Manifest.xml

```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.Database"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER"
/>
            </intent-filter>
        </activity>
    </application>
</manifest>
```

Layout.xml

```xml
<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">
    <EditText
        android:id="@+id/editText_name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Name"
        android:layout_margin="10dp" />

    <EditText
        android:id="@+id/editText_rollno"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Roll No"
        android:layout_below="@id/editText_name"
        android:layout_margin="10dp" />
    <EditText
        android:id="@+id/editText_marks"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Marks"
        android:layout_below="@id/editText_rollno"
        android:layout_margin="10dp" />
    <EditText
        android:id="@+id/editText_address"
        android:layout_width="match_parent"
```

```xml
        android:layout_height="wrap_content"
        android:hint="Address and Other details"
        android:layout_below="@id/editText_marks"
        android:layout_margin="10dp" />
    <EditText
        android:id="@+id/editText_phone"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint=""
        android:inputType="phone"
        android:layout_below="@id/editText_address"
        android:layout_margin="10dp" />
    <Button
        android:id="@+id/button_add"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Add Data"
        android:layout_below="@id/editText_address"
        android:layout_margin="10dp" />
    <Button
        android:id="@+id/button_viewAll"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="View All"
        android:layout_below="@id/button_add"
        android:layout_margin="10dp" />
    <Button
        android:id="@+id/button_update"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Update Data"
        android:layout_below="@id/button_viewAll"
        android:layout_margin="10dp" />
    <Button
        android:id="@+id/button_delete"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Delete Data"
        android:layout_below="@id/button_update"
        android:layout_margin="10dp" />
    <Button
        android:id="@+id/button_view"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="View Data"
        android:layout_below="@id/button_delete"
        android:layout_margin="10dp" />
    <TextView

        android:id="@+id/textView_name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Abiney Yadav R"
        android:layout_below="@id/button_view"
        android:layout_margin="10dp"
        android:gravity="center"
        android:textSize="18sp"
        android:textColor="#000000" />
</RelativeLayout>
```

Main.java

```java
package com.example.database;
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 {
    private DatabaseHelper myDb;
    private EditText editName, editRollNo, editMarks, editAddress;
    private Button btnAddData, btnViewAll, btnUpdate, btnDelete, btnView;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        initializeUI();
        myDb = new DatabaseHelper(this);
        setupListeners();
    }
    private void initializeUI() {
        editName = findViewById(R.id.editText_name);
        editRollNo = findViewById(R.id.editText_rollno);
        editMarks = findViewById(R.id.editText_marks);
        editAddress = findViewById(R.id.editText_address);
        btnAddData = findViewById(R.id.button_add);
        btnViewAll = findViewById(R.id.button_viewAll);
        btnUpdate = findViewById(R.id.button_update);
        btnDelete = findViewById(R.id.button_delete);
        btnView = findViewById(R.id.button_view);
    }
    private void setupListeners() {
        btnAddData.setOnClickListener(v -> insertData());
        btnViewAll.setOnClickListener(v -> displayAllData());
        btnUpdate.setOnClickListener(v -> updateData());
        btnDelete.setOnClickListener(v -> deleteData());
        btnView.setOnClickListener(v -> displaySingleData());
    }
    private void insertData() {
        boolean isInserted = myDb.insertStudent(
                Integer.parseInt(editRollNo.getText().toString()),
                editName.getText().toString(),
                Integer.parseInt(editMarks.getText().toString()),
                editAddress.getText().toString()
        );
        showToast(isInserted ? "Data Inserted" : "Data not Inserted");
    }
    private void displayAllData() {
        Cursor res = myDb.getAllStudents();
        if (res.getCount() == 0) {
            showMessage("Error", "Nothing found");
            return;
        }
        StringBuilder buffer = new StringBuilder();
        while (res.moveToNext()) {
            buffer.append("Roll No
:").append(res.getString(0)).append("\n")
                    .append("Name :").append(res.getString(1)).append("\n")
                    .append("Marks
```

```
:").append(res.getString(2)).append("\n")
                        .append("Address
:").append(res.getString(3)).append("\n\n");
            }
            showMessage("Data", buffer.toString());
        }
    private void updateData() {
        boolean isUpdate = myDb.updateStudent(
                Integer.parseInt(editRollNo.getText().toString()),
                editName.getText().toString(),
                Integer.parseInt(editMarks.getText().toString()),
                editAddress.getText().toString()
        );
        showToast(isUpdate ? "Data Updated" : "Data not Updated");
    }
    private void deleteData() {
        int deletedRows =
myDb.deleteStudent(Integer.parseInt(editRollNo.getText().toString()));
        showToast(deletedRows > 0 ? "Data Deleted" : "Data not Deleted");
    }
    private void displaySingleData() {
        Cursor res =
myDb.getStudent(Integer.parseInt(editRollNo.getText().toString()));
        if (res.getCount() == 0) {
            showMessage("Error", "Nothing found");
            return;
        }
        StringBuilder buffer = new StringBuilder();
        while (res.moveToNext()) {
            buffer.append("Roll No
:").append(res.getString(0)).append("\n")
                        .append("Name :").append(res.getString(1)).append("\n")
                        .append("Marks
:").append(res.getString(2)).append("\n")
                        .append("Address
:").append(res.getString(3)).append("\n\n");
        }
        showMessage("Data", buffer.toString());
    }
    private void showToast(String message) {
        Toast.makeText(MainActivity.this, message,
Toast.LENGTH_LONG).show();
    }
    private void showMessage(String title, String message) {
        new android.app.AlertDialog.Builder(this)
                .setCancelable(true)
                .setTitle(title)
                .setMessage(message)
                .show();
    }
}
```

databaseHelper.java

```
package com.example.database;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
```

```java
import android.database.sqlite.SQLiteOpenHelper;
public class DatabaseHelper extends SQLiteOpenHelper {
    private static final String DATABASE_NAME = "Student.db";
    private static final String TABLE_NAME = "student_table";
    private static final String COL_1 = "ROLL_NO";
    private static final String COL_2 = "NAME";
    private static final String COL_3 = "MARKS";
    private static final String COL_4 = "ADDRESS";
    public DatabaseHelper(Context context) {
        super(context, DATABASE_NAME, null, 2); // Updated version for
upgrade

    }
    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("CREATE TABLE " + TABLE_NAME + " (" +
                COL_1 + " INTEGER PRIMARY KEY, " +
                COL_2 + " TEXT, " +
                COL_3 + " INTEGER, " +
                COL_4 + " TEXT)");
    }
    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int
newVersion) {
        if (oldVersion < 2) {
            db.execSQL("ALTER TABLE " + TABLE_NAME + " ADD COLUMN " + COL_4
+ " TEXT");
        }
    }
    public boolean insertStudent(int rollNo, String name, int marks, String
address) {
        SQLiteDatabase db = this.getWritableDatabase();
        ContentValues contentValues = new ContentValues();
        contentValues.put(COL_1, rollNo);
        contentValues.put(COL_2, name);
        contentValues.put(COL_3, marks);
        contentValues.put(COL_4, address);
        long result = db.insert(TABLE_NAME, null, contentValues);
        return result != -1;
    }
    public Cursor getAllStudents() {
        SQLiteDatabase db = this.getWritableDatabase();
        return db.rawQuery("SELECT * FROM " + TABLE_NAME, null);
    }
    public boolean updateStudent(int rollNo, String name, int marks, String
address) {
        SQLiteDatabase db = this.getWritableDatabase();
        ContentValues contentValues = new ContentValues();
        contentValues.put(COL_2, name);
        contentValues.put(COL_3, marks);
        contentValues.put(COL_4, address);
        int result = db.update(TABLE_NAME, contentValues, COL_1 + " = ?",
new String[]{String.valueOf(rollNo)});
        return result > 0;
    }
    public int deleteStudent(int rollNo) {
        SQLiteDatabase db = this.getWritableDatabase();
        return db.delete(TABLE_NAME, COL_1 + " = ?", new
String[]{String.valueOf(rollNo)});
    }
    public Cursor getStudent(int rollNo) {
```

```
        SQLiteDatabase db = this.getWritableDatabase();
        return db.rawQuery("SELECT * FROM " + TABLE_NAME + " WHERE " +
COL_1 + " = ?", new
                String[]{String.valueOf(rollNo)});
    }
}
```

Name

221501003

Marks

Address and Other details

Add Data

Data

Roll No :221501003
Name :Abiney Yadav R
Marks :80
Address :No:225B, Backers Street,Green Park,
Burmingham

Native:Chennai,TamilNadu
Blood Group:o-ve
Phone Number:72234

package com.ex...

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   ,   .