Program 13

Database application using SQLite

MainActivity.java

```java
package com.example.a13database;

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();
        DeleteData();
    }

    public void DeleteData() {
        btnDelete.setOnClickListener(
                new View.OnClickListener() {
                    @Override
                    public void onClick(View v) {
                        Integer deletedRows =
```

```java
            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());

                        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() {
```

```java
        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);
        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
<?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"
    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" />
```

```xml
<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" />
<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

```java
package com.example.a13database;

import android.content.ContentValues;
import android.content.Context;
```

```java
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();
        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: