# Program 13: Database application using SQLite

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:tools="[http://schemas.android.com/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" />

<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>

Mainactivity.java

package com.example.pgm13;

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 = 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() { btnviewAll.setOnClickListener(

new View.OnClickListener() { @Override

public void onClick(View v) { Cursor res = myDb.getAllData(); if(res.getCount() == 0) {

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");

}

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 ifit is present.

//getMenuInflater().inflate(R.menu.menu\_main, menu); return true;

}

@Override

public boolean onOptionsItemSelected(MenuItem item) { int id = item.getItemId();

return super.onOptionsItemSelected(item);

}

}

Databasehelper.java

package com.example.pgm13;

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(); 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

