功能改善：

1. 解决"000"问题，在字符串开头连续输入多次 0，只显示一个 0。

2. 解决"01"问题，原本先后输入"0"、"1"（1 可替换为其他任意非零数字），会显示"01"，但根据使用习惯，应当仅显示"1"，修改为仅显示"1"。

3. 添加运算完毕后开启新的计算功能，原本计算完一个式子后再继续输入，会直接在文本中继续添加，但根据使用习惯，若未输入运算符号，则直接开启新的计算，故依此修改。

4. 第三条功能中，若输入运算符号，则以原有的 ss 继续计算。

5. 改变了小数计算模式，取消小数点最后一位的去尾法，保持计算器高精度。

6. 增加了次方功能，如 2^3=8。

7. 增加了开根号功能，如 9√2=3。

8. 内置π和 e 的数值大小。

9. 小彩蛋！点一下"计算器"——提示气泡。

10. 修改由于去除 0 引起的输入 0.4 而显示.4 的问题，在 01 问题中增加判断条件。

界面设计：

更改了字体、字体大小、字体风格、字体颜色、背景颜色、组件布局、间距等元素

（由于组件布局更改较大，按照 420dp 大小设置，本人在 Pixel2 API 30 中运行）

功能改善代码：

1. "000"：

```java
case R.id.btn0: {
    ss += "0";
    char[] letters = ss.toCharArray();
    if (letters.length > 1) {
        if (letters[0] == '0' && letters[1] == '0') {
            for (int letter = 0; letter < letters.length - 1; letter++) {
                letters[letter] = letters[letter + 1];
            }
            ss = String.valueOf(letters).substring(0, letters.length - 1).trim();
        }
    }
    edit.setText(ss);
}
break;
```

2. "01"：

```java
case R.id.btn1: {
    ss += "1";
    char[] letters = ss.toCharArray();
    if (letters.length > 1) {
        if (letters[0] == '0') {
            for (int letter = 0; letter < letters.length - 1; letter++) {
                letters[letter] = letters[letter + 1];
            }
            ss = String.valueOf(letters).substring(0, letters.length - 1).trim();
```

```java
            }
        }
        edit.setText(ss);
    }
break;
```

3. 运算完毕后开启新的计算：

```java
case R.id.calculation:
    getResult();
    ss = "";
    break;
```

4. 输入运算符号则开启新的计算：

```java
case R.id.calculation:
    getResult();
    sss = ss;
    ss = "";
    break;
case R.id.jia: {
    if (sss.length() != 0 && ss.length() == 0
){
    ss = sss;
    }                    添加这一段
    }
    break;
```

5. 改变小数点计算模式：

```java
int r = (int) result;
if (r == result) {
    edit.setText("" + r);
    ss = "" + r;
} else {
    ss = "" + result;
    ss = ss.substring(0,ss.length());
    edit.setText(ss);
}
```

6. 增加次方功能：

```java
case R.id.power: {
    if (sss.length() != 0 ){
        ss = sss;
    }
    if (ss.length() == 0) {
        edit.setText("0 ^ ");
        ss = "0 ^ ";
```

```java
                break;
        }
        if (ss.contains(" ")) {
            if (ss.indexOf(" ") == ss.length() - 3)
                break;
            getResult();
        }


        ss += " ^ ";
        edit.setText(ss);
    }
    break;
    case "^": {
        result = 1;
        for (int i = 0; i < d2; i++) {
            result = result * d1;
        }
    }
    break;
```

7. 增加开根号功能：

```java
case R.id.root: {
    if (sss.length() != 0 ){
        ss = sss;
    }
    if (ss.length() == 0) {
        edit.setText("0 √ ");
        ss = "0 √ ";
        break;
    }
    if (ss.contains(" ")) {
        if (ss.indexOf(" ") == ss.length() - 3)
            break;
        getResult();
    }


    ss += " √ ";
    edit.setText(ss);
}
break;
case "√":
    result = Math.pow(d1, 1.0/d2);
    break;
```

8. 内置π和 e 的数值大小：

```java
case R.id.pi: {
    ss += "3.141592653589793";
    char[] letters = ss.toCharArray();
    if (letters.length > 1) {
        if (letters[0] == '0') {
            for (int letter = 0; letter < letters.length - 1; letter++) {
                letters[letter] = letters[letter + 1];
            }
            ss = String.valueOf(letters).substring(0, letters.length - 1).trim();
        }
    }
    edit.setText(ss);
}
break;
case R.id.e: {
    ss += "2.718281828459045";
    char[] letters = ss.toCharArray();
    if (letters.length > 1) {
        if (letters[0] == '0') {
            for (int letter = 0; letter < letters.length - 1; letter++) {
                letters[letter] = letters[letter + 1];
            }
            ss = String.valueOf(letters).substring(0, letters.length - 1).trim();
        }
    }
    edit.setText(ss);
}
break;
```

9. 彩蛋部分：

```java
jump.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Toast.makeText(MainActivity.this,"发现彩蛋！开心！好耶！哈哈哈哈！\n" + "好运快来~高分快快来~\n" + "收工！写完啦！",Toast.LENGTH_LONG).show();
    }
});
```

10. 修改由于去除 0 引起的输入 0.4 而显示.4 的问题：

```java
if (letters[0] == '0' && letters[1] != '.')
```

附：完整代码文件：

在 activity_main.xml 中：

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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:orientation="vertical"
    android:padding="30dp"
    android:background="#4FE5FFFF">

    <TextView
        android:id="@+id/jump"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="计算器"
        android:textSize="66sp"
        android:textColor="#303F9F"
        android:layout_marginBottom="0dp"
        android:gravity="center"
        android:letterSpacing="0.05"
        android:layout_marginTop="20dp"
        android:fontFamily="@font/hanyixingkaijian"
        />
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Calculator"
        android:textSize="40sp"
        android:textColor="#303F9F"
        android:textStyle="bold"
        android:layout_marginBottom="10dp"
        android:gravity="center"
        android:letterSpacing="0.06"
        android:layout_marginTop="0dp"
        android:fontFamily="@font/hanyixingkaijian"
        />

    <EditText
        android:id="@+id/edit"
        android:background="@drawable/rounded_text"
        android:textSize="40dp"
```

附：完整代码文件：

```xml
    android:textColor="#1A237E"
    android:layout_width="match_parent"
    android:layout_height="100dp"
    android:gravity="end|bottom"
    android:drawableLeft="@drawable/ic_baseline_double_arrow_24"
    />

<GridLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:rowCount="1"
    android:columnCount="2">
    <Button
        android:id="@+id/clear"
        android:layout_width="170dp"
        android:layout_height="50dp"
        android:layout_weight="1"
        android:text="AC"
        android:textSize="25dp"
        android:textColor="#FF9100"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="10dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="0dp"
        android:layout_marginEnd="5dp"
        android:textStyle="bold"/>

    <Button
        android:id="@+id/calculation"
        android:layout_width="170dp"
        android:layout_height="50dp"
        android:layout_weight="1"
        android:text="="
        android:textSize="25dp"
        android:textColor="#FFFDE7"
        android:background="@drawable/rounded_button2"
        android:layout_marginTop="10dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"
        android:textStyle="bold"/>
</GridLayout>

<GridLayout
```

```xml
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:rowCount="5"
    android:columnCount="4">
    <Button
        android:id="@+id/pi"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="π"
        android:textSize="25dp"
        android:textColor="#575757"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="0dp"
        android:layout_marginEnd="5dp"/>
    <Button
        android:id="@+id/e"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="e"
        android:textSize="25dp"
        android:textColor="#575757"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"/>
    <Button
        android:id="@+id/power"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="^"
        android:textSize="25dp"
        android:textColor="#FF9100"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"
        android:textStyle="bold"/>
    <Button
        android:id="@+id/root"
        android:layout_width="80dp"
```

```xml
        android:layout_height="50dp"
        android:text="√"
        android:textSize="25dp"
        android:textColor="#FF9100"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"
        android:textStyle="bold"/>
    <Button
        android:id="@+id/btn1"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="1"
        android:textSize="25dp"
        android:textColor="#575757"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="0dp"
        android:layout_marginEnd="5dp"/>
    <Button
        android:id="@+id/btn2"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="2"
        android:textSize="25dp"
        android:textColor="#575757"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"/>
    <Button
        android:id="@+id/btn3"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="3"
        android:textSize="25dp"
        android:textColor="#575757"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
```

```xml
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"/>
    <Button
        android:id="@+id/jia"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="+"
        android:textSize="25dp"
        android:textColor="#FF9100"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"
        android:textStyle="bold"/>
    <Button
        android:id="@+id/btn4"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="4"
        android:textSize="25dp"
        android:textColor="#575757"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="0dp"
        android:layout_marginEnd="5dp"/>
    <Button
        android:id="@+id/btn5"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="5"
        android:textSize="25dp"
        android:textColor="#575757"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"/>
    <Button
        android:id="@+id/btn6"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="6"
```

```xml
        android:textSize="25dp"
        android:textColor="#575757"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"/>
    <Button
        android:id="@+id/jian"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="-"
        android:textSize="25dp"
        android:textColor="#FF9100"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"
        android:textStyle="bold"/>
    <Button
        android:id="@+id/btn7"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="7"
        android:textSize="25dp"
        android:textColor="#575757"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="0dp"
        android:layout_marginEnd="5dp"/>
    <Button
        android:id="@+id/btn8"
        android:layout_width="80dp"
        android:layout_height="50dp"
        android:text="8"
        android:textSize="25dp"
        android:textColor="#575757"
        android:background="@drawable/rounded_button"
        android:layout_marginTop="5dp"
        android:layout_marginBottom="5dp"
        android:layout_marginStart="5dp"
        android:layout_marginEnd="5dp"/>
```

```xml
<Button
    android:id="@+id/btn9"
    android:layout_width="80dp"
    android:layout_height="50dp"
    android:text="9"
    android:textSize="25dp"
    android:textColor="#575757"
    android:background="@drawable/rounded_button"
    android:layout_marginTop="5dp"
    android:layout_marginBottom="5dp"
    android:layout_marginStart="5dp"
    android:layout_marginEnd="5dp"/>
<Button
    android:id="@+id/cheng"
    android:layout_width="80dp"
    android:layout_height="50dp"
    android:text="×"
    android:textSize="25dp"
    android:textColor="#FF9100"
    android:background="@drawable/rounded_button"
    android:layout_marginTop="5dp"
    android:layout_marginBottom="5dp"
    android:layout_marginStart="5dp"
    android:layout_marginEnd="5dp"
    android:textStyle="bold"/>
<Button
    android:id="@+id/btn0"
    android:layout_width="80dp"
    android:layout_height="50dp"
    android:text="0"
    android:textSize="25dp"
    android:textColor="#575757"
    android:background="@drawable/rounded_button"
    android:layout_marginTop="5dp"
    android:layout_marginBottom="5dp"
    android:layout_marginStart="0dp"
    android:layout_marginEnd="5dp"/>
<Button
    android:id="@+id/dian"
    android:layout_width="80dp"
    android:layout_height="50dp"
    android:text="."
    android:textSize="25dp"
    android:textColor="#FF9100"
```

```xml
            android:background="@drawable/rounded_button"
            android:layout_marginTop="5dp"
            android:layout_marginBottom="5dp"
            android:layout_marginStart="5dp"
            android:layout_marginEnd="5dp"
            android:textStyle="bold"/>
        <Button
            android:id="@+id/back"
            android:layout_width="80dp"
            android:layout_height="50dp"
            android:text="←"
            android:textSize="25dp"
            android:textColor="#FF9100"
            android:background="@drawable/rounded_button"
            android:layout_marginTop="5dp"
            android:layout_marginBottom="5dp"
            android:layout_marginStart="5dp"
            android:layout_marginEnd="5dp"
            android:textStyle="bold"/>
        <Button
            android:id="@+id/chu"
            android:layout_width="80dp"
            android:layout_height="50dp"
            android:text="÷"
            android:textSize="25dp"
            android:textColor="#FF9100"
            android:background="@drawable/rounded_button"
            android:layout_marginTop="5dp"
            android:layout_marginBottom="5dp"
            android:layout_marginStart="5dp"
            android:layout_marginEnd="5dp"
            android:textStyle="bold"/>

    </GridLayout>

</LinearLayout>
```

在 MainActivity.java 中：

```java
package com.example.myapplication3;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.Gravity;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import java.util.Arrays;

public class MainActivity extends AppCompatActivity {

    Button btn1, btn2, btn3, btn4, btn5, btn6, btn7, btn8, btn9, btn0; // 数字按钮
    Button jia, jian, cheng, chu, dian, sum, clear, back, power, root, pi, e;// + 号
    EditText edit; // 显示文本
    TextView jump;

    private String ss = "";//设置一个String类型的变量
    private String ss1 = "1 + ";
    private String sss = "";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        // 获取页面上的控件
        btn1 = findViewById(R.id.btn1);
        btn2 = findViewById(R.id.btn2);
        btn3 = findViewById(R.id.btn3);
        btn4 = findViewById(R.id.btn4);
        btn5 = findViewById(R.id.btn5);
        btn6 = findViewById(R.id.btn6);
        btn7 = findViewById(R.id.btn7);
        btn8 = findViewById(R.id.btn8);
        btn9 = findViewById(R.id.btn9);
        btn0 = findViewById(R.id.btn0);
        jia = findViewById(R.id.jia);
        jian = findViewById(R.id.jian);
```

```java
        cheng = findViewById(R.id.cheng);
        chu = findViewById(R.id.chu);
        sum = findViewById(R.id.calculation);
        dian = findViewById(R.id.dian);
        clear = findViewById(R.id.clear);
        edit = findViewById(R.id.edit);
        back = findViewById(R.id.back);
        power = findViewById(R.id.power);
        root = findViewById(R.id.root);
        pi = findViewById(R.id.pi);
        e = findViewById(R.id.e);
        jump = findViewById(R.id.jump);

        // 按钮的单击事件
        btn1.setOnClickListener(new Click());
        btn2.setOnClickListener(new Click());
        btn3.setOnClickListener(new Click());
        btn4.setOnClickListener(new Click());
        btn5.setOnClickListener(new Click());
        btn6.setOnClickListener(new Click());
        btn7.setOnClickListener(new Click());
        btn8.setOnClickListener(new Click());
        btn9.setOnClickListener(new Click());
        btn0.setOnClickListener(new Click());
        jia.setOnClickListener(new Click());
        jian.setOnClickListener(new Click());
        cheng.setOnClickListener(new Click());
        chu.setOnClickListener(new Click());
        sum.setOnClickListener(new Click());
        dian.setOnClickListener(new Click());
        clear.setOnClickListener(new Click());
        edit.setOnClickListener(new Click());
        back.setOnClickListener(new Click());
        power.setOnClickListener(new Click());
        root.setOnClickListener(new Click());
        pi.setOnClickListener(new Click());
        e.setOnClickListener(new Click());

        jump.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Toast.makeText(MainActivity.this,"写完啦写完啦哈哈哈\n 发现彩蛋！好耶！
\n 好运来！高分快快来！",Toast.LENGTH_LONG).show();
            }
```

```java
        });
    }


// 设置按钮点击后的监听
class Click implements View.OnClickListener {
    public void onClick(View v) {
        switch (v.getId()) {              //switch 循环获取点击按钮后的值
            case R.id.clear: {
                ss = "";
                sss = "";
                edit.setText(ss);//在 edittext 里面显示字符串 ss
            }
            break;

            case R.id.btn0: {
                ss += "0";
                char[] letters = ss.toCharArray();
                if (letters.length > 1) {
                    if (letters[0] == '0' && letters[1] == '0') {
                        for (int letter = 0; letter < letters.length - 1; letter++) {
                            letters[letter] = letters[letter + 1];
                        }
                        ss = String.valueOf(letters).substring(0, letters.length -
1).trim();

                    }
                }
                edit.setText(ss);
            }
            break;
            case R.id.btn1: {
                ss += "1";
                char[] letters = ss.toCharArray();
                if (letters.length > 1) {
                    if (letters[0] == '0' && letters[1] != '.') {
                        for (int letter = 0; letter < letters.length - 1; letter++) {
                            letters[letter] = letters[letter + 1];
                        }
                        ss = String.valueOf(letters).substring(0, letters.length -
1).trim();

                    }
                }
                edit.setText(ss);
            }
```

```java
                    break;
                case R.id.btn2: {
                    ss += "2";
                    char[] letters = ss.toCharArray();
                    if (letters.length > 1) {
                        if (letters[0] == '0' && letters[1] != '.') {
                            for (int letter = 0; letter < letters.length - 1; letter++) {
                                letters[letter] = letters[letter + 1];
                            }
                            ss = String.valueOf(letters).substring(0, letters.length -
1).trim();

                        }
                    }
                    edit.setText(ss);
                }
                break;

                case R.id.btn3: {
                    ss += "3";
                    char[] letters = ss.toCharArray();
                    if (letters.length > 1) {
                        if (letters[0] == '0' && letters[1] != '.') {
                            for (int letter = 0; letter < letters.length - 1; letter++) {
                                letters[letter] = letters[letter + 1];
                            }
                            ss = String.valueOf(letters).substring(0, letters.length -
1).trim();

                        }
                    }
                    edit.setText(ss);
                }
                break;
                case R.id.btn4: {
                    ss += "4";
                    char[] letters = ss.toCharArray();
                    if (letters.length > 1) {
                        if (letters[0] == '0' && letters[1] != '.') {
                            for (int letter = 0; letter < letters.length - 1; letter++) {
                                letters[letter] = letters[letter + 1];
                            }
                            ss = String.valueOf(letters).substring(0, letters.length -
1).trim();

                        }
                    }
```

```java
                    edit.setText(ss);
                }
                break;
                case R.id.btn5: {
                    ss += "5";
                    char[] letters = ss.toCharArray();
                    if (letters.length > 1) {
                        if (letters[0] == '0' && letters[1] != '.') {
                            for (int letter = 0; letter < letters.length - 1; letter++) {
                                letters[letter] = letters[letter + 1];
                            }
                            ss = String.valueOf(letters).substring(0, letters.length -
1).trim();

                        }
                    }
                    edit.setText(ss);
                }
                break;

                case R.id.btn6: {
                    ss += "6";
                    char[] letters = ss.toCharArray();
                    if (letters.length > 1) {
                        if (letters[0] == '0' && letters[1] != '.') {
                            for (int letter = 0; letter < letters.length - 1; letter++) {
                                letters[letter] = letters[letter + 1];
                            }
                            ss = String.valueOf(letters).substring(0, letters.length -
1).trim();

                        }
                    }
                    edit.setText(ss);
                }
                break;
                case R.id.btn7: {
                    ss += "7";
                    char[] letters = ss.toCharArray();
                    if (letters.length > 1) {
                        if (letters[0] == '0' && letters[1] != '.') {
                            for (int letter = 0; letter < letters.length - 1; letter++) {
                                letters[letter] = letters[letter + 1];
                            }
                            ss = String.valueOf(letters).substring(0, letters.length -
1).trim();
```

```java
                }
            }
            edit.setText(ss);
        }
        break;
        case R.id.btn8: {
            ss += "8";
            char[] letters = ss.toCharArray();
            if (letters.length > 1) {
                if (letters[0] == '0' && letters[1] != '.') {
                    for (int letter = 0; letter < letters.length - 1; letter++) {
                        letters[letter] = letters[letter + 1];
                    }
                    ss = String.valueOf(letters).substring(0, letters.length -
1).trim();

                }
            }
            edit.setText(ss);
        }
        break;
        case R.id.btn9: {
            ss += "9";
            char[] letters = ss.toCharArray();
            if (letters.length > 1) {
                if (letters[0] == '0' && letters[1] != '.') {
                    for (int letter = 0; letter < letters.length - 1; letter++) {
                        letters[letter] = letters[letter + 1];
                    }
                    ss = String.valueOf(letters).substring(0, letters.length -
1).trim();

                }
            }
            edit.setText(ss);
        }
        break;
        case R.id.pi: {
            ss += "3.141592653589793";
            char[] letters = ss.toCharArray();
            if (letters.length > 1) {
                if (letters[0] == '0' && letters[1] != '.') {
                    for (int letter = 0; letter < letters.length - 1; letter++) {
                        letters[letter] = letters[letter + 1];
                    }
                    ss = String.valueOf(letters).substring(0, letters.length -
```

```java
                                    1).trim();
                                }
                            }
                            edit.setText(ss);
                        }
                        break;
                        case R.id.e: {
                            ss += "2.718281828459045";
                            char[] letters = ss.toCharArray();
                            if (letters.length > 1) {
                                if (letters[0] == '0' && letters[1] != '.') {
                                    for (int letter = 0; letter < letters.length - 1; letter++) {
                                        letters[letter] = letters[letter + 1];
                                    }
                                    ss = String.valueOf(letters).substring(0, letters.length -
1).trim();
                                }
                            }
                            edit.setText(ss);
                        }
                        break;
                        case R.id.dian: {
                            if (ss.length() == 0) {
                                break;
                            } else {
                                ss += ".";
                                edit.setText(ss);
                            }
                        }
                        break;
                        case R.id.jia: {
                            if (sss.length() != 0 && ss.length() == 0){
                                ss = sss;
                            }
                            if (ss.length() == 0) {
//                                edit.setText("0 + ");
//                                ss = "0 + ";
                                break;
                            }
                            if (ss.contains(" ")) {
                                if (ss.indexOf(" ") == ss.length() - 3)
                                    break;
                                getResult();
                            }
```

```java
            ss += " + ";
            edit.setText(ss);
    }
    break;
    case R.id.jian: {
        if (sss.length() != 0 && ss.length() == 0){
            ss = sss;
        }
        if (ss.length() == 0) {
            edit.setText("0 - ");
            ss = "0 - ";
            break;
        }
        if (ss.contains(" ")) {
            if (ss.indexOf(" ") == ss.length() - 3 )
                break;
            getResult();
        }

        ss += " - ";
        edit.setText(ss);
    }
    break;
    case R.id.cheng: {
        if (sss.length() != 0 && ss.length() == 0){
            ss = sss;
        }
        if (ss.length() == 0) {
            edit.setText("0 × ");
            ss = "0 × ";
            break;
        }
        if (ss.contains(" ")) {
            if (ss.indexOf(" ") == ss.length() - 3)
                break;
            getResult();
        }

        ss += " × ";
        edit.setText(ss);
    }
    break;
    case R.id.chu: {
```

```java
                if (sss.length() != 0 && ss.length() == 0){
                    ss = sss;
                }
                if (ss.length() == 0) {
                    edit.setText("0 / ");
                    ss = "0 / ";
                    break;
                }
                if (ss.contains(" ")) {
                    if (ss.indexOf(" ") == ss.length() - 3)
                        break;
                    getResult();
                }

                ss += " / ";
                edit.setText(ss);
            }
            break;
            case R.id.calculation:
                getResult();
                sss = ss;
                ss = "";
                break;
            case R.id.back: {
                if (ss.contains(" ")){
                    if (ss.indexOf(" ") == ss.length() - 3) {
                        ss = ss.substring(0, ss.length() - 3);
                        edit.setText(ss);
                        break;
                    }
                }

                ss = ss.substring(0, ss.length() - 1);
                edit.setText(ss);
                break;
            }
            case R.id.power: {
                if (sss.length() != 0 && ss.length() == 0){
                    ss = sss;
                }
                if (ss.length() == 0) {
                    edit.setText("0 ^ ");
                    ss = "0 ^ ";
                    break;
```

```java
                }
                if (ss.contains(" ")) {
                    if (ss.indexOf(" ") == ss.length() - 3)
                        break;
                    getResult();
                }

                ss += " ^ ";
                edit.setText(ss);
            }
            break;
            case R.id.root: {
                if (sss.length() != 0 && ss.length() == 0){
                    ss = sss;
                }
                if (ss.length() == 0) {
                    edit.setText("0 √ ");
                    ss = "0 √ ";
                    break;
                }
                if (ss.contains(" ")) {
                    if (ss.indexOf(" ") == ss.length() - 3)
                        break;
                    getResult();
                }

                ss += " √ ";
                edit.setText(ss);
            }
            break;
        }
    }


}

private void getResult() {

    double result = 0;
    if (ss == null || ss.equals("")) return;
    if (!ss.contains(" ")) return;
    String s1 = ss.substring(0, ss.indexOf(" "));
    String op = ss.substring(ss.indexOf(" ") + 1, ss.indexOf(" ") + 2);
    String s2 = ss.substring(ss.indexOf(" ") + 3);
```

```java
            if (!s1.equals("") && !s2.equals("")) {
//                float d1 = Float.parseFloat(s1);
//                float d2 = Float.parseFloat(s2);
                double d1 = Double.parseDouble(s1);
                double d2 = Double.parseDouble(s2);
                switch (op) {
                    case "+":
                        result = d1 + d2;
                        break;
                    case "-":
                        result = d1 - d2;
                        break;
                    case "×":
                        result = d1 * d2;
                        break;
                    case "/": {
                        if (d2 == 0) {
                            Toast.makeText(MainActivity.this, "不能除以零",
Toast.LENGTH_SHORT).show();
                            break;

                        }
                        result = d1 / d2 * 1.0;
                    }
                    break;
                    case "^": {
                        result = 1;
                        for (int i = 0; i < d2; i++) {
                            result = result * d1;
                        }
                    }
                    break;
                    case "√":
                        result = Math.pow(d1, 1.0/d2);
                        break;
                }
//                edit.setText(result + "");
//                ss = "" + result;
                int r = (int) result;
                if (r == result) {
                    edit.setText("" + r);
                    ss = "" + r;
                } else {
```

```
                ss = "" + result; //将 double 类型的 result 转成 string 类型的数据存储在 ss 中
                ss = ss.substring(0,ss.length());
//                edit.setText(result+ "");
                edit.setText(ss);
            }

        }


    }

}
```

在 themes.xml 中：

```xml
<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Theme.MyApplication3"
parent="Theme.MaterialComponents.DayNight.NoActionBar.Bridge">
        <!-- Primary brand color. -->
        <item name="colorPrimary">@color/purple_500</item>
        <item name="colorPrimaryVariant">@color/purple_700</item>
        <item name="colorOnPrimary">@color/white</item>
        <!-- Secondary brand color. -->
        <item name="colorSecondary">@color/teal_200</item>
        <item name="colorSecondaryVariant">@color/teal_700</item>
        <item name="colorOnSecondary">@color/black</item>
        <!-- Status bar color. -->
        <item name="android:statusBarColor"
tools:targetApi="l">?attr/colorPrimaryVariant</item>
        <!-- Customize your theme here. -->
        <item name="textAllCaps">false</item>
    </style>
</resources>
```

在 rounded_button.xml 中：

```xml
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android">
    <solid android:color="#FFFEF0"/> <!-- 按钮的背景颜色 -->
    <corners android:radius="20dp"/> <!-- 圆角半径，您可以调整这个值以控制圆角的大小 -->
</shape>
```

在 rounded_button2.xml 中：

```xml
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android">
    <solid android:color="#FF9100"/> <!-- 按钮的背景颜色 -->
    <corners android:radius="20dp"/> <!-- 圆角半径，您可以调整这个值以控制圆角的大小 -->
</shape>
```

在 rounded_text.xml 中：

```xml
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android">
    <solid android:color="#FFFEF8"/> <!-- 按钮的背景颜色 -->
    <corners android:radius="30dp"/> <!-- 圆角半径，您可以调整这个值以控制圆角的大小 -->
</shape>
```