# Aim : Create an android application using SQLite database to manage the students data by using insert, update and delete operations and display the data in the list view. Allow user to insert id, name, surname and marks of the student

**activity\_main.xml**

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

<RelativeLayout xmlns:android[="http://schemas.android.com/apk/res/android"](http://schemas.android.com/apk/res/android) xmlns:app[="http://schemas.android.com/apk/res](http://schemas.android.com/apk/res-auto)-[auto"](http://schemas.android.com/apk/res-auto) xmlns:tools[="http://schemas.android.com/tools"](http://schemas.android.com/tools) android:layout\_width="match\_parent" android:layout\_height="match\_parent"

tools:context=".MainActivity">

<EditText

android:id="@+id/editText4" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_alignParentTop="true" android:layout\_alignParentEnd="true" android:layout\_marginTop="333dp" android:layout\_marginEnd="25dp" android:ems="10" android:inputType="textPersonName" />

<TextView

android:id="@+id/textView" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_alignParentStart="true" android:layout\_alignParentTop="true" android:layout\_centerVertical="true" android:layout\_marginStart="107dp" android:layout\_marginTop="345dp" android:text="Id" android:textColor="#673AB7" android:textSize="20sp" />

<TextView

android:id="@+id/textView1" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_alignParentStart="true" android:layout\_alignParentTop="true" android:layout\_marginStart="83dp" android:layout\_marginTop="133dp" android:text="Name" android:textColor="#673AB7" android:textSize="20sp" />

<EditText

android:id="@+id/editText1" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content"

android:layout\_alignParentTop="true" android:layout\_alignParentEnd="true" android:layout\_marginTop="113dp" android:layout\_marginEnd="33dp" android:ems="10" android:inputType="textPersonName" />

<TextView

android:id="@+id/textView2" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_alignParentStart="true" android:layout\_alignParentTop="true"

android:layout\_marginStart="73dp" android:layout\_marginTop="216dp" android:text="Surname" android:textColor="#673AB7" android:textSize="20sp" />

<EditText

android:id="@+id/editText2" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_alignParentTop="true" android:layout\_alignParentEnd="true" android:layout\_marginTop="195dp" android:layout\_marginEnd="33dp" android:ems="10" android:inputType="textPersonName" />

<EditText

android:id="@+id/editText3" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_alignParentTop="true" android:layout\_alignParentEnd="true" android:layout\_marginTop="268dp" android:layout\_marginEnd="25dp" android:ems="10" android:inputType="textPersonName" />

<TextView

android:id="@+id/textView3" android:layout\_width="wrap\_content" android:layout\_height="wrap\_content" android:layout\_alignParentStart="true" android:layout\_alignParentTop="true" android:layout\_marginStart="87dp" android:layout\_marginTop="282dp" android:text="Marks" android:textColor="#673AB7" android:textSize="20sp" />

<Button

android:id="@+id/button" android:layout\_width="121dp" android:layout\_height="wrap\_content" android:layout\_alignParentStart="true" android:layout\_alignParentTop="true"

android:layout\_marginStart="92dp" android:layout\_marginTop="427dp" android:onClick="addData" android:text="Add" />

<Button

android:id="@+id/button2" android:layout\_width="110dp" android:layout\_height="wrap\_content" android:layout\_alignParentTop="true" android:layout\_alignParentEnd="true" android:layout\_marginTop="422dp" android:layout\_marginEnd="56dp" android:text="Update" android:onClick="update"/>

<Button

android:id="@+id/button3" android:layout\_width="126dp" android:layout\_height="wrap\_content" android:layout\_alignParentStart="true"

android:layout\_alignParentTop="true" android:layout\_marginStart="90dp" android:layout\_marginTop="510dp" android:onClick="delete" android:text="Delete" />

<Button

android:id="@+id/button4" android:layout\_width="114dp" android:layout\_height="wrap\_content" android:layout\_alignParentTop="true" android:layout\_alignParentEnd="true" android:layout\_marginTop="505dp" android:layout\_marginEnd="57dp" android:onClick="showAll" android:text="Show" />

<TextView

android:layout\_width="147dp" android:layout\_height="44dp" android:layout\_alignParentStart="true" android:layout\_alignParentTop="true" android:layout\_centerHorizontal="true" android:layout\_marginStart="127dp" android:layout\_marginTop="55dp" android:text="Sqlite Demo" android:textColor="@color/purple\_500" android:textSize="24sp" />

</RelativeLayout>

**Right click on project and create new java class, name it as DatabaseHelper**

DatabaseHelper.java

**package** com.example.p8;

**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*** = **"MARKS"**;

**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,MARKS INTEGER)"**);

}

@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 marks) { SQLiteDatabase db = **this**.getWritableDatabase();

ContentValues cv = **new** ContentValues(); cv.put(***COL\_2***,name); cv.put(***COL\_3***,surname); cv.put(***COL\_4***,marks);

**long** result = db.insert(***TABLE\_NAME***,**null** ,cv);

**if**(result == -1)

return false; else

return true;

}

**public** Cursor getAllData() {

SQLiteDatabase db = **this**.getWritableDatabase();

Cursor res = db.rawQuery(**"select \* from "**+***TABLE\_NAME***,**null**); **return** res;

}

**public boolean** updateData(String id,String name,String surname,String marks) {

SQLiteDatabase db = **this**.getWritableDatabase();

ContentValues contentValues = **new** ContentValues(); contentValues.put(***COL\_1***,id);

contentValues.put(***COL\_2***,name); contentValues.put(***COL\_3***,surname); contentValues.put(***COL\_4***,marks);

db.update(***TABLE\_NAME***, contentValues, **"ID = ?"**,**new** String[] { id });

return true;

}

**public** Integer deleteData (String id) { SQLiteDatabase db = **this**.getWritableDatabase();

**return** db.delete(***TABLE\_NAME***, **"ID = ?"**,**new** String[] {id});

}

}

Update MainActivity

MainActivity.java

**package** com.example.p8;

**import** androidx.appcompat.app.AppCompatActivity;

**import** android.app.AlertDialog; **import** android.database.Cursor; **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**, **btnDelete**,**btnviewUpdate**,**btnviewAll**;

@Override

**protected void** onCreate(Bundle savedInstanceState) { **super**.onCreate(savedInstanceState); setContentView(R.layout.***activity\_main***);

**myDb** = **new** DatabaseHelper(**this**);

**editName** = (EditText)findViewById(R.id.***editText1***); **editSurname** = (EditText)findViewById(R.id.***editText2***); **editMarks** = (EditText)findViewById(R.id.***editText3***); **editTextId** = (EditText)findViewById(R.id.***editText4***);

**btnAddData** = (Button)findViewById(R.id.***button***); **btnviewAll** = (Button)findViewById(R.id.***button2***); **btnviewUpdate** = (Button)findViewById(R.id.***button3***); **btnDelete**= (Button)findViewById(R.id.***button4***);

}

**public void** addData(View view) {

**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();

}

**public void** update(View v)

{

**boolean** isUpdated = **myDb**.updateData(**editTextId**.getText().toString(), **editName**.getText().toString(), **editSurname**.getText().toString(),

**editMarks**.getText().toString()); **if**(isUpdated == **true**)

Toast.*makeText*(MainActivity.**this**,**"Data Updated"**,Toast.***LENGTH\_LONG***).show();

else

Toast.*makeText*(MainActivity.**this**,**"Data not updated"**,Toast.***LENGTH\_LONG***).show();

}

**public void** delete(View v)

{

String id = **editTextId**.getText().toString(); **if**(id.isEmpty())

{

Toast.*makeText*(getApplicationContext(),**"Id is empty"**, Toast.***LENGTH\_LONG***).show();

}

else

{

**int** r = **myDb**.deleteData(id); **if**(r<=0)

Toast.*makeText*(getApplicationContext(),**"Unsuccessful"**, Toast.***LENGTH\_LONG***).show();

else

Toast.*makeText*(getApplicationContext(),**"Deleted"**, Toast.***LENGTH\_LONG***).show();

}

}

**public void** showAll(View view) { Cursor res = **myDb**.getAllData(); **if** (res.getCount() == 0) {

*// show message*

showMessage(**"Error"**, **"Nothing found"**); **return**;

}

StringBuffer buffer = **new** StringBuffer();

**while** (res.moveToNext()) {

buffer.append(**"Id :"** + res.getString(0) + **"\n"**); buffer.append(**"Name :"** + res.getString(1) + **"\n"**); buffer.append(**"Surname :"** + res.getString(2) + **"\n"**); buffer.append(**"Marks :"** + res.getString(3) + **"\n\n"**);

}

*// Show all data*

showMessage(**"Data"**, buffer.toString());

}

**public void** showMessage(String title,String Message){ AlertDialog.Builder builder = **new** AlertDialog.Builder(**this**); builder.setCancelable(**true**);

builder.setTitle(title); builder.setMessage(Message);