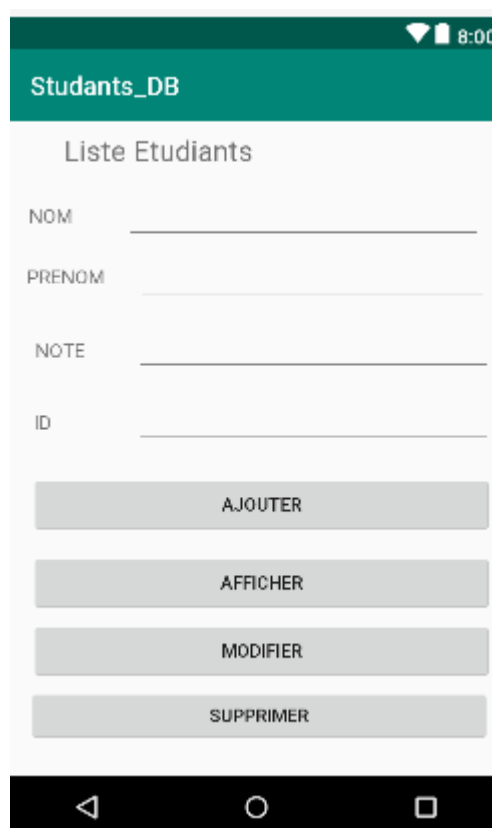


Tutoriel : comment créer une base de données SQLite avec l'Android Studio

L'objectif est de savoir comment créer une BD à l'aide du moteur SQLite avec l'option CRUD (Create, Read, Update, Delete), dans le but de faciliter la gestion des étudiants. La base de données doit contenir une table ayant comme champs ou attributs : nom, prenom, id et note.

Vous allez trouver tous le code java et xml de cette application dont son interface principale qui ressemble à celle-ci , on proposera de l'amélioration, voir le résultat à la fin de ce tutoriel.



Code XML de l'interface graphique:

```
<?xml version="1.0" encoding="utf-8" ?>  
<android.support.constraint.ConstraintLayout
```

```
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"
tools:context=".MainActivity"
tools:layout_editor_absoluteY="81dp">
```

```
<TextView
    android:id="@+id/textView2"
    android:layout_width="300dp"
    android:layout_height="33dp"
    android:layout_marginStart="8dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="8dp"
    android:layout_marginBottom="8dp"
    android:text="@string/liste_etudiant"
    android:textSize="22dp"
    app:layout_constraintBottom_toTopOf="@+id/eTxtNom"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.0" />
```

```
<EditText
    android:id="@+id/eTxtNom"
    android:layout_width="278dp"
    android:layout_height="45dp"
    android:layout_marginStart="8dp"
    android:layout_marginTop="50dp"
    android:layout_marginEnd="8dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.911"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

```
<EditText
    android:id="@+id/eTxtPrenom"
    android:layout_width="273dp"
    android:layout_height="0dp"
    android:layout_marginStart="80dp"
    android:layout_marginEnd="8dp"
    android:layout_marginBottom="68dp"
    android:ems="10"
    app:layout_constraintBottom_toTopOf="@+id/eTxtId"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.826"
    app:layout_constraintStart_toStartOf="parent" />
```

```
<EditText
    android:id="@+id/eTxtNote"
    android:layout_width="278dp"
    android:layout_height="43dp"
    android:layout_marginStart="8dp"
    android:layout_marginEnd="8dp"
    android:layout_marginBottom="56dp"
    android:ems="10"
    app:layout_constraintBottom_toBottomOf="@+id/eTxtId"
```

```
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="1.0"
app:layout_constraintStart_toEndOf="@+id/txtVnote" />
```

<EditText

```
android:id="@+id/eTxtId"
android:layout_width="278dp"
android:layout_height="43dp"
android:layout_marginStart="8dp"
android:layout_marginTop="116dp"
android:layout_marginEnd="8dp"
android:ems="10"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="1.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/eTxtNom" />
```

<Button

```
android:id="@+id/butModifier"
android:layout_width="360dp"
android:layout_height="wrap_content"
android:layout_marginStart="8dp"
android:layout_marginTop="16dp"
android:layout_marginEnd="8dp"
android:layout_marginBottom="16dp"
android:onClick="studentHandler"
android:text="@string/but_modifier"
app:layout_constraintBottom_toTopOf="@+id/butSupp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="1.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/butAff"
app:layout_constraintVertical_bias="0.49" />
```

<Button

```
android:id="@+id/butAdd"
android:layout_width="360dp"
android:layout_height="wrap_content"
android:layout_marginStart="8dp"
android:layout_marginTop="24dp"
android:layout_marginEnd="8dp"
android:layout_marginBottom="8dp"
android:onClick="studentHandler"
android:text="@string/but_ajouter"
app:layout_constraintBottom_toTopOf="@+id/butAff"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="1.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/eTxtId"
app:layout_constraintVertical_bias="0.25" />
```

<Button

```
android:id="@+id/butAff"
android:layout_width="360dp"
android:layout_height="wrap_content"
android:layout_marginStart="8dp"
android:layout_marginTop="8dp"
android:layout_marginEnd="8dp"
android:layout_marginBottom="130dp"
android:onClick="studentHandler"
```

```
    android:text="@string/but_afficher"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/butAdd" />
```

<Button

```
    android:id="@+id/butSupp"
    android:layout_width="360dp"
    android:layout_height="44dp"
    android:layout_marginStart="8dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="8dp"
    android:layout_marginBottom="8dp"
    android:text="@string/but_supprimer"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.74"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/eTxtId"
    app:layout_constraintVertical_bias="0.90999997" />
```

<android.support.constraint.Guideline

```
    android:id="@+id/guideline2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    app:layout_constraintGuide_begin="20dp" />
```

<TextView

```
    android:id="@+id/txtVnom"
    android:layout_width="53dp"
    android:layout_height="29dp"
    android:layout_marginStart="8dp"
    android:layout_marginEnd="8dp"
    android:text="@string/nom"
    android:textSize="15dp"
    app:layout_constraintBaseline_toBaselineOf="@+id/eTxtNom"
    app:layout_constraintEnd_toStartOf="@+id/eTxtNom"
    app:layout_constraintHorizontal_bias="0.344"
    app:layout_constraintStart_toStartOf="parent" />
```

<TextView

```
    android:id="@+id/txtVprenom"
    android:layout_width="74dp"
    android:layout_height="32dp"
    android:layout_marginStart="8dp"
    android:layout_marginEnd="8dp"
    android:text="@string/prenom"
    android:textSize="15dp"
    app:layout_constraintBaseline_toBaselineOf="@+id/eTxtPrenom"
    app:layout_constraintEnd_toStartOf="@+id/eTxtPrenom"
    app:layout_constraintHorizontal_bias="0.615"
    app:layout_constraintStart_toStartOf="parent" />
```

<TextView

```
    android:id="@+id/txtVnote"
    android:layout_width="55dp"
    android:layout_height="26dp"
    android:layout_marginStart="20dp"
```

```

        android:text="@string/note"
        android:textSize="15dp"
        app:layout_constraintBaseline_toBaselineOf="@+id/eTxtNote"
        app:layout_constraintStart_toStartOf="parent" />

<TextView
    android:id="@+id/txtVid"
    android:layout_width="61dp"
    android:layout_height="24dp"
    android:layout_marginStart="8dp"
    android:layout_marginEnd="8dp"
    android:text="@string/id"
    android:textSize="15dp"
    app:layout_constraintBaseline_toBaselineOf="@+id/eTxtId"
    app:layout_constraintEnd_toStartOf="@+id/eTxtId"
    app:layout_constraintStart_toStartOf="parent" />

</android.support.constraint.ConstraintLayout>

```

Code XML du fichier strings:

```

<resources>
    <string name="app_name">Students_DB</string>
    <string name="liste_etudiant"> Liste Etudiants</string>
    <string name="etudiants">Etudiants</string>
    <string name="nom">NOM</string>
    <string name="prenom">PRENOM</string>
    <string name="note">NOTE</string>
    <string name="id">ID</string>
    <string name="but_ajouter">Ajouter</string>
    <string name="but_afficher">Afficher</string>
    <string name="but_modifieur">Modifier</string>
    <string name="but_supprimer">Supprimer</string>
    <string name="but_trouver">Trouver</string>
</resources>

```

Code java en instanciant la classe SQLiteOpenHelper qui aide à créer une base de données:

```

package com.ensat.students_db;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

public class DatabaseHelper extends SQLiteOpenHelper {

    public static final String DATABASE_NAME = "Student_db";
    public static final String TABLE_NAME = "student_table";
    public static final String COL_1 = "ID";
    public static final String COL_2 = "NAME";
    public static final String COL_3 = "SURNAME";
    public static final String COL_4 = "NOTE";

```

```

public DatabaseHelper(Context context){
    super(context, DATABASE_NAME, null, 1);
}

@Override
public void onCreate(SQLiteDatabase db) {
    db.execSQL("create table " + TABLE_NAME + " (ID INTEGER PRIMARY KEY
AUTOINCREMENT,NAME TEXT,SURNAME TEXT,NOTE FLOAT)");
}

@Override
public void onUpgrade(SQLiteDatabase db, int oldVersion, int
newVersion) {
    db.execSQL("DROP TABLE IF EXISTS "+TABLE_NAME);
    onCreate(db);
}

public boolean insertData(String name, String surname, String note){
    SQLiteDatabase db= this.getWritableDatabase();
    ContentValues values=new ContentValues();
    values.put(COL_2, name);
    values.put(COL_3, surname);
    values.put(COL_4, note);
    long result=db.insert(TABLE_NAME, null, values);
    if (result == -1)
        return false;
    else
        return true;
}

//read all data
public Cursor getAllData(){
    SQLiteDatabase db= this.getWritableDatabase();
    Cursor res=db.rawQuery("select * from "+ TABLE_NAME, null);
    return res;
}

//updating data
public boolean updateData(String id, String name, String surname,
String note){
    SQLiteDatabase db= this.getWritableDatabase();
    ContentValues values=new ContentValues();
    values.put(COL_1,id);
    values.put(COL_2, name);
    values.put(COL_3, surname);
    values.put(COL_4, note);
    db.update(TABLE_NAME, values,"ID= ?", new String[] {id});
    return true;
}

//deleting data
public Integer deleteData(String id){
    SQLiteDatabase db=this.getWritableDatabase();
    return db.delete(TABLE_NAME, "ID=?", new String[] {id});
}

/* public boolean deleteData(int id){
    //SQLiteDatabase db =this.getWritableDatabase();
    //return db.delete(TABLE_NAME, "ID = ?", new String[] {id});
    boolean result = false;
    String query = "Select*FROM" + TABLE_NAME + "WHERE" + COL_1 + "= '"
+ String.valueOf(id) + "'";
    SQLiteDatabase db = this.getWritableDatabase();
    Cursor cursor = db.rawQuery(query, null);
    Student student = new Student();
}

```

```

        if (cursor.moveToFirst()) {
            student.setID(Integer.parseInt(cursor.getString(0)));
            db.delete(TABLE_NAME, COL_1 + "=?",
                new String[] {
                    String.valueOf(student.getID())
                });
            cursor.close();
            result = true;
        }
        db.close();
        return result;
    }*/
}

```

Code java de l'activité principale

```

package com.ensat.studants_db;

import android.database.Cursor;
import android.support.v7.app.AlertDialog;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    DatabaseHelper myDb;
    EditText editName, editSurname, editMarks , editTextId;
    Button btnAddData;
    Button btnviewAll;
    Button btnDelete;
    Button btnviewUpdate;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        myDb = new DatabaseHelper(this);

        editName = (EditText) findViewById(R.id.eTxtNom);
        editSurname = (EditText) findViewById(R.id.eTxtPrenom);
        editMarks = (EditText) findViewById(R.id.eTxtNote);
        editTextId = (EditText) findViewById(R.id.eTxtId);
        btnAddData = (Button) findViewById(R.id.butAdd);
        btnviewAll = (Button) findViewById(R.id.butAff);
        btnviewUpdate= (Button) findViewById(R.id.butModifier);
        btnDelete= (Button) findViewById(R.id.butSupp);
    }

    public void studentHandler(View v){
        switch (v.getId()){
            case R.id.butAdd:
                boolean isInserted =
myDb.insertData(editName.getText().toString(),
                    editSurname.getText().toString(),
                    editMarks.getText().toString() );
                if(isInserted == true)

```

```

        Toast.makeText(MainActivity.this, "Data
Inserted", Toast.LENGTH_LONG).show();
        else
            Toast.makeText(MainActivity.this, "Data not
Inserted", Toast.LENGTH_LONG).show();
        break;
        // Editing data
        case R.id.butAff:
            Cursor res=myDb.getAllData();
            if(res.getCount() == 0){
                //show message
                showMessage("ERROR", "Nothing Found");
                return;
            }
            StringBuffer buffer = new StringBuffer();
            while (res.moveToNext()){
                buffer.append("_____ "+"\\n");
                buffer.append("ID:" + res.getString(0)+"\\n");
                buffer.append("NOM:" + res.getString(1)+"\\n");
                buffer.append("PRENOM:" + res.getString(2)+"\\n");
                buffer.append("NOTE:" + res.getString(3)+"\\n");

                //show all data
                showMessage("Etudiants", buffer.toString());
            }
            break;

        //modifying data
        case R.id.butModifier:
            boolean isUpdate =
myDb.updateData(editTextId.getText().toString(),
                editName.getText().toString(),
                editSurname.getText().toString(),
                editMarks.getText().toString() );
            if(isUpdate == true)
                Toast.makeText(MainActivity.this, "Data
modified", Toast.LENGTH_LONG).show();
            else
                Toast.makeText(MainActivity.this, "Data not
Modified", Toast.LENGTH_LONG).show();
            break;

        //deleting data
        case R.id.butSupp:
            Integer deleteRows =
myDb.deleteData(editTextId.getText().toString());
            if(deleteRows>0)
                Toast.makeText(MainActivity.this, "Data
deleted", Toast.LENGTH_LONG).show();
            else
                Toast.makeText(MainActivity.this, "Data not
deleted", Toast.LENGTH_LONG).show();
            break;
    }
}

private void showMessage(String title, String message) {
    AlertDialog.Builder builder= new AlertDialog.Builder(this);
    builder.setCancelable(true);
    builder.setTitle(title);
}

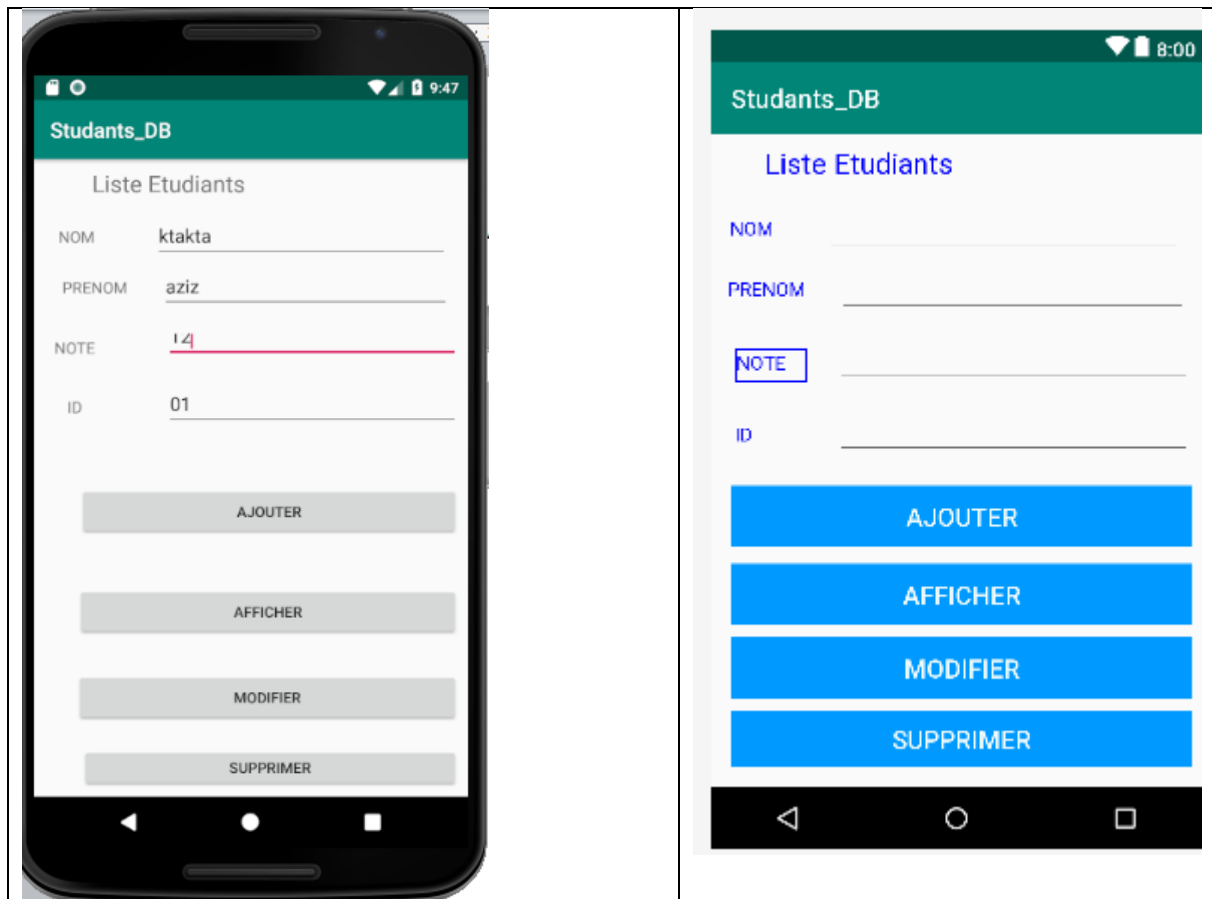
```



```

        builder.setMessage(message);
        builder.show();
    }
}

```



Amélioration de l'interface graphique

En utilisant les styles, les couleurs et les dimensions,

Ajoutons la déclaration des couleurs à utiliser :

```

<?xml version="1.0" encoding="utf-8" ?>
<resources>
    <color name="colorPrimary">#008577</color>
    <color name="colorPrimaryDark">#00574B</color>
    <color name="colorAccent">#D81B60</color>
    <color name="colorText">#0000ff</color>
    <color name="colorButton">#0099ff</color>
</resources>

```

