PRESIDENCY UNIVERSITY

Mobile application development(CSE 3075)

20211CSE0223

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5CSE4

Experiment 17: SQLite Example

1.Design (activity_main.xml)

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/img"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/sqlite_example_n_student_details"
        android:textColor="#C13714"
        android:textSize="20sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.446"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.023" />

    <EditText
        android:id="@+id/editTextText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="44dp"
        android:layout_marginEnd="36dp"
        android:autofillHints=""
        android:ems="10"
        android:hint="@string/enter_id"
```

```
        android:inputType="text"
        android:minHeight="48dp"
        android:textColor="#190101"
        android:textColorHint="#6D4C41"
        app:layout_constraintEnd_toEndOf="@+id/textView"
        app:layout_constraintHorizontal_bias="0.186"
        app:layout_constraintStart_toStartOf="@+id/textView"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <EditText
        android:id="@+id/editTextText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="30dp"
        android:autofillHints=""
        android:ems="10"
        android:hint="@string/enter_name"
        android:inputType="text"
        android:minHeight="48dp"
        android:textColor="#190101"
        android:textColorHint="#6D4C41"
        app:layout_constraintStart_toStartOf="@+id/editTextText"
        app:layout_constraintTop_toBottomOf="@+id/editTextText" />

    <EditText
        android:id="@+id/editTextText3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="3dp"
        android:layout_marginTop="33dp"
        android:autofillHints=""
        android:ems="10"
        android:hint="@string/enter_course"
        android:inputType="text"
        android:minHeight="48dp"
        android:textColor="#190101"
        android:textColorHint="#6D4C41"
        app:layout_constraintStart_toStartOf="@+id/editTextText2"
        app:layout_constraintTop_toBottomOf="@+id/editTextText2" />

    <EditText
        android:id="@+id/editTextText4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="44dp"
        android:autofillHints=""
        android:ems="10"
        android:hint="@string/enter_marks"
        android:inputType="text"
        android:minHeight="48dp"
        android:textColor="#190101"
        android:textColorHint="#6D4C41"
        app:layout_constraintEnd_toEndOf="@+id/editTextText3"
        app:layout_constraintStart_toStartOf="@+id/editTextText3"
        app:layout_constraintTop_toBottomOf="@+id/editTextText3" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="48dp"
```

```
        android:layout_marginTop="40dp"
        android:backgroundTint="#026C4A"
        android:text="@string/insert"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextText4" />

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="40dp"
        android:layout_marginEnd="80dp"
        android:backgroundTint="#026C4A"
        android:text="@string/display"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editTextText4" />

    <Button
        android:id="@+id/button3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:backgroundTint="#026C4A"
        android:text="@string/update"
        app:layout_constraintBottom_toBottomOf="@+id/button4"
        app:layout_constraintEnd_toEndOf="@+id/button"
        app:layout_constraintStart_toStartOf="@+id/button"
        app:layout_constraintTop_toTopOf="@+id/button4"
        app:layout_constraintVertical_bias="0.0" />

    <Button
        android:id="@+id/button4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="59dp"
        android:backgroundTint="#026C4A"
        android:text="@string/delete"
        app:layout_constraintEnd_toEndOf="@+id/button2"
        app:layout_constraintStart_toStartOf="@+id/button2"
        app:layout_constraintTop_toBottomOf="@+id/button2" />


</androidx.constraintlayout.widget.ConstraintLayout>
```

strings.xml

```
<resources>
    <string name="app_name">SQLiteExample_0223</string>
    <string name="sqlite_example_n_student_details">SQLite Example \n
Student details</string>
    <string name="enter_id">Enter id:</string>
    <string name="enter_name">Enter name:</string>
    <string name="enter_course">Enter course:</string>
    <string name="enter_marks">Enter marks:</string>
    <string name="insert">INSERT</string>
    <string name="display">DISPLAY</string>
    <string name="update">UPDATE</string>
    <string name="delete">DELETE</string>
```

```
    <string name="student_table">Student_table</string>
</resources>
```

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.SQLiteExample_0223"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true"
            android:icon="@mipmap/img">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER"
/>
            </intent-filter>
        </activity>
    </application>

</manifest>
```

2.JAVA FILE

MainActivity.java

```
package com.example.sqliteexample_0223;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

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 {

    EditText editTextText,editTextText2,editTextText3,editTextText4;
    Button button,button2,button3,button4;
```

```
    NewJavaFile newJavaFile;


    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        newJavaFile = new NewJavaFile(this);
        editTextText = findViewById(R.id.editTextText);
        editTextText2 = findViewById(R.id.editTextText2);
        editTextText3 = findViewById(R.id.editTextText3);
        editTextText4 = findViewById(R.id.editTextText4);
        button = findViewById(R.id.button);
        button2 = findViewById(R.id.button2);
        button3 = findViewById(R.id.button3);
        button4 = findViewById(R.id.button4);
        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

                boolean isInserted =
newJavaFile.insertData(editTextText2.getText().toString(),
editTextText3.getText().toString(), editTextText4.getText().toString());
                if (isInserted == true)
                    Toast.makeText(MainActivity.this, "Data successfully
inserted", Toast.LENGTH_LONG).show();
                else
                    Toast.makeText(MainActivity.this, "Data not inserted",
Toast.LENGTH_SHORT).show();
            }
        });

        button2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

                Cursor res = newJavaFile.displayData();
                if (res.getCount() == 0) {
                    showMessage("Error", "No Data 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(("Course: " + res.getString(2) + "\n"));
                    buffer.append(("Marks: " + res.getString(3) + "\n"));

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

        button3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

                boolean isUpdate =
newJavaFile.updateData(editTextText.getText().toString(),
                        editTextText2.getText().toString(),
                        editTextText3.getText().toString(),
```

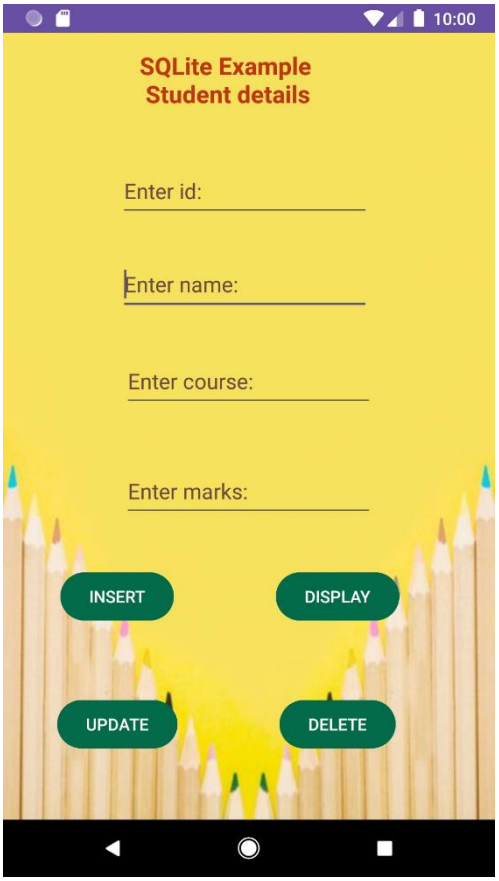
```
                        editTextText4.getText().toString());
                if (isUpdate == true)
                    Toast.makeText(MainActivity.this, "Data successfully
updated", Toast.LENGTH_SHORT).show();
                else
                    Toast.makeText(MainActivity.this, "Data not updated",
Toast.LENGTH_LONG).show();
            }
        });

        button4.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

                Integer deletedRows =
newJavaFile.deleteData(editTextText.getText().toString());
                if (deletedRows > 0)
                    Toast.makeText(MainActivity.this, "Data successfully
deleted", Toast.LENGTH_SHORT).show();
                else
                    Toast.makeText(MainActivity.this, "Data not deleted",
Toast.LENGTH_SHORT).show();
            }
        });
    }
    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();
    }
}
```

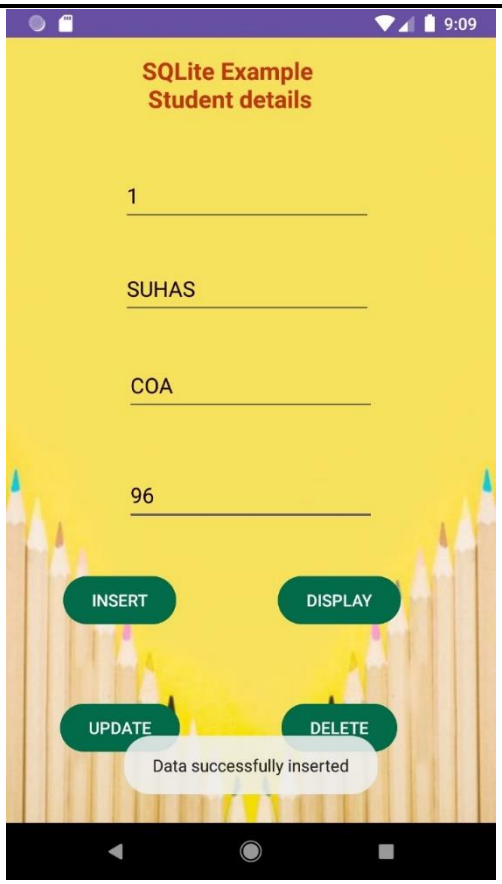
NewJavaFile

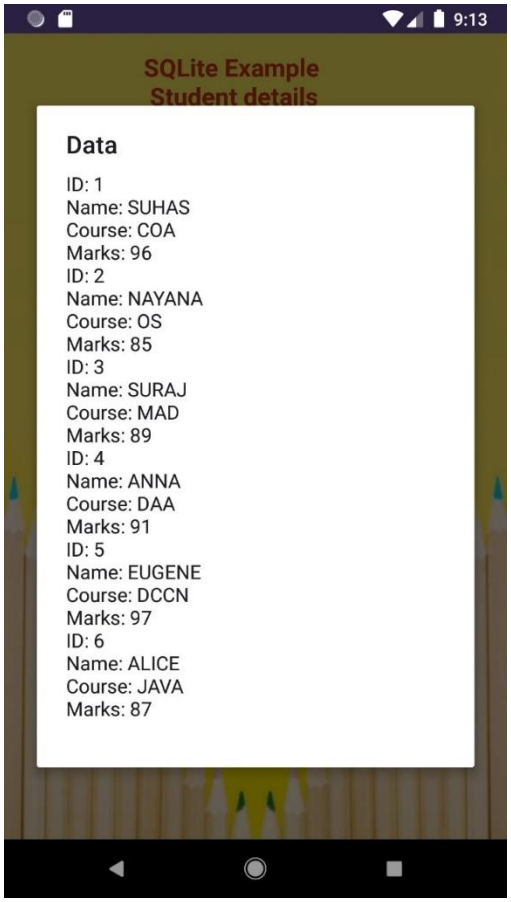
```
package com.example.sqliteexample_0223;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

import androidx.annotation.Nullable;

public class NewJavaFile 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="COURSE";
    public static final String col_4="MARKS";
    public NewJavaFile(@Nullable Context context) {

        super(context,DATABASE_NAME, null, 1);
    }
```

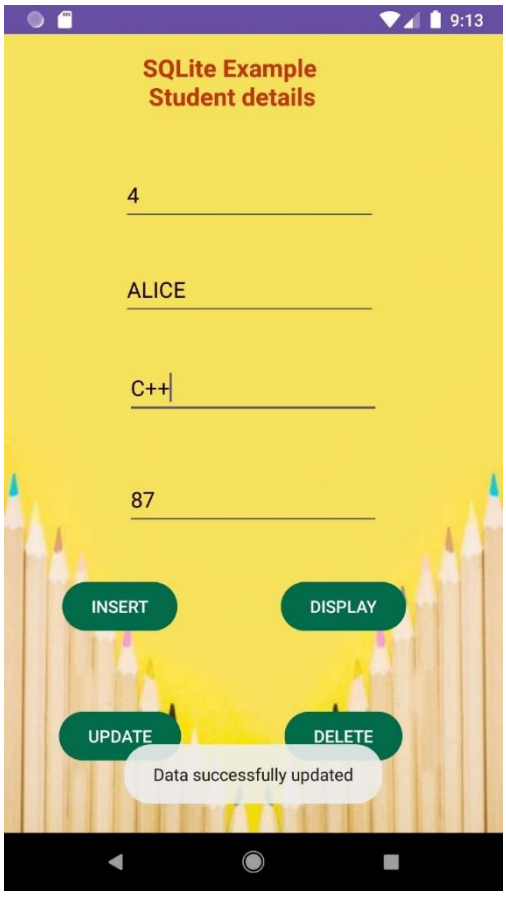
```
    @Override
    public void onCreate(SQLiteDatabase sqLiteDatabase) {
        sqLiteDatabase.execSQL("create table "+TABLE_NAME+"(ID INTEGER
PRIMARY KEY AUTOINCREMENT,NAME TEXT,COURSE TEXT,MARKS INTEGER)");
    }

    @Override
    public void onUpgrade(SQLiteDatabase sqLiteDatabase, int oldVersion,
int newVersion) {
        sqLiteDatabase.execSQL("DROP TABLE IF EXISTS "+TABLE_NAME);
        onCreate(sqLiteDatabase);
    }
    public boolean insertData(String name,String course,String marks) {
        SQLiteDatabase sqLiteDatabase=this.getWritableDatabase();
        ContentValues contentValues=new ContentValues();
        contentValues.put(col_2,name);
        contentValues.put(col_3,course);
        contentValues.put(col_4,marks);
        long result=sqLiteDatabase.insert(TABLE_NAME,null,contentValues);
        if(result==-1)
            return  false;
        else
            return true;

    }
    public Cursor displayData() {
        SQLiteDatabase sqLiteDatabase = this.getWritableDatabase();
        Cursor res = sqLiteDatabase.rawQuery("select * from " +TABLE_NAME,
null);
        return res;
    }
    public boolean updateData(String id,String name,String course,String
marks) {
        SQLiteDatabase sqLiteDatabase=this.getWritableDatabase();
        ContentValues contentValues=new ContentValues();
        contentValues.put(col_1,id);
        contentValues.put(col_2,name);
        contentValues.put(col_3,course);
        contentValues.put(col_4,marks);
        sqLiteDatabase.update(TABLE_NAME,contentValues,"ID = ?",new
String[] {id});
        return true;
    }
    public  Integer deleteData(String id) {
        SQLiteDatabase sqLiteDatabase=this.getWritableDatabase();
        return  sqLiteDatabase.delete(TABLE_NAME,"ID = ?",new
String[]{id});
    }
}
```

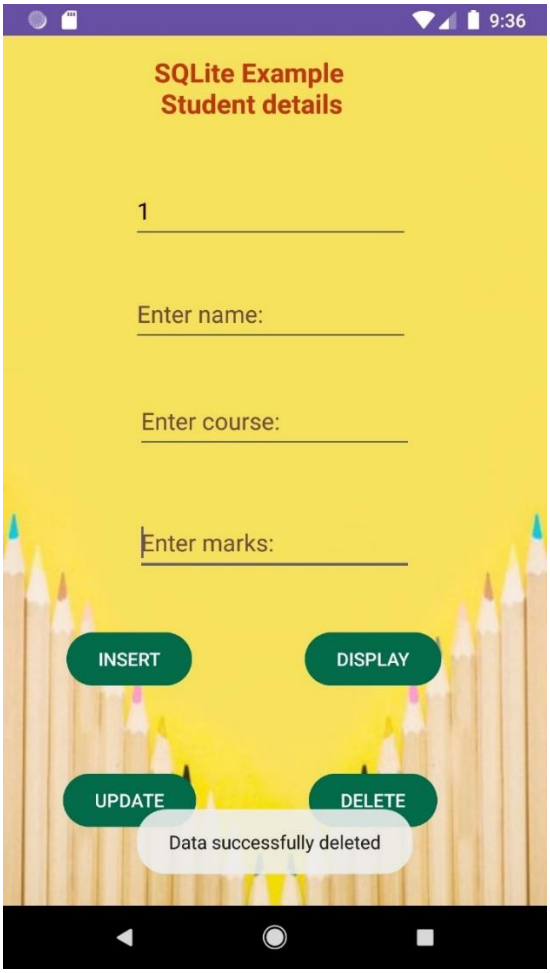
3.Output in the emulator


10:00
SQLite Example
Student details
Enter id:
Enter name:
Enter course:
Enter marks:
INSERT
DISPLAY
UPDATE
DELETE


9:09
SQLite Example
Student details
1
SUHAS
COA
96
INSERT
DISPLAY
UPDATE
DELETE
Data successfully inserted


9:13
SQLite Example
Student details
Data
ID: 1
Name: SUHAS
Course: COA
Marks: 96
ID: 2
Name: NAYANA
Course: OS
Marks: 85
ID: 3
Name: SURAJ
Course: MAD
Marks: 89
ID: 4
Name: ANNA
Course: DAA
Marks: 91
ID: 5
Name: EUGENE
Course: DCCN
Marks: 97
ID: 6
Name: ALICE
Course: JAVA
Marks: 87


9:13
SQLite Example
Student details
4
ALICE
C++
87
INSERT
DISPLAY
UPDATE
DELETE
Data successfully updated


9:36
SQLite Example
Student details
1
Enter name:
Enter course:
Enter marks:
INSERT
DISPLAY
UPDATE
DELETE
Data successfully deleted