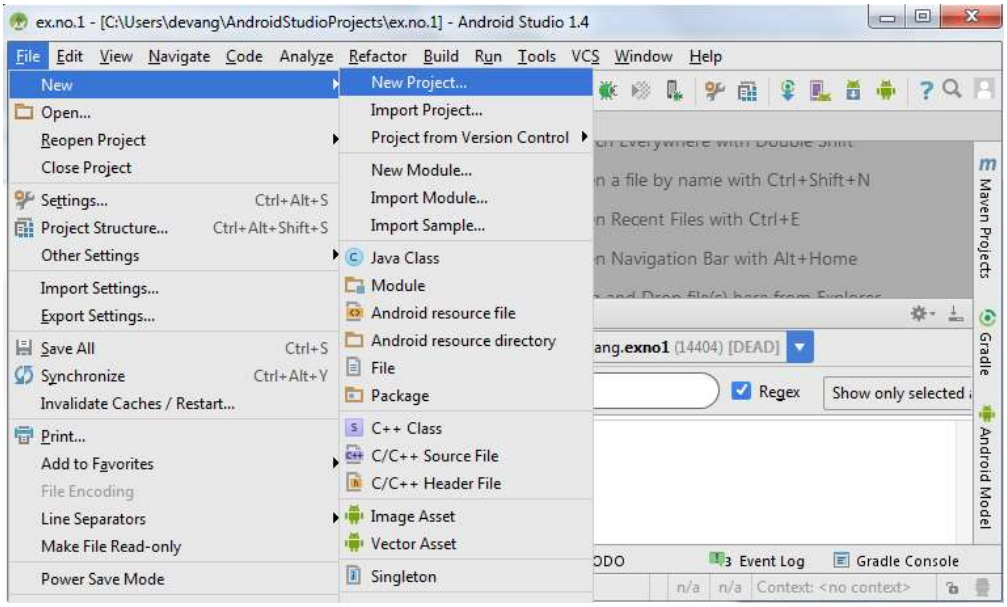
Application that makes use of database.

To develop a Simple Android Application that makes use of Database.

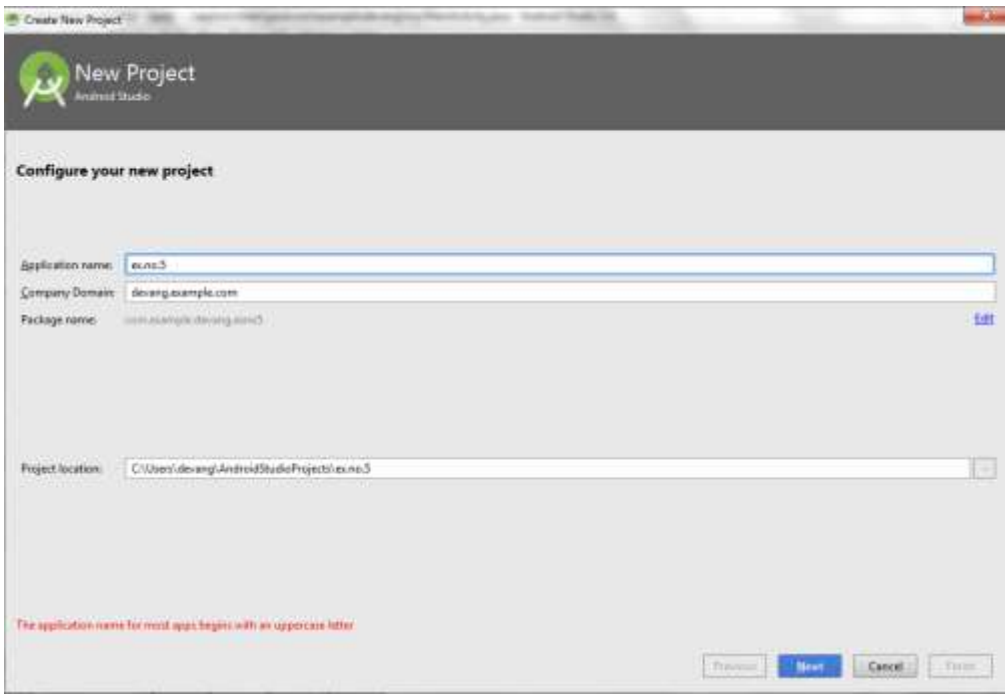
Procedure:

Creating a New project:

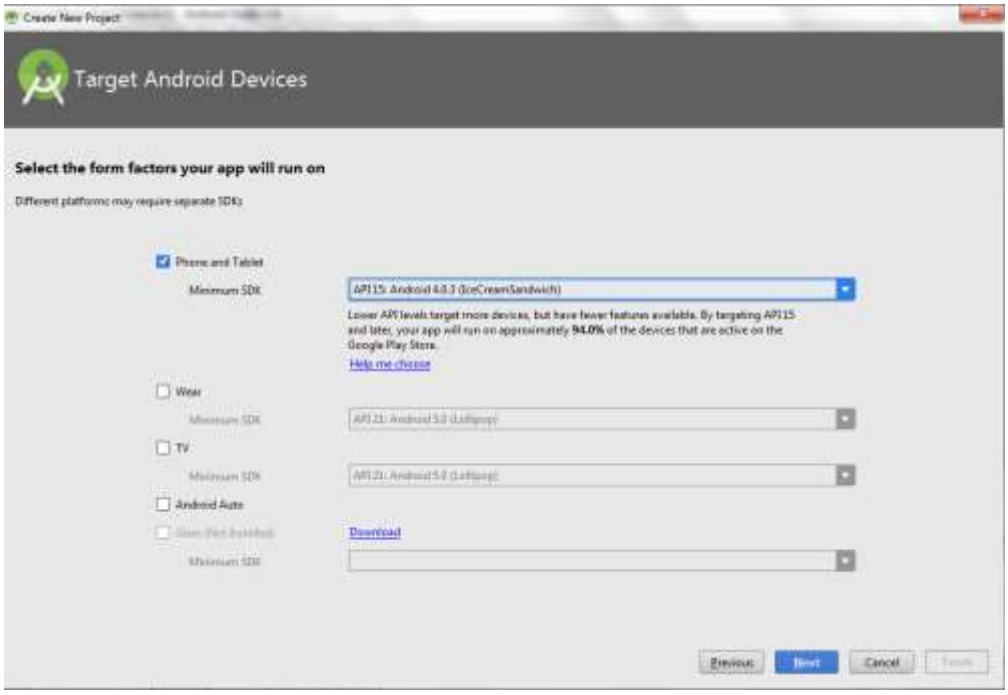
- Open Android Studio and then click on **File -> New -> New project.**



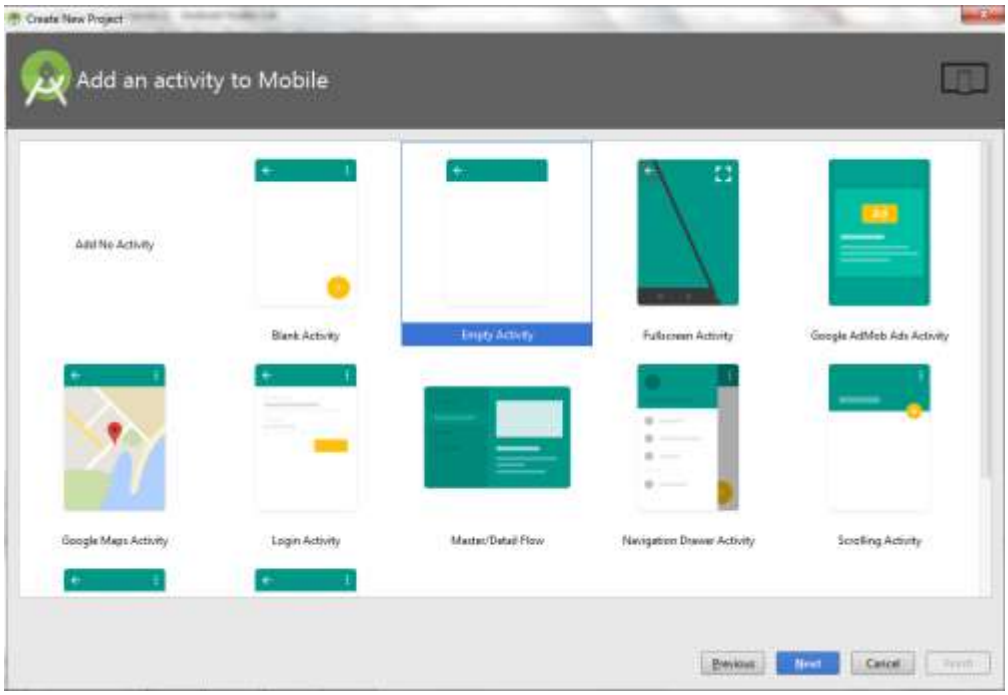
- Then type the Application name as "**ex.no.5"** and click **Next.**



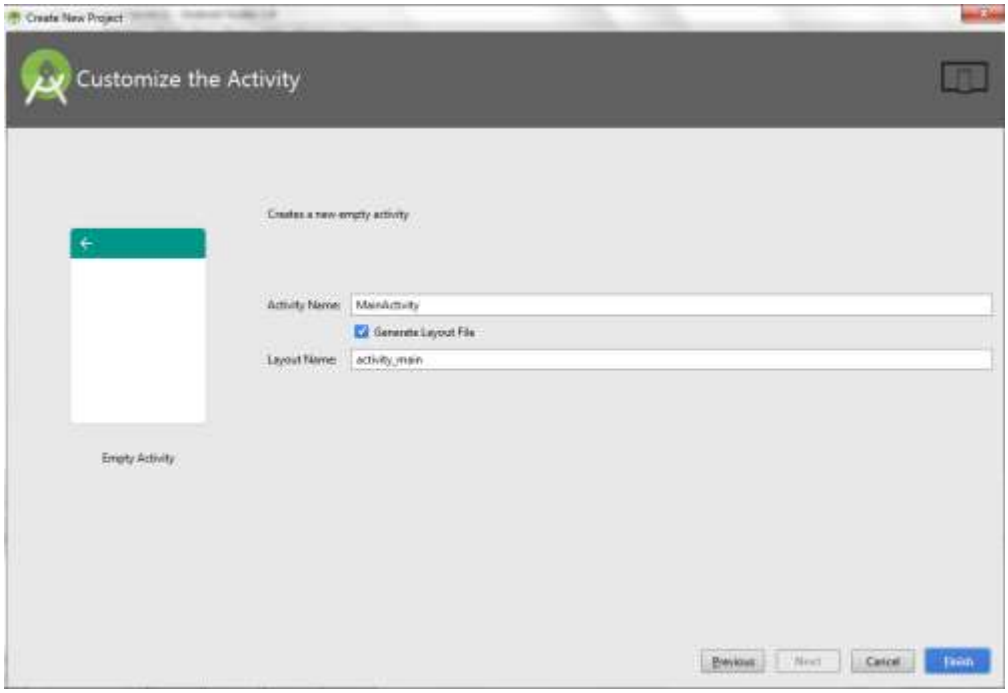
- Then select the **Minimum SDK** as shown below and click **Next**.



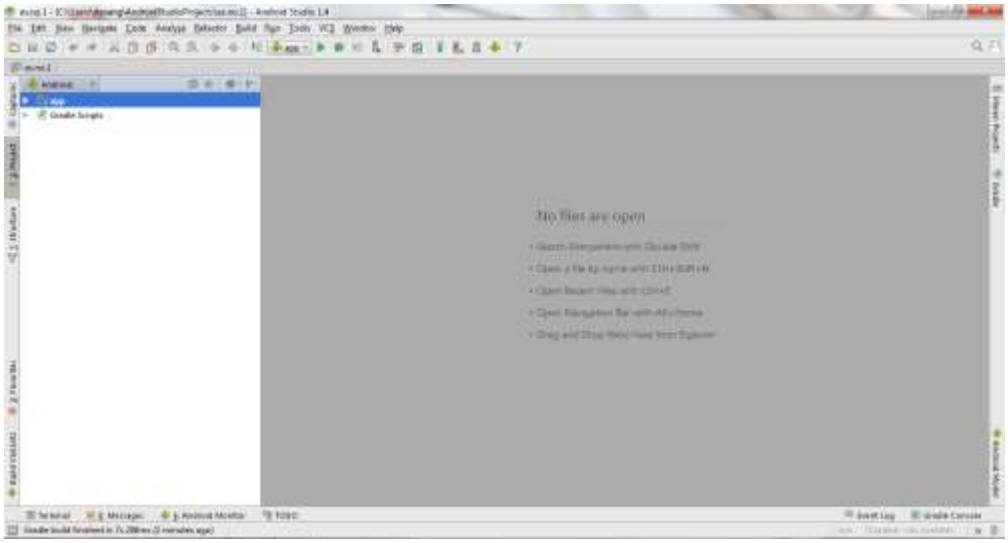
- Then select the **Empty Activity** and click **Next.**



- Finally click F**inish**.

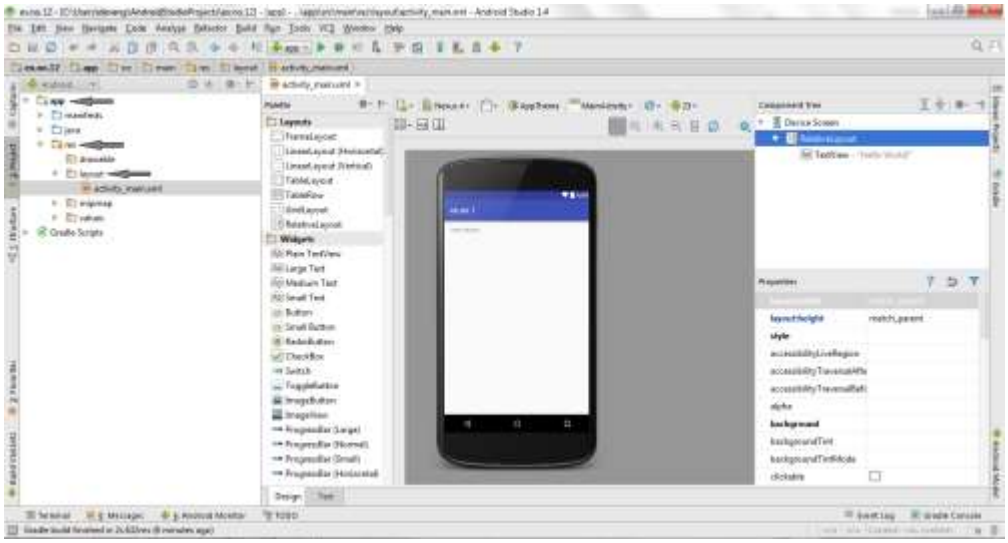


- It will take some time to build and load the project.
- After completion it will look as given below.

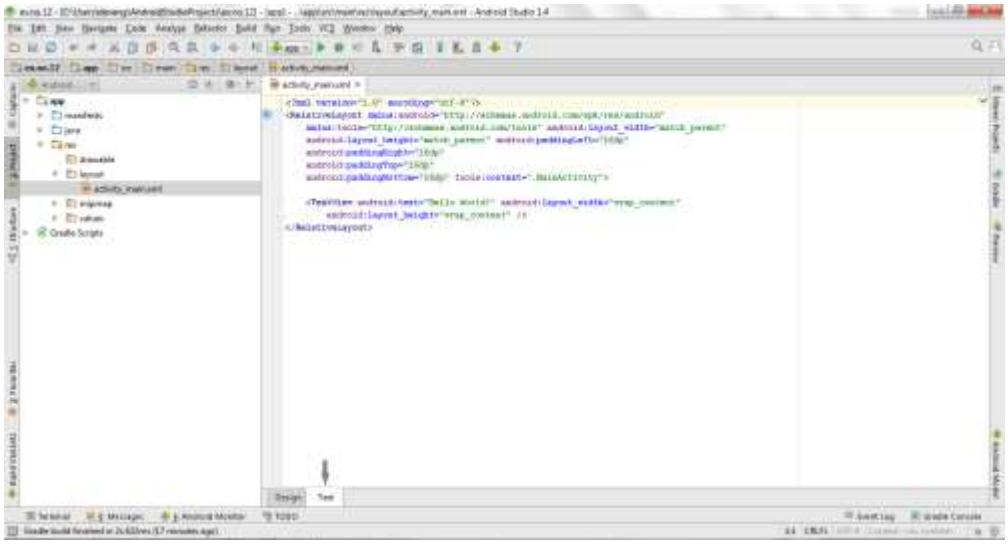


Designing layout for the Android Application:

- Click on **app -> res -> layout -> activity_main.xml.**



- Now click on **Text** as shown below.



- Then delete the code which is there and type the code as given below.

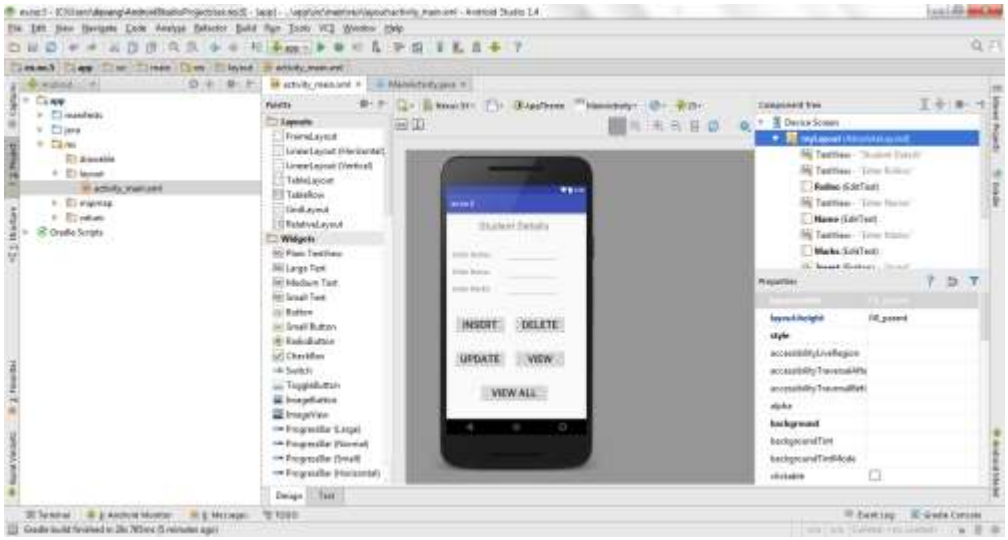
Code for Activity_main.xml:

```
?
1  <?xml version="1.0" encoding="utf-8"?>
2  <AbsoluteLayout
3  xmlns:android="http://schemas.android.com/apk/res/android"
4      android:layout_width="match_parent"
5      android:layout_height="match_parent">
6      <TextView
7          android:layout_width="wrap_content"
8          android:layout_height="wrap_content"
9          android:layout_x="50dp"
10         android:layout_y="20dp"
11         android:text="Student Details"
12         android:textSize="30sp" />

       <TextView
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_x="20dp"
        android:layout_y="110dp"
        android:text="Enter Rollno:"
        android:textSize="20sp" />

    <EditText
        android:id="@+id/Rollno"
        android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:layout_x="175dp"
        android:layout_y="100dp"
        android:inputType="number"
        android:textSize="20sp" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_x="20dp"
        android:layout_y="160dp"
        android:text="Enter Name:"
        android:textSize="20sp" />

    <EditText
        android:id="@+id/Name"
        android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:layout_x="175dp"
        android:layout_y="150dp"
        android:inputType="text"
        android:textSize="20sp" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_x="20dp"
        android:layout_y="210dp"
        android:text="Enter Marks:"
        android:textSize="20sp" />

    <EditText
        android:id="@+id/Marks"
        android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:layout_x="175dp"
        android:layout_y="200dp"
        android:inputType="number"
        android:textSize="20sp" />

    <Button
        android:id="@+id/Insert"
        android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:layout_x="25dp"
        android:layout_y="300dp"
        android:text="Insert"
        android:textSize="30dp" />

    <Button
```

```
        android:id="@+id/Delete"
        android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:layout_x="200dp"
        android:layout_y="300dp"
        android:text="Delete"
        android:textSize="30dp" />

    <Button
        android:id="@+id/Update"
        android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:layout_x="25dp"
        android:layout_y="400dp"
        android:text="Update"
        android:textSize="30dp" />

    <Button
        android:id="@+id/View"
        android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:layout_x="200dp"
        android:layout_y="400dp"
        android:text="View"
        android:textSize="30dp" />

    <Button
        android:id="@+id/ViewAll"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:layout_x="100dp"
        android:layout_y="500dp"
        android:text="View All"
        android:textSize="30dp" />

</AbsoluteLayout>
```

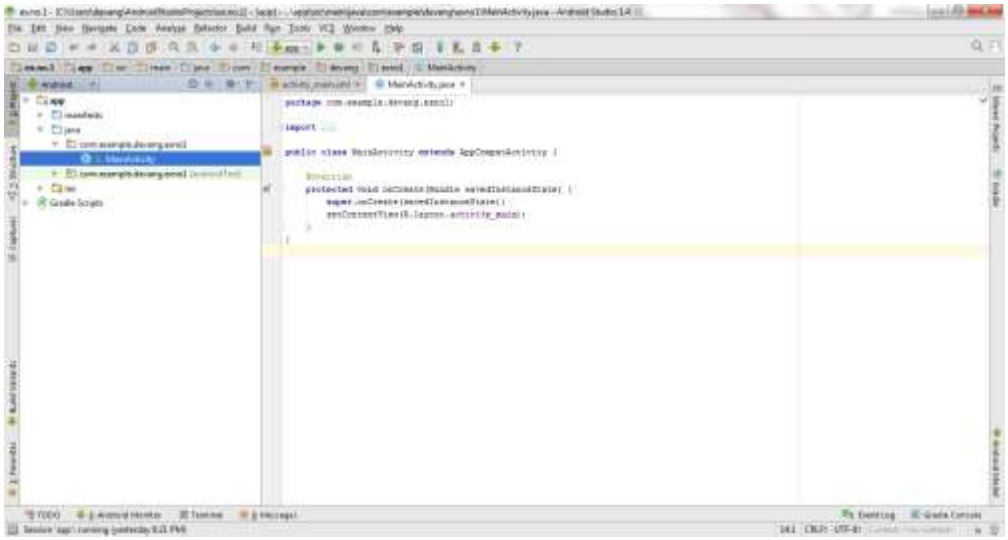
- Now click on **Design** and your application will look as given below.



- So now the designing part is completed.

Java Coding for the Android Application:

- Click on **app -> java -> com.example.exno5 -> MainActivity.**



- Then delete the code which is there and type the code as given below.

Code for MainActivity.java:

```
?
1  package com.example.exno5;
2
3  import android.app.Activity;
4  import android.app.AlertDialog.Builder;
5  import android.content.Context;
6  import android.database.Cursor;
7  import android.database.sqlite.SQLiteDatabase;
8  import android.os.Bundle;
   import android.view.View;
   import android.view.View.OnClickListener;
```

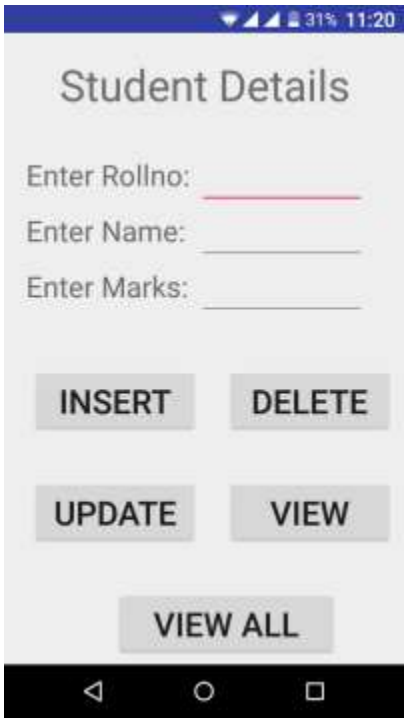
```
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends Activity implements OnClickListener
{
    EditText Rollno,Name,Marks;
    Button Insert,Delete,Update,View,ViewAll;
    SQLiteDatabase db;
    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Rollno=(EditText)findViewById(R.id.Rollno);
        Name=(EditText)findViewById(R.id.Name);
        Marks=(EditText)findViewById(R.id.Marks);
        Insert=(Button)findViewById(R.id.Insert);
        Delete=(Button)findViewById(R.id.Delete);
        Update=(Button)findViewById(R.id.Update);
        View=(Button)findViewById(R.id.View);
        ViewAll=(Button)findViewById(R.id.ViewAll);

        Insert.setOnClickListener(this);
        Delete.setOnClickListener(this);
        Update.setOnClickListener(this);
        View.setOnClickListener(this);
        ViewAll.setOnClickListener(this);

        // Creating database and table
        db=openOrCreateDatabase("StudentDB", Context.MODE_PRIVATE,
null);
        db.execSQL("CREATE TABLE IF NOT EXISTS student(rollno
VARCHAR,name VARCHAR,marks VARCHAR);");
    }
    public void onClick(View view)
    {
        // Inserting a record to the Student table
        if(view==Insert)
        {
            // Checking for empty fields
            if(Rollno.getText().toString().trim().length()==0||
                    Name.getText().toString().trim().length()==0||
                    Marks.getText().toString().trim().length()==0)
            {
                showMessage("Error", "Please enter all values");
                return;
            }
            db.execSQL("INSERT INTO student
VALUES('"+Rollno.getText()+"','"+Name.getText()+
                    "','"+Marks.getText()+"');");
            showMessage("Success", "Record added");
            clearText();
        }
        // Deleting a record from the Student table
        if(view==Delete)
        {
            // Checking for empty roll number
            if(Rollno.getText().toString().trim().length()==0)
```

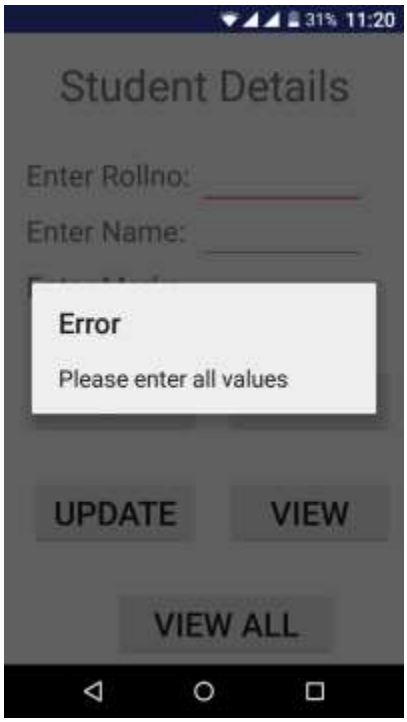
```
            {
                showMessage("Error", "Please enter Rollno");
                return;
            }
            Cursor c=db.rawQuery("SELECT * FROM student WHERE
rollno='"+Rollno.getText()+"'", null);
            if(c.moveToFirst())
            {
                db.execSQL("DELETE FROM student WHERE
rollno='"+Rollno.getText()+"'");
                showMessage("Success", "Record Deleted");
            }
            else
            {
                showMessage("Error", "Invalid Rollno");
            }
            clearText();
        }
        // Updating a record in the Student table
        if(view==Update)
        {
            // Checking for empty roll number
            if(Rollno.getText().toString().trim().length()==0)
            {
                showMessage("Error", "Please enter Rollno");
                return;
            }
            Cursor c=db.rawQuery("SELECT * FROM student WHERE
rollno='"+Rollno.getText()+"'", null);
            if(c.moveToFirst()) {
                db.execSQL("UPDATE student SET name='" + Name.getText()
+ "',marks='" + Marks.getText() +
                        "' WHERE rollno='"+Rollno.getText()+"'");
                showMessage("Success", "Record Modified");
            }
            else{
                showMessage("Error", "Invalid Rollno");
            }
            clearText();
        }
        // Display a record from the Student table
        if(view==View)
        {
            // Checking for empty roll number
            if(Rollno.getText().toString().trim().length()==0)
            {
                showMessage("Error", "Please enter Rollno");
                return;
            }
            Cursor c=db.rawQuery("SELECT * FROM student WHERE
rollno='"+Rollno.getText()+"'", null);
            if(c.moveToFirst())
            {
                Name.setText(c.getString(1));
                Marks.setText(c.getString(2));
            }
            else
            {
                showMessage("Error", "Invalid Rollno");
                clearText();
            }
```

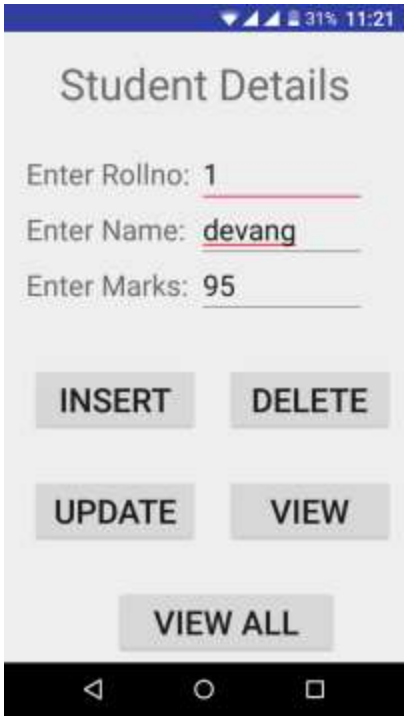
```
        }
        // Displaying all the records
        if(view==ViewAll)
        {
            Cursor c=db.rawQuery("SELECT * FROM student", null);
            if(c.getCount()==0)
            {
                showMessage("Error", "No records found");
                return;
            }
            StringBuffer buffer=new StringBuffer();
            while(c.moveToNext())
            {
                buffer.append("Rollno: "+c.getString(0)+"\n");
                buffer.append("Name: "+c.getString(1)+"\n");
                buffer.append("Marks: "+c.getString(2)+"\n\n");
            }
            showMessage("Student Details", buffer.toString());
        }
    }
    public void showMessage(String title,String message)
    {
        Builder builder=new Builder(this);
        builder.setCancelable(true);
        builder.setTitle(title);
        builder.setMessage(message);
        builder.show();
    }
    public void clearText()
    {
        Rollno.setText("");
        Name.setText("");
        Marks.setText("");
        Rollno.requestFocus();
    }
}
```

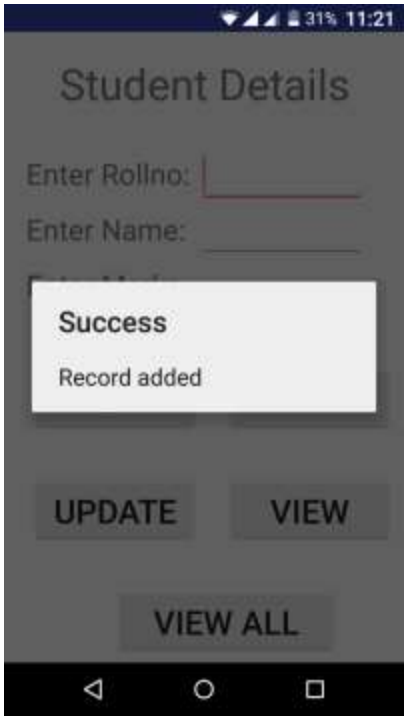
- So now the Coding part is also completed.
- Now run the application to see the output.

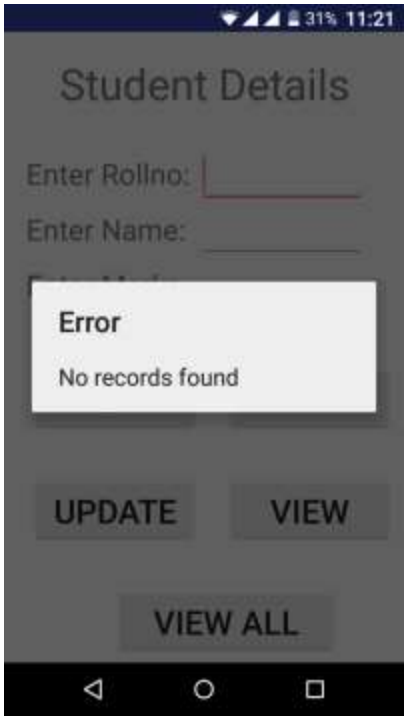
Output:



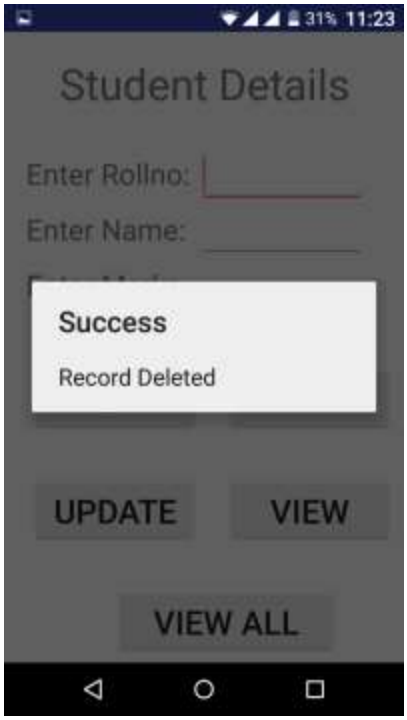



31% 11:21
Student Details
Enter Rollno: 1
Enter Name: devang
Enter Marks: 95
INSERT
DELETE
UPDATE
VIEW
VIEW ALL

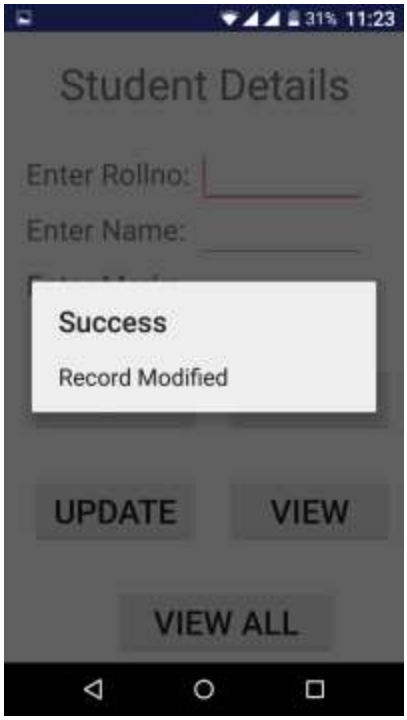

31% 11:21
Student Details
Enter Rollno:
Enter Name:
Success
Record added
UPDATE
VIEW
VIEW ALL

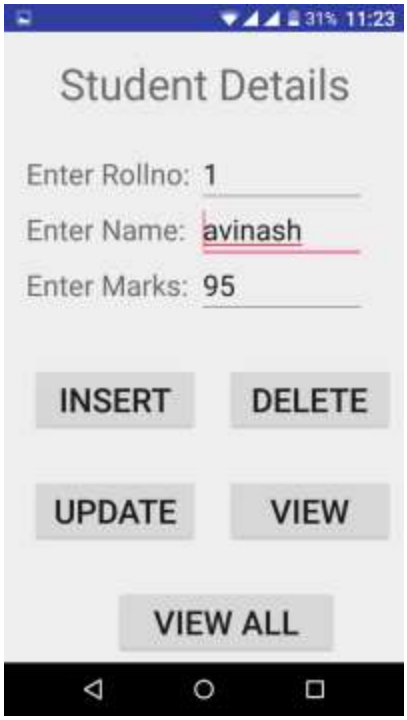

31% 11:21
Student Details
Enter Rollno:
Enter Name:
Error
No records found
UPDATE
VIEW
VIEW ALL


31% 11:22
Student Details
Student Details
Rollno: 1
Name: devang
Marks: 95
Rollno: 2
Name: akhil
Marks: 90
Rollno: 3
Name: abdul
Marks: 80
VIEW ALL


31% 11:23
Student Details
Enter Rollno:
Enter Name:
Success
Record Deleted
UPDATE
VIEW
VIEW ALL


31% 11:23
Student Details
Student Details
Rollno: 2
Name: akhil
Marks: 90
Rollno: 3
Name: abdul
Marks: 80
VIEW ALL





Result:

Thus a Simple Android Application that makes use of Database is developed and executed successfully.