

Program 13: Database application using SQLite

MainActivity.java

```
package com.example.13database;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import android.database.Cursor;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
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.editText_name);
        editSurname = (EditText) findViewById(R.id.editText_surname);
        editMarks = (EditText) findViewById(R.id.editText_Marks);
        editTextId = (EditText) findViewById(R.id.editText_id);
        btnAddData = (Button) findViewById(R.id.button_add);
        btnviewAll = (Button) findViewById(R.id.button_viewAll);
        btnviewUpdate = (Button) findViewById(R.id.button_update);
        btnDelete = (Button) findViewById(R.id.button_delete);
        AddData();
        viewAll();
        UpdateData();
    }
}
```

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        DeleteData();
    }
    public void DeleteData() {
btnDelete.setOnClickListener(new
View.OnClickListener() {

    public void onClick(View v) {
Integer deletedRows = myDb.deleteData(editTextId.getText().toString());
if (deletedRows > 0)
        Toast.makeText(MainActivity.this, "Data
Deleted", Toast.LENGTH_LONG).show();
else
        Toast.makeText(MainActivity.this, "Data not
Deleted", Toast.LENGTH_LONG).show();
    }
}
    );
}
    public void UpdateData() {
        btnviewUpdate.setOnClickListener( new View.OnClickListener() {
            @Override
            public void onClick(View v) {
boolean isUpdate
=myDb.updateData(editTextId.getText().toString(),editName.getText()
.toString(), editSurname.getText().toString(),
editMarks.getText().toString());
        if (isUpdate == true)
            Toast.makeText(MainActivity.this, "Data
Update", Toast.LENGTH_LONG).show();
        else
            Toast.makeText(MainActivity.this, "Data not
Updated", Toast.LENGTH_LONG).show();
        }
    }
    );
}
    public void AddData() {
btnAddData.setOnClickListener( new
View.OnClickListener() {
        @Override
        public void onClick(View v) {
boolean isInserted = myDb.insertData(editName.getText().toString(),
editSurname.getText().toString(),
editMarks.getText().toString());

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        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 viewAll() {
    btnviewAll.setOnClickListener(new
View.OnClickListener() {
        @Override
        public void onClick(View v) {
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);
}

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builder.show();
}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
// Inflate the menu; this adds items to the action bar if it is present.
//getMenuInflater().inflate(R.menu.menu_main, menu);
return true;
}

@Override
public boolean onOptionsItemSelected(MenuItem item) { // Handle
action bar item clicks here. The action bar will
// automatically handle clicks on the Home/Up button, so long
// as you specify a parent activity inAndroidManifest.xml.
    int id = item.getItemId();

    //noinspection SimplifiableIfStatement
    /* if (id == R.id.action_settings) {
        return true;
    }*/
    return super.onOptionsItemSelected(item);
}
}

```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" tools:context=".MainActivity">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="Name" android:id="@+id/textView"
        android:layout_alignParentTop="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true" />
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

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        android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="Surname"    android:id="@+id/textView2"
        android:layout_below="@+id/editText_name"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true" />
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceLarge"
    android:text="Marks"
    android:id="@+id/textView3"
    android:layout_below="@+id/editText_surname"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true" />
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/editText_name"
    android:layout_alignTop="@+id/textView"
    android:layout_toRightOf="@+id/textView"
    android:layout_toEndOf="@+id/textView" />
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/editText_surname"
    android:layout_alignTop="@+id/textView2"
    android:layout_toRightOf="@+id/textView2"
    android:layout_toEndOf="@+id/textView2" />
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/editText_Marks"
    android:layout_below="@+id/editText_surname"
    android:layout_toRightOf="@+id/textView3"
    android:layout_toEndOf="@+id/textView3" /> <Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Add Data"
    android:id="@+id/button_add"
    android:layout_below="@+id/editText_Marks"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:layout_marginTop="76dp" />
<Button

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        android:layout_width="wrap_content"
        android:layout_height="wrap_content"    android:text="View All"
        android:id="@+id/button_viewAll"
        android:layout_above="@+id/button_update"
        android:layout_centerHorizontal="true" />
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"    android:text="Update"
    android:id="@+id/button_update"
    android:layout_below="@+id/button_add"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true" />
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"    android:text="Delete"
    android:id="@+id/button_delete"
    android:layout_centerVertical="true"
    android:layout_below="@+id/button_viewAll"
    android:layout_alignLeft="@+id/button_viewAll"

    android:layout_alignStart="@+id/button_viewAll" />
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceLarge"
    android:text="id"    android:id="@+id/textView_id"
    android:layout_below="@+id/editText_Marks"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true" />
<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"    android:id="@+id/editText_id"
    android:layout_alignTop="@+id/textView_id"
    android:layout_toRightOf="@+id/textView3"
    android:layout_toEndOf="@+id/textView3" />
</RelativeLayout>

```

DatabaseHelper.java

```

package com.example.13database;
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 contentValues = new ContentValues();
contentValues.put(COL_2, name);
contentValues.put(COL_3, surname);
contentValues.put(COL_4, marks);
    long result = db.insert(TABLE_NAME, null, contentValues);
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();

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```

        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});
    }
}

```

Output:

