Program 13: Database application using SQLite

ACTIVITY_MAIN.XML

```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"

        android:textAppearance="?android:attr/textAppearanceLarge"

        android:text="Surname"

        android:id="@+id/textView2"

        android:layout_below="@+id/editText_name"
```

```xml
        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"
```

```xml
        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

        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" />
```

```xml
<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"
```

```xml
        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>
```

MAINACTIVITY.JAVA

```java
package com.example.openmenu;




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;
```

```java
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);
```

```java
        btnDelete= (Button)findViewById(R.id.button_delete);

        AddData();

        viewAll();

        UpdateData();

        DeleteData();

}

public void DeleteData() {

    btnDelete.setOnClickListener(

            new View.OnClickListener() {

                @Override

                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() {
```

```java
        @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() );
```

```java
                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()) {
```

```java
                    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);

    builder.show();

}
```

```java
    @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 in AndroidManifest.xml.

        int id = item.getItemId();


//noinspection SimplifiableIfStatement

/* if (id == R.id.action_settings) {

return true;

}*/


        return super.onOptionsItemSelected(item);

    }

}
```

DATABASEHELPER.JAVA //A NEW JAVA FILE //

package com.example.openmenu;

import android.content.ContentValues;

import android.content.Context;

import android.database.Cursor;

import android.database.sqlite.SQLiteDatabase;

import android.database.sqlite.SQLiteOpenHelper;

```java
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
```

```java
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;

}
```

```java
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});

}
}
```

Openmenu

Name Kiran

Surname Karthikeyan

Marks 84

id 033/mca

[ADD DATA] [VIEW ALL]

[UPDATE] [DELETE]

MCA   mca   MFA

q w e r t y u i o p

a s d f g h j k l

z x c v b n m

?123 , .

11:16

Openmenu

Name Sarath

Surname K

Marks 87

id   2

Data

Id :1
Name :Kiran
Surname :Karthikeyan
Marks :84

Id :4
Name :Sarath
Surname :K
Marks :87

3 se

cceeded

q w e r t y u i o p

a s d f g h j k l

z x c v b n m

?123   ,   .