ITU-FAO-DOA-TRCSL

Training on

“Innovation & Application Development for E-Agriculture”

Database Development

In

Android Applications

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Peradeniya, Sri Lanka

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Android Databases

Agenda

- Sqlite Database
- Practical

Databases

Sqlite Database:

Android provides full support for SQLite databases. Any databases you create will be accessible by name to any class in the application, but not outside the application.

The recommended method to create a new SQLite database is to create a subclass of SQLiteOpenHelper and override the onCreate() method, in which you can execute a SQLite command to create tables in the database

You can then get an instance of your SQLiteOpenHelper implementation using the constructor you've defined. To write to and read from the database, call getWritableDatabase() and getReadableDatabase(), respectively

Every SQLite query will return a Cursor that points to all the rows found by the query. The Cursor is always the mechanism with which you can navigate results from a database query and read rows and columns.

MainAcitvity.java

```
import android.app.Activity;
import android.content.ContentValues;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.widget.TextView;

public class MainActivity extends Activity {
    EventDataSQLHelper eventsData;
    TextView output;

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

        output = (TextView) findViewById(R.id.output);

        eventsData = new EventDataSQLHelper(this);
        addEvent("Demo event");
        Cursor cursor1 = getEvents1();
        showEvents(cursor1);

    }
```

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```
    @Override
    public void onDestroy() {
        super.onDestroy();
        eventsData.close();
    }

    private void addEvent(String title) {
        SQLiteDatabase db = eventsData.getWritableDatabase();
        ContentValues values = new ContentValues();
        values.put(EventDataSQLHelper.TIME, System.currentTimeMillis());
        values.put(EventDataSQLHelper.TITLE, title);
        db.insert(EventDataSQLHelper.TABLE1, null, values);

    }

    private Cursor getEvents1() {
        SQLiteDatabase db = eventsData.getReadableDatabase();
        Cursor cursor1 = db.query(EventDataSQLHelper.TABLE1, null, null, null,
null,
                null, null);

        return cursor1;
    }


    private void showEvents(Cursor cursor) {
        StringBuilder ret = new StringBuilder("Saved Events:\n\n");
        while (cursor.moveToNext()) {
            long id = cursor.getLong(0);
            long time = cursor.getLong(1);
            String title = cursor.getString(2);
            ret.append(id + ": " + time + ": " + title + "\n");
        }
        output.setText(ret);
    }
}
```

EventDataSQLHelper.java

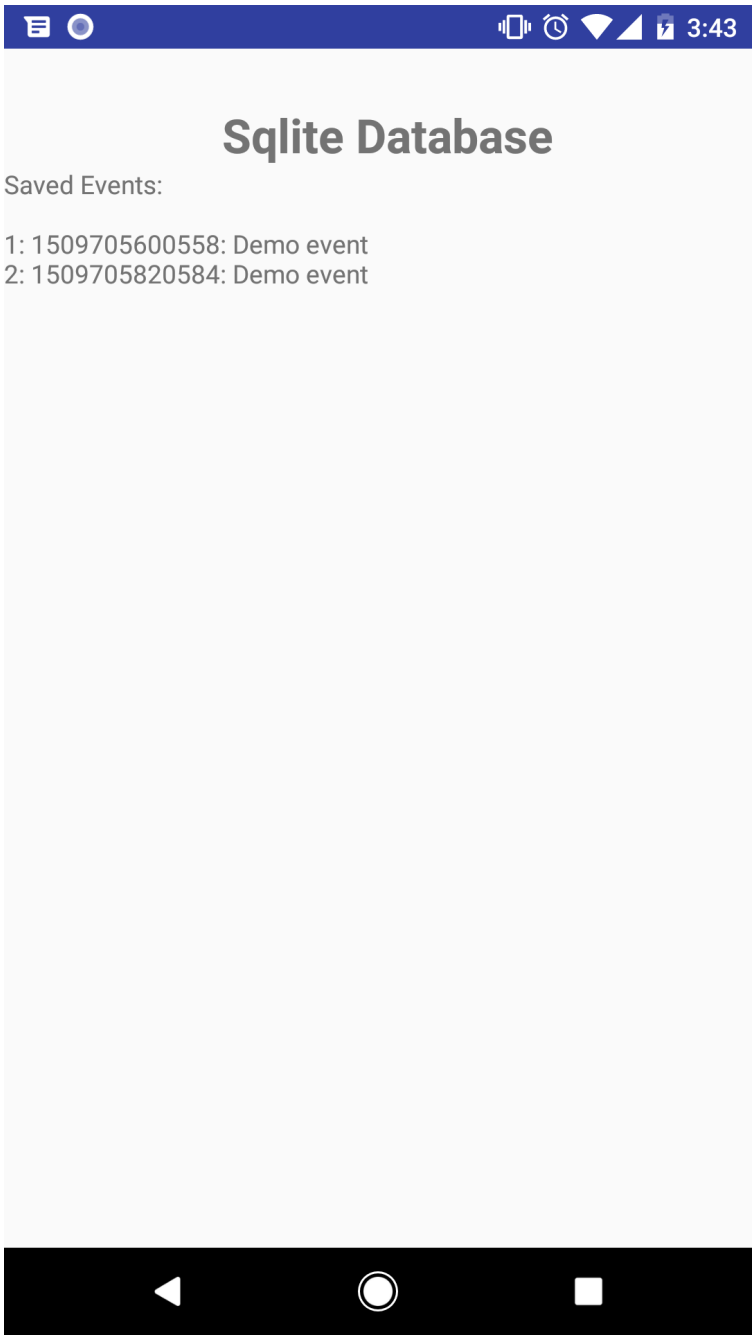
```
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import android.util.Log;

/** Helper to the database, manages versions and creation */
public class EventDataSQLHelper extends SQLiteOpenHelper {
    private static final String DATABASE_NAME = "events.db";
    private static final int DATABASE_VERSION = 1;
```

```
    // Table name
    public static final String TABLE1 = "events";


    // Columns
    public static final String TIME = "time";
    public static final String TITLE = "title";


    public EventDataSQLHelper(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        String sql = "create table " + TABLE1 + "( " + "id_"
                + " integer primary key autoincrement, " + TIME + " integer, "
                + TITLE + " text not null);";
        Log.d("EventsData", "onCreate: " + sql);

        db.execSQL(sql);

    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion)
{
        if (oldVersion >= newVersion)
            return;

        String sql = null;

        if (oldVersion == 1)
            sql = "alter table " + TABLE1 + " add note text;";

        if (oldVersion == 2)
            sql = "";


        Log.d("EventsData", "onUpgrade : " + sql);
        if (sql != null )
            db.execSQL(sql);


    }


}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">

    <TextView
        android:id="@+id/title"
        android:text="Sqlite Database"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="120dp"
        android:textStyle="bold"
        android:textSize="26sp"
        android:layout_marginTop="30dp"/>

    <ScrollView
        android:layout_width="fill_parent"
        android:layout_height="fill_parent"
        android:layout_below="@+id/title">

    <TextView  android:id="@+id/output"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content" />

    </ScrollView>
</RelativeLayout>
```

Output


3:43
Sqlite Database
Saved Events:
1: 1509705600558: Demo event
2: 1509705820584: Demo event