

18. Create *Common.java* file to store Global/Common Variable (Like Below)

```
package com.example.kundan.countrystatecity;

import android.content.Context;
import android.net.ConnectivityManager;
import android.net.NetworkInfo;

/**
 * Created by kundan on 28/09/2018.
 * email: kundan.kumar011@gmail.com
 */

public class Common {

    //JSON URL Emulator Local IP Address is 10.0.2.2
    public static final String BASE_URL="http://10.0.2.2:8888/CountryStateCity/";


    //Tags used in the JSON String
    public static final String countryArray = "country_name";
    public static final String stateArray = "state_name";
    public static final String cityArray = "city_name";

    //JSON array name to hold result
    public static final String JSON_ARRAY = "result";

}
```

19.Add following code on MainActivity.java

```
package com.example.kundan.countrystatecity;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.Toast;
```

```java
import com.android.volley.RequestQueue;
import com.android.volley.Response;
import com.android.volley.VolleyError;
import com.android.volley.toolbox.StringRequest;
import com.android.volley.toolbox.Volley;

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

import java.util.ArrayList;

import static com.example.kundan.countrystatecity.Common.BASE_URL;
import static com.example.kundan.countrystatecity.Common.JSON_ARRAY;
import static com.example.kundan.countrystatecity.Common.cityArray;
import static com.example.kundan.countrystatecity.Common.countryArray;
import static com.example.kundan.countrystatecity.Common.stateArray;

/**
 * Created by kundan on 28/09/2018.
 * email: kundan.kumar011@gmail.com
 */

public class MainActivity extends AppCompatActivity {

    //Spinner to hold Country, State/Province, City
    private Spinner mSpinCountry,mSpinState,mSpinCity;

    // To hold country response from getCountry.php API
    private JSONArray countryResult;

    // To hold state response from getState.php API
    private JSONArray stateResult;

    // To hold city response from getCity.php API
    private JSONArray cityResult;


    //To hold all country
    private ArrayList<String> countryArrayList;

    //To hold all state of the country
    private ArrayList<String> stateArrayList;

    //To hold all scity of the state
    private ArrayList<String> cityArrayList;
```

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

    //Initialize country, state and city spinner
    mSpinCountry=(Spinner)findViewById(R.id.spinCountry);
    mSpinState=(Spinner)findViewById(R.id.spinState);
    mSpinCity=(Spinner)findViewById(R.id.spinCity);

    //Initialize Country Array List
    countryArrayList = new ArrayList<String>();


    //Fetch all Country
    getCountry();


    //On Country Change, Change List of State of the country
    mSpinCountry.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
        @Override
        public void onItemSelected(AdapterView<?> adapterView, View view, int position,
long id) {

            //fetch Country_ID of the selected country to fetch list of states
            getCountryId(position);

        }

        @Override
        public void onNothingSelected(AdapterView<?> adapterView) {

        }
    });

    mSpinState.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
        @Override
        public void onItemSelected(AdapterView<?> adapterView, View view, int position,
long id) {
            //fetch State_ID of the selected country to fetch list of states
            getStateId(position);

        }

        @Override
```

```java
        public void onNothingSelected(AdapterView<?> adapterView) {

        }
    });

}

private void getCountry() {
    StringRequest stringRequest = new StringRequest(BASE_URL+"getCountry.php",
        new Response.Listener<String>() {
            @Override
            public void onResponse(String response) {
                JSONObject j = null;
                try {
                    j = new JSONObject(response);
                    countryResult = j.getJSONArray(JSON_ARRAY);

                    //Fetch Country List
                    countryDetails(countryResult);

                } catch (JSONException e) {
                    e.printStackTrace();
                }
            }
        },
        new Response.ErrorListener() {
            @Override
            public void onErrorResponse(VolleyError error) {
                Toast.makeText(getApplication(), ""+error,Toast.LENGTH_LONG).show();
            }
        });
    RequestQueue requestQueue = Volley.newRequestQueue(this);
    requestQueue.add(stringRequest);
}
private void countryDetails(JSONArray result) {
    for (int i = 0; i < result.length(); i++) {
        try {
            JSONObject json = result.getJSONObject(i);
            countryArrayList.add(json.getString(countryArray));
        } catch (JSONException e) {
            e.printStackTrace();
        }
    }

    mSpinCountry.setAdapter(new ArrayAdapter<String>(this,
android.R.layout.simple_spinner_dropdown_item, countryArrayList));
```

```java
    }
    private void getCountryId(int position) {
        String country_id="";
        try {
            //Getting object of given index
            JSONObject json = countryResult.getJSONObject(position);
            //Fetching name from that object
            country_id= json.getString("country_id");

            getState(country_id);
        } catch (JSONException e) {
            e.printStackTrace();
        }

    }
    private void getState(String country_id) {
        StringRequest stringRequest = new
StringRequest(BASE_URL+"getState.php/?country_id="+country_id,
            new Response.Listener<String>() {
                @Override
                public void onResponse(String response) {
                    JSONObject j = null;
                    try {
                        j = new JSONObject(response);
                        stateResult = j.getJSONArray(JSON_ARRAY);
                        stateDetails(stateResult);
                    } catch (JSONException e) {
                        e.printStackTrace();
                    }
                }
            },
            new Response.ErrorListener() {
                @Override
                public void onErrorResponse(VolleyError error) {
                    Toast.makeText(getApplication(), ""+error,Toast.LENGTH_LONG).show();
                }
            });
        RequestQueue requestQueue = Volley.newRequestQueue(this);
        requestQueue.add(stringRequest);

    }

    private void stateDetails(JSONArray result) {

        //Create stateArrayList object here, because after each change of country state must be
```

```
added (NOT Appended)
    stateArrayList=new ArrayList<String>();

    for (int i = 0; i < result.length(); i++) {
        try {
            JSONObject json = result.getJSONObject(i);
            stateArrayList.add(json.getString(stateArray));
        } catch (JSONException e) {
            e.printStackTrace();
        }
    }
    // stateArrayList.add(0,"Select State");
    mSpinState.setAdapter(new ArrayAdapter<String>(this,
android.R.layout.simple_spinner_dropdown_item, stateArrayList));

}

private void getStateId(int position) {

    String state_id="";
    try {
        //Getting object of given index
        JSONObject json = stateResult.getJSONObject(position);
        //Fetching name from that object
        state_id= json.getString("state_id");
        getCity(state_id);
    } catch (JSONException e) {
        e.printStackTrace();
    }
}

private void getCity(String state_id) {

    StringRequest stringRequest = new
StringRequest(BASE_URL+"getCity.php/?state_id="+state_id,
        new Response.Listener<String>() {
            @Override
            public void onResponse(String response) {
                JSONObject j = null;
                try {
                    j = new JSONObject(response);
                    cityResult = j.getJSONArray(JSON_ARRAY);
                    cityDetails(cityResult);
                } catch (JSONException e) {
                    e.printStackTrace();
                }
```

```
            }
        },
        new Response.ErrorListener() {
            @Override
            public void onErrorResponse(VolleyError error) {
                Toast.makeText(getApplication(), ""+error,Toast.LENGTH_LONG).show();
            }
        });
    RequestQueue requestQueue = Volley.newRequestQueue(this);
    requestQueue.add(stringRequest);

  }

  private void cityDetails(JSONArray cityResult) {
      //Create cityArrayList object here, because after each change of state city must be added
(NOT Appended)
      cityArrayList=new ArrayList<String>();

      for (int i = 0; i < cityResult.length(); i++) {
          try {
              JSONObject json = cityResult.getJSONObject(i);
              cityArrayList.add(json.getString(cityArray));
          } catch (JSONException e) {
              e.printStackTrace();
          }
      }
      mSpinCity.setAdapter(new ArrayAdapter<String>(this,
android.R.layout.simple_spinner_dropdown_item, cityArrayList));

  }
}
```

OUTPUT