

Program :2(GUI)

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>

<LinearLayout

    xmlns:android="http://schemas.android.com/apk/res/android"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    android:orientation="vertical"

    android:background="#E0F7FA"

    android:gravity="center">


    <TextView

        android:id="@+id/textView"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Hello, Android!"

        android:textSize="24sp"

        android:textColor="#1976D2"

        android:fontFamily="sans-serif-medium" />


    <Button

        android:id="@+id/button"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Click Me"

        android:backgroundTint="#81D4FA"

        android:textColor="#000000" />

</LinearLayout>
```

Mainactivity.java

```
package com.example.myapp;
```

```
import android.os.Bundle;
```

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

```
import android.widget.TextView;
```

```
import android.widget.Toast;
```

```
import androidx.appcompat.app.AppCompatActivity;
```

```
public class MainActivity extends AppCompatActivity {
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
```

```
        TextView textView = findViewById(R.id.textView);
```

```
        Button button = findViewById(R.id.button);
```

```
        button.setOnClickListener(v ->
```

```
            Toast.makeText(this, "Button Clicked!", Toast.LENGTH_SHORT).show()
```

```
        );
```

```
    }
```

```
}
```

Program:3(Event listener)

activity_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
```

```
    android:layout_width="match_parent"
```

```
    android:layout_height="match_parent"
```

```
    android:padding="24dp">
```

```
    <EditText
```

```
        android:id="@+id/num1"
```

```
        android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
```

```
        android:hint="Enter Number 1"
```

```
        android:inputType="number" />
```

```
    <EditText
```

```
        android:id="@+id/num2"
```

```
        android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
```

```
        android:hint="Enter Number 2"
```

```
        android:inputType="number"
```

```
        android:layout_below="@id/num1"
```

```
        android:layout_marginTop="16dp" />
```

```
    <Button
```

```
        android:id="@+id/addBtn"
```

```
        android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
```

```
        android:text="Add"
```

```
        android:layout_below="@id/num2"
```

```
        android:layout_centerHorizontal="true"
```

```
        android:layout_marginTop="24dp" />
```

```
</RelativeLayout>
```

Mainactivity.java

```
package com.example.addition;
```

```
import android.app.Activity;
```

```
import android.os.Bundle;
```

```
import android.view.View;
```

```
import android.widget.*;
```

```
public class MainActivity extends Activity {
```

```
    EditText num1, num2;
```

```
    Button addBtn;
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
```

```
        num1 = findViewById(R.id.num1);
```

```
        num2 = findViewById(R.id.num2);
```

```
        addBtn = findViewById(R.id.addBtn);
```

```
        addBtn.setOnClickListener(v -> {
```

```
            int a = Integer.parseInt(num1.getText().toString());
```

```
            int b = Integer.parseInt(num2.getText().toString());
```

```
            int sum = a + b;
```

```
            Toast.makeText(this, "Sum: " + sum, Toast.LENGTH_SHORT).show(); }); }
```

Program: 04(calc)

Activity_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="24dp">

    <EditText
        android:id="@+id/num1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Number 1"
        android:inputType="numberDecimal" />

    <EditText
        android:id="@+id/num2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter Number 2"
        android:inputType="numberDecimal"
        android:layout_below="@id/num1"
        android:layout_marginTop="16dp" />

    <LinearLayout
        android:id="@+id/buttonLayout"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/num2"
        android:layout_marginTop="24dp"
        android:orientation="horizontal"
        android:gravity="center"
        android:weightSum="4">

        <Button
            android:id="@+id/btnAdd"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="+" />

        <Button
            android:id="@+id/btnSub"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="-" />
```

```

<Button
    android:id="@+id/btnMul"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:text="×" />

<Button
    android:id="@+id/btnDiv"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:text="÷" />
</LinearLayout>

<TextView
    android:id="@+id/resultView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Result:"
    android:textSize="18sp"
    android:layout_below="@id/buttonLayout"
    android:layout_marginTop="24dp" />
</RelativeLayout>

```

Mainactivity.java

```

package com.example.app;

import android.app.Activity;
import android.os.Bundle;
import android.view.View;
import android.widget.*;

public class MainActivity extends Activity {
    EditText num1, num2;
    TextView resultView;
    Button btnAdd, btnSub, btnMul, btnDiv;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        num1 = findViewById(R.id.num1);
        num2 = findViewById(R.id.num2);
        resultView = findViewById(R.id.resultView);
        btnAdd = findViewById(R.id.btnAdd);
    }
}

```

```
btnSub = findViewById(R.id.btnSub);
btnMul = findViewById(R.id.btnMul);
btnDiv = findViewById(R.id.btnDiv);
```

```
View.OnClickListener calcListener = v -> {
    String input1 = num1.getText().toString().trim();
    String input2 = num2.getText().toString().trim();

    if (input1.isEmpty() || input2.isEmpty()) {
        Toast.makeText(this, "Enter both numbers", Toast.LENGTH_SHORT).show();
        return;
    }

    double a = Double.parseDouble(input1);
    double b = Double.parseDouble(input2);
    double result = 0;

    if (v.getId() == R.id.btnAdd) {
        result = a + b;
    } else if (v.getId() == R.id.btnSub) {
        result = a - b;
    } else if (v.getId() == R.id.btnMul) {
        result = a * b;
    } else if (v.getId() == R.id.btnDiv) {
        if (b == 0) {
            Toast.makeText(this, "Cannot divide by zero", Toast.LENGTH_SHORT).show();
            return;
        }
        result = a / b;
    }

    resultView.setText("Result: " + result);
};
```

```
btnAdd.setOnClickListener(calcListener);
btnSub.setOnClickListener(calcListener);
btnMul.setOnClickListener(calcListener);
btnDiv.setOnClickListener(calcListener);
}
}
```

Program:5a(Rectangle)

```
package com.example.graphics;

import android.app.Activity;
import android.content.Context;
import android.graphics.*;
import android.os.Bundle;
import android.view.View;

public class MainActivity extends Activity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(new MyView(this));

    }

    class MyView extends View {

        public MyView(Context context) { super(context); }

        protected void onDraw(Canvas canvas) {

            Paint p = new Paint();

            p.setColor(Color.GREEN);

            p.setStyle(Paint.Style.STROKE);

            p.setStrokeWidth(5);

            canvas.drawRect(100, 100, 400, 300, p);

        }

    }

}
```

(Circle)

```
package com.example.graphics;

import android.app.Activity;
```



```
import android.content.Context;

import android.graphics.*;

import android.os.Bundle;

import android.view.View;


public class MainActivity extends Activity {

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(new MyView(this));

    }


    class MyView extends View {

        public MyView(Context ctx) { super(ctx); }


        protected void onDraw(Canvas canvas) {

            Paint p = new Paint();

            p.setColor(Color.BLUE);

            p.setStyle(Paint.Style.STROKE);

            p.setStrokeWidth(5);

            canvas.drawCircle(300, 300, 150, p); // centerX, centerY, radius

        }

    }

}
```

Program:06(SQL)

.xml

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
```

```
    android:layout_width="match_parent"
```

```
    android:layout_height="match_parent">
```

```
    <LinearLayout
```

```
        android:orientation="vertical"
```

```
        android:padding="16dp"
```

```
        android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content">
```

```
        <EditText
```

```
            android:id="@+id/Rollno"
```

```
            android:layout_width="match_parent"
```

```
            android:layout_height="wrap_content"
```

```
            android:hint="Roll No"
```

```
            android:inputType="text" />
```

```
        <EditText
```

```
            android:id="@+id/Name"
```

```
            android:layout_width="match_parent"
```

```
            android:layout_height="wrap_content"
```

```
            android:hint="Name"
```

```
            android:inputType="textPersonName" />
```

```
        <EditText
```

```
            android:id="@+id/Marks"
```

```
            android:layout_width="match_parent"
```

```
            android:layout_height="wrap_content"
```

```
android:hint="Marks"  
android:inputType="number" />
```

```
<Button  
    android:id="@+id/Insert"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:text="Insert" />
```

```
<Button  
    android:id="@+id/Delete"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:text="Delete" />
```

```
<Button  
    android:id="@+id/Update"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:text="Update" />
```

```
<Button  
    android:id="@+id/View"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:text="View" />
```

```
<Button  
    android:id="@+id/ViewAll"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"
```

```
        android:text="View All" />
```

```
    </LinearLayout>
```

```
</ScrollView>
```

.java

```
package com.example.database;
```

```
import android.app.*;
```

```
import android.content.*;
```

```
import android.database.*;
```

```
import android.database.sqlite.*;
```

```
import android.os.*;
```

```
import android.view.*;
```

```
import android.widget.*;
```

```
public class MainActivity extends Activity implements View.OnClickListener {
```

```
    EditText roll, name, marks;
```

```
    Button insert, delete, update, view, viewAll;
```

```
    SQLiteDatabase db;
```

```
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
```

```
        roll = findViewById(R.id.Rollno);
```

```
        name = findViewById(R.id.Name);
```

```
        marks = findViewById(R.id.Marks);
```

```
        insert = findViewById(R.id.Insert);
```

```
        delete = findViewById(R.id.Delete);
```

```

update = findViewById(R.id.Update);
view = findViewById(R.id.View);
viewAll = findViewById(R.id.ViewAll);

for (Button b : new Button[]{insert, delete, update, view, viewAll})
    b.setOnClickListener(this);

db = openOrCreateDatabase("StudentDB", MODE_PRIVATE, null);
db.execSQL("CREATE TABLE IF NOT EXISTS student(rollno TEXT, name TEXT, marks TEXT);");
}

public void onClick(View v) {
    String r = roll.getText().toString().trim();
    String n = name.getText().toString().trim();
    String m = marks.getText().toString().trim();

    if (v == insert) {
        if (r.isEmpty() || n.isEmpty() || m.isEmpty()) show("Error", "Enter all values");
        else {
            db.execSQL("INSERT INTO student VALUES('" + r + "','" + n + "','" + m + "')");
            show("Success", "Record added");
            clear();
        }
    }
    else if (v == delete) {
        if (r.isEmpty()) show("Error", "Enter Rollno");
        else {
            Cursor c = db.rawQuery("SELECT * FROM student WHERE rollno='" + r + "'", null);
            if (c.moveToFirst()) {
                db.execSQL("DELETE FROM student WHERE rollno='" + r + "'");
                show("Success", "Record deleted");
            } else show("Error", "Invalid Rollno");
        }
    }
}

```

```

        clear();
    }
} else if (v == update) {
    if (r.isEmpty()) show("Error", "Enter Rollno");
    else {
        Cursor c = db.rawQuery("SELECT * FROM student WHERE rollno='" + r + "'", null);
        if (c.moveToFirst()) {
            db.execSQL("UPDATE student SET name='" + n + "', marks='" + m + "' WHERE rollno='" +
r + "'");
            show("Success", "Record updated");
        } else show("Error", "Invalid Rollno");
        clear();
    }
} else if (v == view) {
    if (r.isEmpty()) show("Error", "Enter Rollno");
    else {
        Cursor c = db.rawQuery("SELECT * FROM student WHERE rollno='" + r + "'", null);
        if (c.moveToFirst()) {
            name.setText(c.getString(1));
            marks.setText(c.getString(2));
        } else {
            show("Error", "Record not found");
            clear();
        }
    }
} else if (v == viewAll) {
    Cursor c = db.rawQuery("SELECT * FROM student", null);
    if (c.getCount() == 0) show("Error", "No records found");
    else {
        StringBuilder sb = new StringBuilder();
        while (c.moveToNext())

```

```

        sb.append("Rollno: ").append(c.getString(0)).append("\nName:
").append(c.getString(1))
        .append("\nMarks: ").append(c.getString(2)).append("\n\n");
        show("Student Records", sb.toString());
    }
}

void show(String title, String msg) {
    new AlertDialog.Builder(this).setTitle(title).setMessage(msg).setCancelable(true).show();
}

void clear() {
    roll.setText("");
    name.setText("");
    marks.setText("");
    roll.requestFocus();
}
}

```