SUITSA CODE JAM

ANDROID

Databases

Aim of the Class

- To show how to save to and retrieve from a database with SQLite
- The application will do the following:
  - Create a database
  - Save to the database
  - Retrieve from the database
  - Display the retrieved items

Steps to Follow

- Create a new android project
- Open the main.xml file and create the user interface
- Create a java class to support the activity
- Code the programming logic in the activity file
- Run the application

Create a new android project

- Refer to the Android 1 class on how to do this

Create the user interface

- Open the main.xml file and type the following

```
<?xml version="1.0" encoding="utf-8"?>

<LinearLayout xmlns:android=
   "http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">
  <TextView android:layout_width="fill_parent"
     android:layout_height="wrap_content"
     android:text="@string/hello" />
  <TextView android:id="@+id/out_text"
     android:layout_width="fill_parent"
     android:layout_height="wrap_content"
     android:text="" />
</LinearLayout>
```

Create a java class to support the activity

- Right click on your package i.e 'com…' and choose new class
- Add the following after the package line

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

import java.util.ArrayList;
import java.util.List;

public class DataHelper {

   private static final String DATABASE_NAME = "example.db";
   private static final int DATABASE_VERSION = 1;
   private static final String TABLE_NAME = "table1";

   private Context context;
   private SQLiteDatabase db;

   private SQLiteStatement insertStmt;
   private static final String INSERT = "insert into "
      + TABLE_NAME + "(name) values (?)";

   public DataHelper(Context context) {
      this.context = context;
      OpenHelper openHelper = new OpenHelper(this.context);
      this.db = openHelper.getWritableDatabase();
      this.insertStmt = this.db.compileStatement(INSERT);
   }
```

Create a java class to support the activity cont.

```
    public void deleteAll() {
        this.db.delete(TABLE_NAME, null, null);
    }

    public List<String> selectAll() {
        List<String> list = new ArrayList<String>();
        Cursor cursor = this.db.query(TABLE_NAME, new String[] { "name" },
          null, null, null, null, "name desc");
        if (cursor.moveToFirst()) {
            do {
                list.add(cursor.getString(0));
            } while (cursor.moveToNext());
        }
        if (cursor != null && !cursor.isClosed()) {
            cursor.close();
        }
        return list;
    }

    private static class OpenHelper extends SQLiteOpenHelper {

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

        @Override
        public void onCreate(SQLiteDatabase db) {
            db.execSQL("CREATE TABLE " + TABLE_NAME + "
             (id INTEGER PRIMARY KEY, name TEXT)");
        }

        @Override
        public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
            Log.w("Example", "Upgrading database, this will drop tables and recreate.");
            db.execSQL("DROP TABLE IF EXISTS " + TABLE_NAME);
            onCreate(db);
        }
    }
}
```

Code the programming logic in the activity file

- Open your activity java file and type the following:

```
import android.app.Activity;
import android.os.Bundle;
import android.util.Log;
import android.widget.TextView;

import java.util.List;

public class Main extends Activity {

   private TextView output;

   private DataHelper dh;

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

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

        this.dh = new DataHelper(this);
        this.dh.deleteAll();
        this.dh.insert("Porky Pig");
        this.dh.insert("Foghorn Leghorn");
        this.dh.insert("Yosemite Sam");
        List<String> names = this.dh.selectAll();
        StringBuilder sb = new StringBuilder();
        sb.append("Names in database:\n");
        for (String name : names) {
           sb.append(name + "\n");
        }
```

Code the programming logic in the activity file cont.

```
        Log.d("EXAMPLE", "names size - " + names.size());

        this.output.setText(sb.toString());

    }
}
```

- RUN YOUR APPLICATION

What Next?

- We have covered the basic functionalities of Android in the last three classes
- Further your knowledge of Android and Android databases with the following books:
  - SQLite for databases
  - Apress Beginning Android
  - Professional Android Application Development
- Make sure to create an Android Application during your three month holiday