自定义ContentProvider

编写一个类，必须继承自ContentProvider类；

实现ContentProvider类中所有的抽象方法；

onCreate()，getType()，query()，insert()，update()，delete()等方法

在清单文件中声明注册ContentProvider

<provider android:name=”.MyProvider”

android:authorities=”heying.provider.contentprovider”

android:exported=”true”/>

app1：

AndroidManifest.xml

*<?***xml version="1.0" encoding="utf-8"***?>*<**manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.hjs.customcontentprovider.contentprovider"**>  
  
 <**application  
 android:allowBackup="true"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/AppTheme"**>  
 <**activity android:name=".MainActivity"**>  
 <**intent-filter**>  
 <**action android:name="android.intent.action.MAIN"** />  
  
 <**category android:name="android.intent.category.LAUNCHER"** />  
 </**intent-filter**>  
 </**activity**>  
  
 *<!--注册Provider-->  
 <!--authorities指明了URI-->* <**provider  
 android:authorities="hdu.hjs.contentprovider"  
 android:name="com.hjs.customcontentprovider.contentprovider.db.MyProvider"  
 android:exported="true"**/> *<!--允许外部app程序进行相应的使用-->* </**application**>  
  
  
  
</**manifest**>

activity\_main.xml

*<?***xml version="1.0" encoding="utf-8"***?>*<**LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"**>  
  
 <**LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical"  
 android:layout\_marginTop="20dp"**>  
 <**ImageView  
 android:layout\_width="110dp"  
 android:layout\_height="110dp"  
 android:src="@drawable/hdu"  
 android:layout\_gravity="center\_horizontal"**/>  
  
 <**TextView  
 android:layout\_marginTop="10dp"  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_gravity="center\_horizontal"  
 android:gravity="center\_horizontal"  
 android:text="HDU学生成绩管理"  
 android:textColor="#F00"  
 android:textSize="30dp"  
 android:textStyle="bold"** />  
  
 </**LinearLayout**>  
  
 <**LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:layout\_marginTop="10dp"**>  
  
 <**TextView  
 android:id="@+id/textView1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="学生姓名："  
 android:textSize="20dp"  
 android:gravity="center"**/>  
  
 <**EditText  
 android:id="@+id/etName"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:ems="10"  
 android:hint="请输入学生姓名"** />  
  
 </**LinearLayout**>  
  
 <**LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"**>  
  
 <**TextView  
 android:id="@+id/textView2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="学生年龄："  
 android:textSize="20dp"  
 android:gravity="center"**/>  
  
 <**EditText  
 android:id="@+id/etAge"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:ems="10"  
 android:hint="请输入学生年龄"** />  
  
 </**LinearLayout**>  
  
 <**LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"**>  
  
 <**TextView  
 android:id="@+id/textView3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="学生成绩："  
 android:textSize="20dp"  
 android:gravity="center"**/>  
  
 <**EditText  
 android:id="@+id/etScore"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:ems="10"  
 android:hint="请输入学生成绩"** />  
  
 </**LinearLayout**>  
  
 <**LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical"**>  
  
 <**Button  
 android:id="@+id/btnAdd"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="10dp"  
 android:onClick="insert"  
 android:layout\_gravity="center"  
 android:text="添加"** />  
  
 </**LinearLayout**>  
  
 <**LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical"**>  
  
 <**ListView  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:id="@+id/lstStudent"** />  
  
 </**LinearLayout**>  
  
</**LinearLayout**>

student\_item.xml

*<?***xml version="1.0" encoding="utf-8"***?>*<**LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="horizontal"**>  
  
 <**TextView  
 android:id="@+id/tvName"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="name"  
 android:textAppearance="?android:attr/textAppearanceLarge"  
 android:gravity="center"**/>  
  
 <**TextView  
 android:id="@+id/tvAge"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="age"  
 android:textAppearance="?android:attr/textAppearanceLarge"  
 android:gravity="center"**/>  
  
 <**TextView  
 android:id="@+id/tvScore"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="score"  
 android:textAppearance="?android:attr/textAppearanceLarge"  
 android:gravity="center"**/>  
</**LinearLayout**>

DBHelper.java

**package** com.hjs.customcontentprovider.contentprovider.db;  
  
**import** android.content.Context;  
**import** android.database.sqlite.SQLiteDatabase;  
**import** android.database.sqlite.SQLiteOpenHelper;  
  
  
**public class** DBHelper **extends** SQLiteOpenHelper {  
 **private static final int *VERSION***=2;  
 **public** DBHelper(Context context) {  
 **super**(context, **"Student.db"**, **null**, ***VERSION***);  
 *//Student.db会被保存在当前包下* }  
  
 @Override  
 **public void** onCreate(SQLiteDatabase db) {  
 String sql = **"create table Student(\_id integer primary key autoincrement,name,age,score)"**;  
 db.execSQL(sql);  
  
  
 }  
  
 @Override  
 **public void** onUpgrade(SQLiteDatabase db, **int** oldVersion, **int** newVersion) {  
 String sql = **"create table Teacher(\_id integer primary key autoincrement,tname)"**;  
 db.execSQL(sql);  
  
 }  
}

MyProvider.java

**package** com.hjs.customcontentprovider.contentprovider.db;  
  
**import** android.content.ContentProvider;  
**import** android.content.ContentUris;  
**import** android.content.ContentValues;  
**import** android.content.UriMatcher;  
**import** android.database.Cursor;  
**import** android.database.sqlite.SQLiteDatabase;  
**import** android.net.Uri;  
  
*//通过这个类对象来公开数据库数据***public class** MyProvider **extends** ContentProvider {  
 **private** DBHelper **helper**;  
 *//UriMatcher对象来管理Uri* **private static** UriMatcher *matcher* = **new** UriMatcher(UriMatcher.***NO\_MATCH***);  
  
 *//静态块，当类被加载时，静态块建立起来并初始化内容添加Uri* **static** {  
 *//"content://hdu.hjs.contentprovider/student"  
 matcher*.addURI(**"hdu.hjs.contentprovider"**,**"student"**,0);  
 *matcher*.addURI(**"hdu.hjs.contentprovider"**,**"teacher"**,1);  
 }  
  
  
 @Override  
 **public boolean** onCreate() {  
 **helper** = **new** DBHelper(getContext());  
 *//注意这里不能用this，要得到当前ContentProvider所在的上下文，才能拿到当前ContentProvider私有的数据库* **return false**;  
 }  
  
  
 */\*\*  
 \** ***@param uri*** *\** ***@param projection*** *所要查询的列  
 \** ***@param selection*** *where 后面的语句  
 \** ***@param selectionArgs*** *where 后面行条件的参数值  
 \** ***@param sortOrder*** *排序  
 \** ***@return*** *\*/* @Override  
 **public** Cursor query(Uri uri, String[] projection, String selection, String[] selectionArgs,String sortOrder) {  
 **int** code = *matcher*.match(uri);  
 **switch** (code){  
 **case** 0:  
 **return helper**.getReadableDatabase().query(  
 **"Student"**,projection,selection,selectionArgs,**null**,**null**,sortOrder);  
 **case** 1:  
 **return helper**.getReadableDatabase().query(  
 **"Teacher"**,projection,selection,selectionArgs,**null**,**null**,sortOrder);  
 }  
 **return null**;  
 }  
  
  
 @Override  
 **public** String getType(Uri uri) {  
 **return null**;  
 }  
  
  
 @Override  
 **public** Uri insert(Uri uri,ContentValues values) {  
 SQLiteDatabase db = **helper**.getReadableDatabase();  
 **long** rowId = -1;  
 **int** code = *matcher*.match(uri);  
 **switch** (code) {  
 **case** 0:  
 rowId = db.insert(**"Student"**, **null**, values);  
 **break**;  
 **case** 1:  
 rowId = db.insert(**"Teacher"**, **null**, values);  
 **break**;  
 }  
 db.close();  
 **return** ContentUris.*withAppendedId*(uri, rowId);  
 *//eg：uri = "content://hdu.hjs.contentprovider" ，rowId = 1000  
 // return "content://hdu.hjs.contentprovider/1000"* }  
  
 @Override  
 **public int** delete(Uri uri, String selection, String[] selectionArgs) {  
 **return** 0;  
 }  
  
 @Override  
 **public int** update(Uri uri, ContentValues values,String selection,String[] selectionArgs) {  
 **return** 0;  
 }  
}

MainActivity.java

**package** com.hjs.customcontentprovider.contentprovider;  
  
**import** android.content.ContentProvider;  
**import** android.content.ContentResolver;  
**import** android.content.ContentValues;  
**import** android.database.Cursor;  
**import** android.net.Uri;  
**import** android.support.v7.app.AppCompatActivity;  
**import** android.os.Bundle;  
**import** android.view.View;  
**import** android.widget.EditText;  
**import** android.widget.ListView;  
**import** android.widget.SimpleCursorAdapter;  
**import** android.widget.Toast;  
  
**public class** MainActivity **extends** AppCompatActivity {  
 **private** EditText **etName**,**etAge**,**etScore**;  
 **private** ListView **lstStudent**;  
 **private** ContentResolver **cr**;  
 **private** Uri **contentUri**;  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_main***);  
  
 **cr** = getContentResolver();*//请求Provider，自动创建MyProvider，并自动调用onCreate方法* **contentUri**=Uri.*parse*(**"content://hdu.hjs.contentprovider"**);*//获得MyProvider操作数据库的公共接口URI* init();  
  
 query();  
 }  
  
 **private void** init() {  
 **etName** = (EditText)findViewById(R.id.***etName***);  
 **etAge** = (EditText)findViewById(R.id.***etAge***);  
 **etScore** = (EditText)findViewById(R.id.***etScore***);  
 **lstStudent** = (ListView)findViewById(R.id.***lstStudent***);  
  
 }  
  
 *//查询* **public void** query(){  
 Cursor cur = **cr**.query(**contentUri**,**null**,**null**,**null**,**null**);  
 SimpleCursorAdapter adapter = **new** SimpleCursorAdapter(**this**,  
 R.layout.***student\_item***,  
 cur,**new** String[]{**"name"**,**"age"**,**"score"**},  
 **new int**[]{R.id.***tvName***,R.id.***tvAge***,R.id.***tvScore***});  
 **lstStudent**.setAdapter(adapter);  
 }  
  
  
 *//插入数据* **public void** insert(View view){  
 ContentValues values = **new** ContentValues();  
 values.put(**"name"**,**etName**.getText().toString().trim());  
 values.put(**"age"**,**etAge**.getText().toString().trim());  
 values.put(**"score"**,**etScore**.getText().toString().trim());  
 **cr**.insert(**contentUri**,values);  
  
 Toast.*makeText*(**this**,**"数据插入成功..."**,Toast.***LENGTH\_LONG***).show();  
  
 query();*//插入后重新更新界面* }  
  
 **public void** test(View view){  
 String str = **"content://hdu.hjs.contentprovider"**;  
 Uri url = Uri.*parse*(str);*//解释成对象* **cr**.delete(url,**null**,**null**);  
 }  
}

app2:

activity\_main.xml

*<?***xml version="1.0" encoding="utf-8"***?>*<**LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"**>  
  
 <**ListView  
 android:id="@+id/listView1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"** />  
</**LinearLayout**>

student\_item.xml

*<?***xml version="1.0" encoding="utf-8"***?>*<**LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"**>  
  
 <**TextView  
 android:id="@+id/text1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="TextView"  
 android:textAppearance="?android:attr/textAppearanceLarge"**/>  
</**LinearLayout**>

MainActivity.java

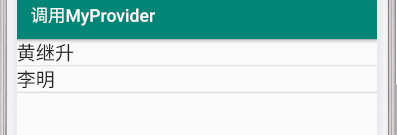
**package** com.hjs.testmyprovider;  
  
**import** android.database.Cursor;  
**import** android.net.Uri;  
**import** android.support.v7.app.AppCompatActivity;  
**import** android.os.Bundle;  
**import** android.widget.ListView;  
**import** android.widget.SimpleCursorAdapter;  
  
**public class** MainActivity **extends** AppCompatActivity {  
 **private** ListView **lstStudent**;  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_main***);  
  
 **lstStudent**=(ListView)findViewById(R.id.***listView1***);  
  
 query();  
 }  
  
 **private void** query() {  
 Uri uri = Uri.*parse*(**"content://hdu.hjs.contentprovider"**);  
 Cursor cur = getContentResolver().query(uri,  
 **null**,  
 **null**,  
 **null**,  
 **null**);  
  
 SimpleCursorAdapter adapter = **new** SimpleCursorAdapter(**this**,R.layout.***student\_item***,cur,**new** String[]{**"name"**},**new int**[]{R.id.***text1***});  
 **lstStudent**.setAdapter(adapter);  
 }  
}

效果展示：

app1：com.hjs.customcontentprovider.contentprovider



app2：com.hjs.testmyprovider



UriMatcher

（1）继承ContentProvider类后发现，ContentProvider类中只有一个onCreate()生命周期方法——当其他应用程序通过ContentResolver第一次访问该ContentProvider时，onCreate()会被回调。

（2）其他应用在通过ContentResolver对象执行CRUD操作时，都需要一个重要的参数Uri。为了能顺利提供这个Uri参数，Android系统提供了一个UriMatcher工具类。

（3）UriMatcher工具类提供了两个方法：

void addURI(String authority , String path , int code)

该方法用于向UriMatcher对象注册Uri。其中authority和path是Uri中的重要部分。而code代表该Uri对应的标识符。

int match(Uri uri)：

根据注册的Uri来判断指定的Uri对应的标识符。如果找不到匹配的标识符，该方法返回-1。

values/strings.xml

<**resources**>  
 <**string name="app\_name"**>自定义ContentProvider</**string**>  
 <**string-array name="table\_name"**>  
 <**item**>Student</**item**>  
 <**item**>Teacher</**item**>  
 </**string-array**>  
</**resources**>

activity\_demo.xml

*<?***xml version="1.0" encoding="utf-8"***?>*<**LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:gravity="center\_horizontal"  
 android:orientation="vertical"**>  
  
  
 <**Spinner  
 android:id="@+id/spinner1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:entries="@array/table\_name"** />  
  
 <**TextView  
 android:id="@+id/tvName"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="输入姓名"  
 android:textAppearance="?android:attr/textAppearanceLarge"** />  
  
 <**EditText  
 android:id="@+id/etName"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:ems="10"** />  
  
 <**Button  
 android:id="@+id/btnInsert"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Button"** />  
  
 <**ListView  
 android:id="@+id/listView1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"** />  
  
</**LinearLayout**>

DemoActivity.java

**package** com.hjs.customcontentprovider.contentprovider;  
  
**import** android.app.Activity;  
**import** android.content.ContentResolver;  
**import** android.content.ContentValues;  
**import** android.database.Cursor;  
**import** android.net.Uri;  
**import** android.os.Bundle;  
**import** android.view.View;  
**import** android.widget.AdapterView;  
**import** android.widget.Button;  
**import** android.widget.EditText;  
**import** android.widget.ListView;  
**import** android.widget.SimpleCursorAdapter;  
**import** android.widget.Spinner;  
**import** android.widget.TextView;  
**import** android.widget.Toast;  
  
**public class** DemoActivity **extends** Activity {  
 **private** TextView **tvName**;  
 **private** EditText **etName**;  
 **private** ListView **listView**;  
 **private** Spinner **spinner**;  
 **private** Button **btnInsert**;  
  
 **private** Uri **studentUri**;  
 **private** Uri **teacherUri**;  
 **private** ContentResolver **cr**;  
  
 **private** String **mSelectedTableName**=**""**;  
  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_demo***);  
  
 **studentUri**=Uri.*parse*(**"content://hdu.hjs.contentprovider/student"**);  
 **teacherUri**=Uri.*parse*(**"content://hdu.hjs.contentprovider/teacher"**);  
 **cr**=getContentResolver();  
  
 init();  
 }  
  
  
 **private void** init() {  
 **tvName**=(TextView)findViewById(R.id.***tvName***);  
 **etName**=(EditText)findViewById(R.id.***etName***);  
 **listView**=(ListView)findViewById(R.id.***listView1***);  
 **spinner**=(Spinner)findViewById(R.id.***spinner1***);  
 **btnInsert**=(Button)findViewById(R.id.***btnInsert***);  
  
 **spinner**.setOnItemSelectedListener(**new** AdapterView.OnItemSelectedListener() {  
 @Override  
 **public void** onItemSelected(AdapterView<?> parent, View view, **int** position, **long** id) {  
 **mSelectedTableName**=**spinner**.getSelectedItem().toString();  
 **if** (**mSelectedTableName**.equals(**"Student"**)){  
 **tvName**.setText(**"请输入学生姓名"**);  
 **btnInsert**.setText(**"添加学生"**);  
 }**else** {  
 **tvName**.setText(**"请输入老师姓名"**);  
 **btnInsert**.setText(**"添加老师"**);  
 }  
 }  
  
 @Override  
 **public void** onNothingSelected(AdapterView<?> parent) {  
  
 }  
 });  
  
 **btnInsert**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
 ContentValues values = **new** ContentValues();  
 **if**(**mSelectedTableName**.equals(**"Student"**)){  
 values.clear();  
 values.put(**"name"**,**etName**.getText().toString().trim());  
 **cr**.insert(**studentUri**,values);  
 }**else** {  
 values.clear();  
 values.put(**"tname"**,**etName**.getText().toString().trim());  
 **cr**.insert(**teacherUri**,values);  
 }  
 query();  
 }  
 });  
 }  
  
 **private void** query() {  
 Cursor cur = **null**;  
 SimpleCursorAdapter adapter = **null**;  
 **if** (**mSelectedTableName**.equals(**"Student"**)){  
 cur = **cr**.query(**studentUri**,**null**,**null**,**null**,**null**);  
 adapter=**new** SimpleCursorAdapter(  
 **this**,  
 R.layout.***student\_item***,  
 cur,  
 **new** String[]{**"name"**,**"age"**,**"score"**},  
 **new int**[]{R.id.***tvName***,R.id.***tvAge***,R.id.***tvScore***});  
 Toast.*makeText*(**this**,**"添加学生成功..."**,Toast.***LENGTH\_LONG***).show();  
 }**else**{  
 cur = **cr**.query(**teacherUri**,**null**,**null**,**null**,**null**);  
 adapter=**new** SimpleCursorAdapter(  
 **this**,  
 R.layout.***student\_item***,  
 cur,  
 **new** String[]{**"tname"**},  
 **new int**[]{R.id.***tvName***});  
 Toast.*makeText*(**this**,**"添加老师成功..."**,Toast.***LENGTH\_LONG***).show();  
 }  
 **listView**.setAdapter(adapter);  
  
 }  
}

效果展示：



