Android实战之登录和注册

案例效果

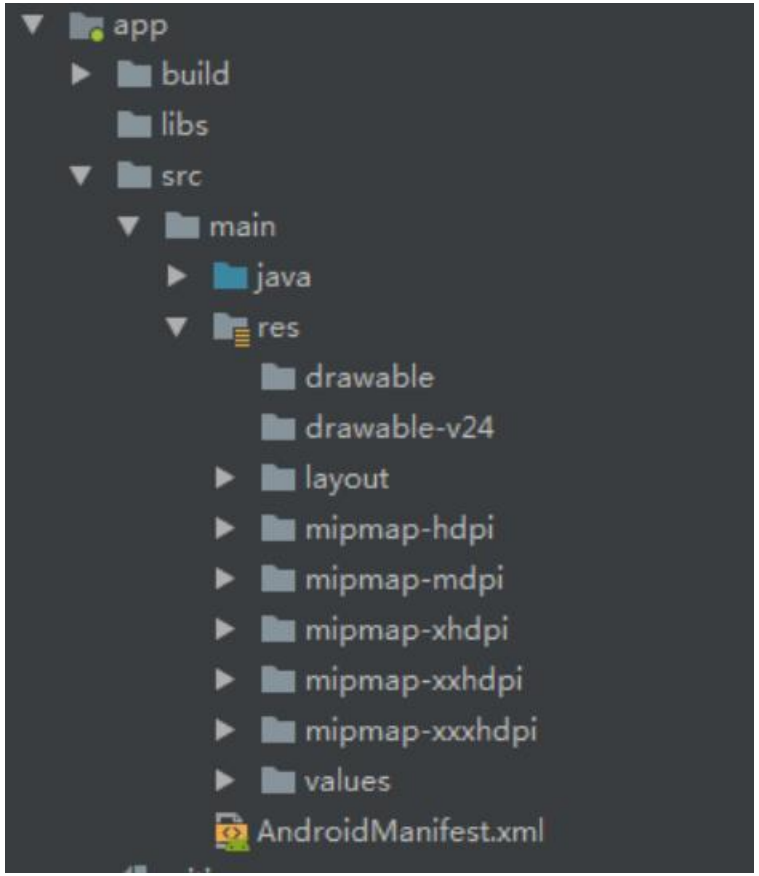

12:55
login
账号: 请输入用户名
密码: 请输入密码
记住密码
自动登录
登录
还没有账号


12:55
login
账号: aaa
密码: ...
记住密码
自动登录
信息
aaa:bbb
确定

本案例能学到的知识

- 1. android基本工程结构
- 2. android布局及基本控件
- 3. android主题和颜色设置
- 4. android代码获得控件
- 5. android基本事件
- 6. android基本对话框和Toast消息
- 7. android页面之间跳转

项目结构说明



app/src/main/assets：放置原生文件，里面的文件会保留原有格式，文件的读取需要通过流

app/src/main/java：项目的源代码

app/src/main/res：项目的资源

app/src/main/res/anim：存放动画的XML文件

app/src/main/res/drawable：存放各种位图文件(.png，.jpg，.9png，.gif等)和drawable类型的XML文件

app/src/main/res/drawable-v24：存放自定义Drawables类（Android API 24开始，可在XML中使用）

app/src/main/res/layout：存放布局文件

app/src/main/res/menu：存放菜单文件

app/src/main/res/mipmap-hdpi：存放高分辨率图片资源

app/src/main/res/mipmap-mdpi：存放中等分辨率图片资源

app/src/main/res/mipmap-xdpi：存放超高分辨率图片资源

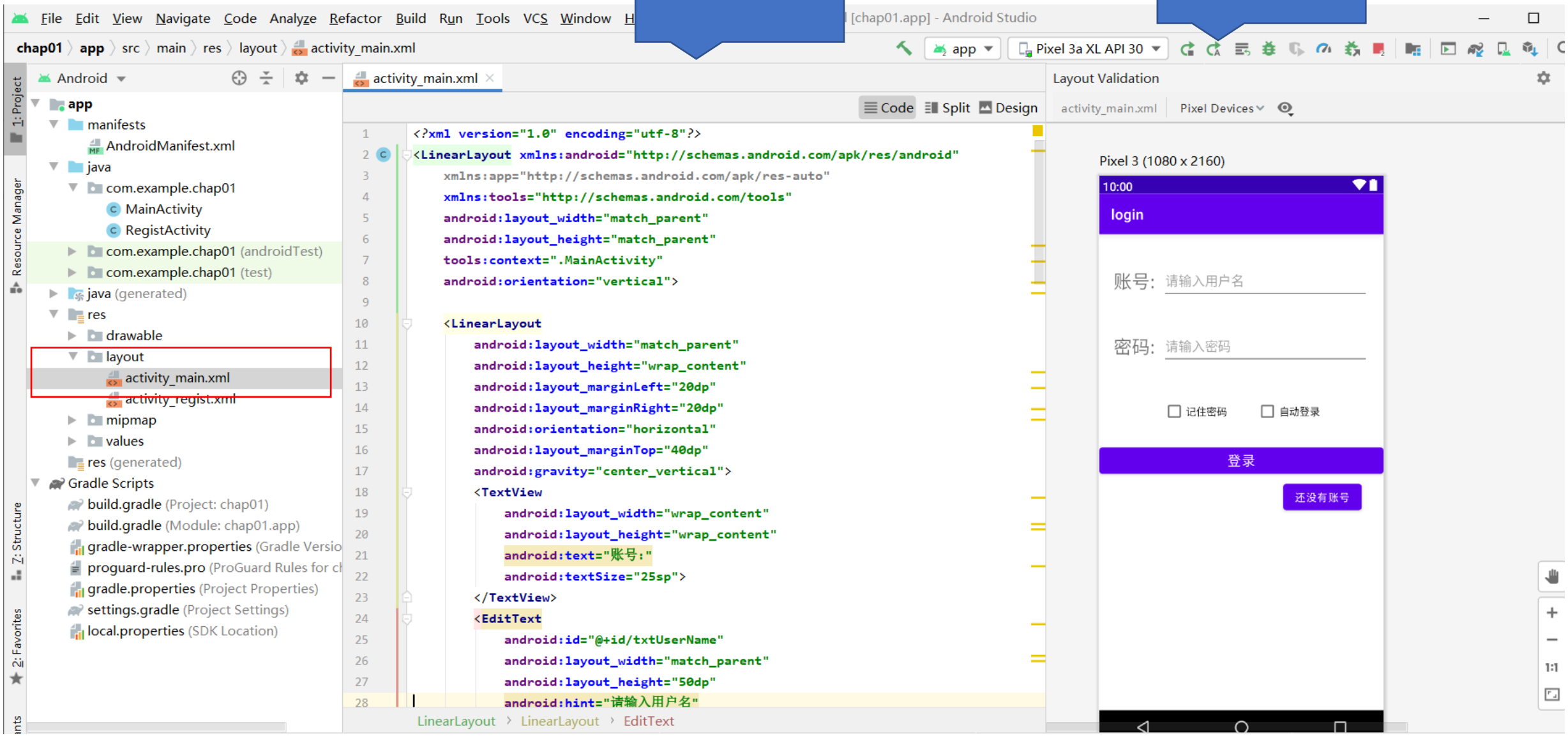
app/src/main/res/mipmap-xxdpi：存放超超分辨率图片资源

app/src/main/res/mipmap-xxxdpi：存放超超超高分辨率图片资源

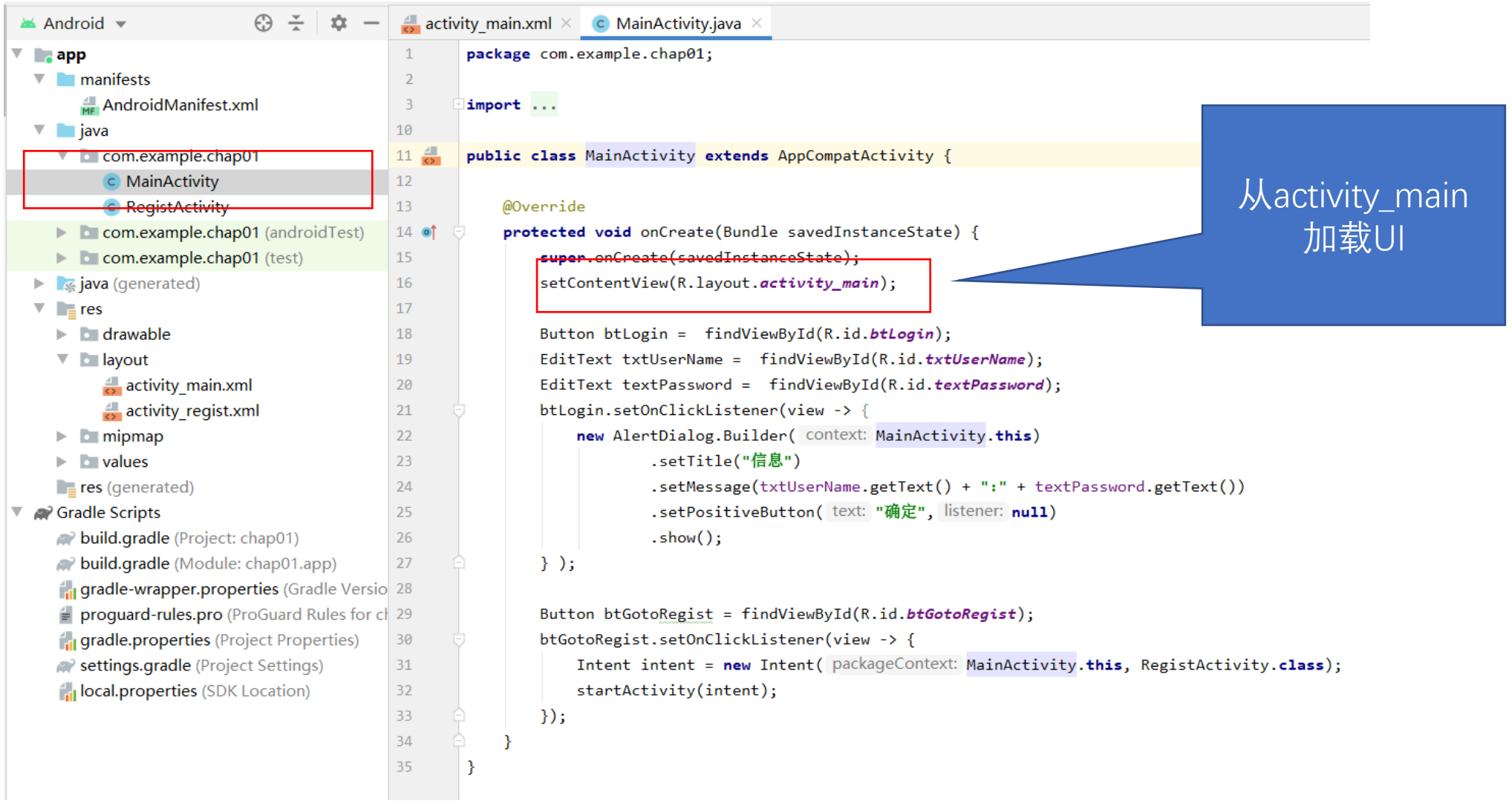
项目结构说明

app/src/main/res/raw：存放各种原生资源(音频，视频，一些XML文件等)
app/src/main/res/values： 存放各种配置资源（颜色，尺寸，样式，字符串等）
app/src/main/res/values/attrs.xml：自定义控件时用的较多，自定义控件的属性
app/src/main/res/values/arrays.xml：定义数组资源
app/src/main/res/values/colors.xml：定义颜色资源
app/src/main/res/values/dimens.xml：定义尺寸资源
app/src/main/res/values/string.xml：定义字符串资源
app/src/main/res/values/styles.xml：定义样式资源
app/src/main/res/values-v11：在API 11+的设备上调用
app/src/main/res/values-v14：在API 14+的设备上调用
app/src/main/res/values-v21：在API 21+的设备上调用
app/src/main/res/AndroidManifest.xml：项目的清单文件（名称、版本、SDK、权限等配置信息）

UI文件


UI代码
UI预览
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window
[chap01.app] - Android Studio
chap01 app src main res layout activity_main.xml
app
Pixel 3a XL API 30
Android
activity_main.xml
Code Split Design
Layout Validation
activity_main.xml
Pixel Devices
app
manifests
AndroidManifest.xml
java
com.example.chap01
MainActivity
RegistActivity
com.example.chap01 (androidTest)
com.example.chap01 (test)
java (generated)
res
drawable
layout
activity_main.xml
activity_regist.xml
mipmap
values
res (generated)
Gradle Scripts
build.gradle (Project: chap01)
build.gradle (Module: chap01.app)
gradle-wrapper.properties (Gradle Versio
proguard-rules.pro (ProGuard Rules for cl
gradle.properties (Project Properties)
settings.gradle (Project Settings)
local.properties (SDK Location)
1: Project
Resource Manager
7: Structure
2: Favorites
<?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"
tools:context=".MainActivity"
android:orientation="vertical">
<LinearLayout
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginLeft="20dp"
android:layout_marginRight="20dp"
android:orientation="horizontal"
android:layout_marginTop="40dp"
android:gravity="center_vertical">
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="账号:"
android:textSize="25sp">
</TextView>
<EditText
android:id="@+id/txtUserName"
android:layout_width="match_parent"
android:layout_height="50dp"
android:hint="请输入用户名"
LinearLayout › LinearLayout › EditText
Pixel 3 (1080 x 2160)
10:00
login
账号: 请输入用户名
密码: 请输入密码
记住密码
自动登录
登录
还没有账号

UI加载方法


Android
app
manifests
AndroidManifest.xml
java
com.example.chap01
MainActivity
RegistActivity
com.example.chap01 (androidTest)
com.example.chap01 (test)
java (generated)
res
drawable
layout
activity_main.xml
activity_regist.xml
mipmap
values
res (generated)
Gradle Scripts
build.gradle (Project: chap01)
build.gradle (Module: chap01.app)
gradle-wrapper.properties (Gradle Versio
proguard-rules.pro (ProGuard Rules for cl
gradle.properties (Project Properties)
settings.gradle (Project Settings)
local.properties (SDK Location)
activity_main.xml
MainActivity.java
package com.example.chap01;
import ...
public class MainActivity extends AppCompatActivity {
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
Button btLogin = findViewById(R.id.btLogin);
EditText txtUserName = findViewById(R.id.txtUserName);
EditText textPassword = findViewById(R.id.textPassword);
btLogin.setOnClickListener(view -> {
new AlertDialog.Builder(context: MainActivity.this)
.setTitle("信息")
.setMessage(txtUserName.getText() + ":" + textPassword.getText())
.setPositiveButton(text: "确定", listener: null)
.show();
});
Button btGotoRegist = findViewById(R.id.btGotoRegist);
btGotoRegist.setOnClickListener(view -> {
Intent intent = new Intent(packageContext: MainActivity.this, RegistActivity.class);
startActivity(intent);
});
}
}
从activity_main
加载UI

案例说明-UI设计

```
<?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"
    tools:context=".MainActivity"
    android:orientation="vertical">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="20dp"
        android:layout_marginRight="20dp"
        android:orientation="horizontal"
        android:layout_marginTop="40dp"
        android:gravity="center_vertical">
```

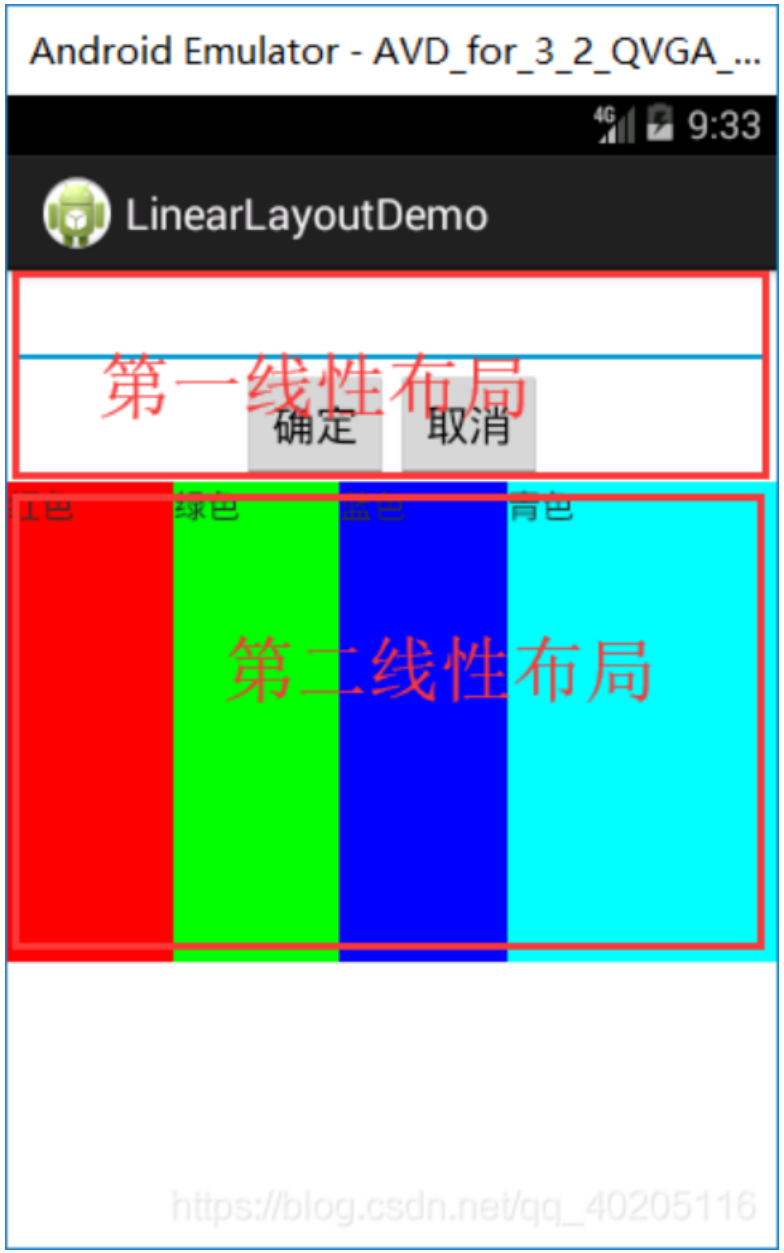
线性布局

orientation设置布局管理器内组件的排列方式。可以设置为horizontal（横向）、vertical（纵向）两个值之一

gravity设置布局管理器内组件的对齐方式

Android布局

Android六大基本布局分别是:
线性布局LinearLayout
表格布局TableLayout
相对布局RelativeLayout
层布局FrameLayout
绝对布局AbsoluteLayout



wrap_content,match_parent

- wrap_content:是layout_width和layout_height的属性值之一，表示和自身内容一样的长度。
- match_parent:是layout_width和layout_height的属性值之一，表示和父组件一样的长度。

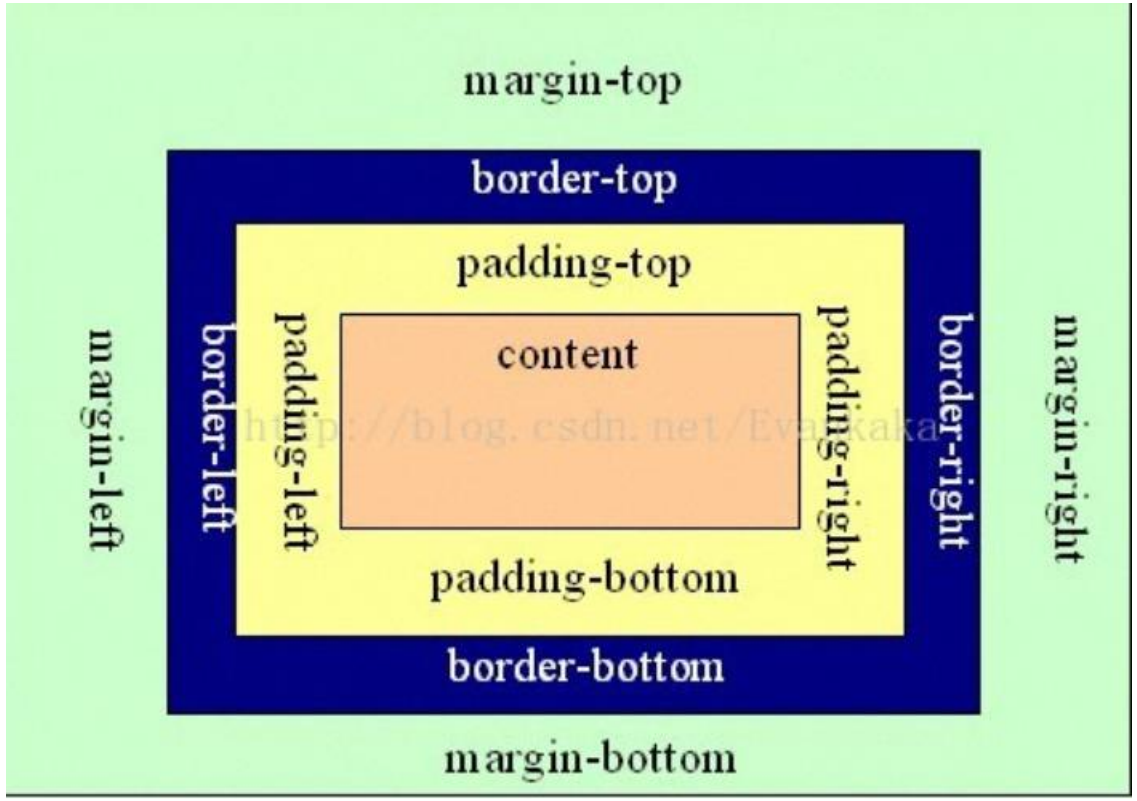
Gravity属性

- gravity设置布局管理器内组件的对齐方式，layout_gravity控制自己在父元素的位置

top	将对象放在其容器的顶部，不改变其大小.
bottom	将对象放在其容器的底部，不改变其大小.
left	将对象放在其容器的左侧，不改变其大小.
right	将对象放在其容器的右侧，不改变其大小.
start	是为了兼容从左到右和从右到左的不同书写顺序的
end	是为了兼容从左到右和从右到左的不同书写顺序的
center_vertical	将对象纵向居中，不改变其大小。
fill_vertical	如果需要时，将对象纵向填充
center_horizontal	将对象横向居中，不改变其大小
fill_horizontal	如果需要时，将对象横向填充
center	将对象居中，不改变其大小
fill	将对象横向和纵向填充

padding与layout_margin

- android:layout_margin就是设置view的上下左右边框的额外空间
- android:padding是设置内容相对view的边框的距离



Android中PX、DP、SP

- px： 其实就是像素单位，比如我们通常说的手机分辨列表800*400都是px的单位
- sp： 同dp相似，还会根据用户的字体大小偏好来缩放
- dp： 虚拟像素，在不同的像素密度的设备上会自动适配
- dip： 同dp

Android中PX、DP、SP

在480*800分辨率中，3.7屏幕对角线英寸数的设备效果图如下

在480*800分辨率中，5.1屏幕对角线英寸数的设备效果图如下

案例说明

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="20dp"
    android:layout_marginRight="20dp"
    android:orientation="horizontal"
    android:layout_marginTop="40dp"
    android:gravity="center_vertical">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="账号:"
        android:textSize="25sp">
    </TextView>
    <EditText
        android:id="@+id/txtUserName"
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:hint="请输入用户名"
        android:inputType="text"
        android:layout_marginLeft="10dp"
        android:textSize="18sp">
    </EditText>
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
```

findViewById

```
public class MainActivity extends AppCompatActivity {

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

        Button btLogin =  findViewById(R.id.btLogin);
        EditText txtUserName =  findViewById(R.id.txtUserName);
        EditText textPassword =  findViewById(R.id.textPassword);
        btLogin.setOnClickListener(view -> {
            new AlertDialog.Builder( context: MainActivity.this)
                    .setTitle("信息")
                    .setMessage(txtUserName.getText() + ":" + textPassword.getText())
                    .setPositiveButton( text: "确定", listener: null)
                    .show();
        } );

        Button btGotoRegist = findViewById(R.id.btGotoRegist);
        btGotoRegist.setOnClickListener(view -> {
            Intent intent = new Intent( packageContext: MainActivity.this, RegistActivity.class);
            startActivity(intent);
        });
    }
}
```

findViewById通过控件的id获得控件对象

Android事件

```
public class MainActivity extends AppCompatActivity {

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

        Button btLogin =  findViewById(R.id.btLogin);
        EditText txtUserName =  findViewById(R.id.txtUserName);
        EditText textPassword =  findViewById(R.id.textPassword);
        btLogin.setOnClickListener(view -> {
            new AlertDialog.Builder( context: MainActivity.this)
                    .setTitle("信息")
                    .setMessage(txtUserName.getText() + ":" + textPassword.getText())
                    .setPositiveButton( text: "确定", listener: null)
                    .show();
        } );

        Button btGotoRegist = findViewById(R.id.btGotoRegist);
        btGotoRegist.setOnClickListener(view -> {
            Intent intent = new Intent( packageContext: MainActivity.this, RegistActivity.class);
            startActivity(intent);
        });
    }
}
```

Android通过xxxListener设置事件

Click为点击事件

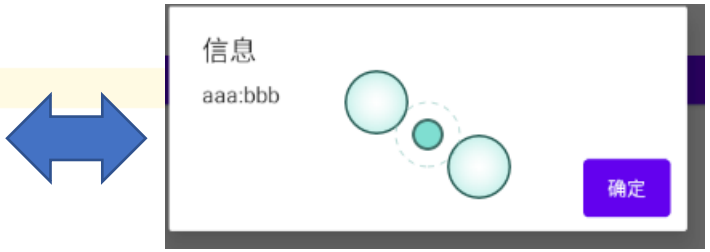
Android Alter弹窗

```
public class MainActivity extends AppCompatActivity {

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

        Button btLogin =  findViewById(R.id.btLogin);
        EditText txtUserName =  findViewById(R.id.txtUserName);
        EditText textPassword =  findViewById(R.id.textPassword);
        btLogin.setOnClickListener(view -> {
            new AlertDialog.Builder( context: MainActivity.this)
                    .setTitle("信息")
                    .setMessage(txtUserName.getText() + ":" + textPassword.getText())
                    .setPositiveButton( text: "确定", listener: null)
                    .show();
        } );

        Button btGotoRegist = findViewById(R.id.btGotoRegist);
        btGotoRegist.setOnClickListener(view -> {
            Intent intent = new Intent( packageContext: MainActivity.this, RegistActivity.class);
            startActivity(intent);
        });
    }
}
```



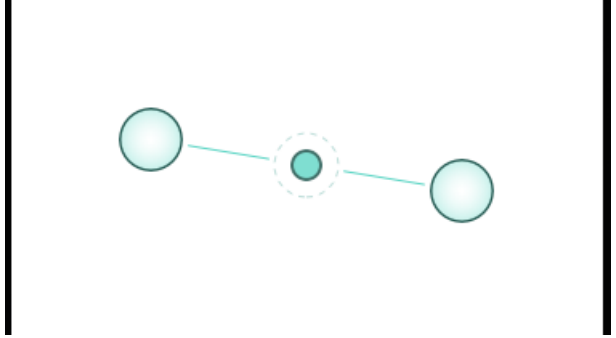
Intent 页面跳转

```
public class MainActivity extends AppCompatActivity {

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

        Button btLogin =  findViewById(R.id.btLogin);
        EditText txtUserName =  findViewById(R.id.txtUserName);
        EditText textPassword =  findViewById(R.id.textPassword);
        btLogin.setOnClickListener(view -> {
            new AlertDialog.Builder( context: MainActivity.this)
                    .setTitle("信息")
                    .setMessage(txtUserName.getText() + ":" + textPassword.getText())
                    .setPositiveButton( text: "确定", listener: null)
                    .show();
        } );

        Button btGotoRegist = findViewById(R.id.btGotoRegist);
        btGotoRegist.setOnClickListener(view -> {
            Intent intent = new Intent( packageContext: MainActivity.this, RegistActivity.class);
            startActivity(intent);
        });
    }
}
```



颜色数值表

颜色代码表

	#ffffff		#2F0000		#600030		#460046		#28004D
	#272727		#4D0000		#820041		#5E005E		#3A006F
	#3C3C3C		#600000		#9F0050		#750075		#4B0091
	#4F4F4F		#750000		#BF0060		#930093		#5B00AE
	#5B5B5B		#930000		#D9006C		#AE00AE		#6F00D2
	#6C6C6C		#AE0000		#F00078		#D200D2		#8600FF
	#7B7B7B		#CE0000		#FF0080		#E800E8		#921AFF
	#8E8E8E		#EA0000		#FF359A		#FF00FF		#9F35FF
	#9D9D9D		#FF0000		#FF60AF		#FF44FF		#B15BFF
	#ADADAD		#FF2D2D		#FF79BC		#FF77FF		#BE77FF
	#BEBEBE		#FF5151		#FF95CA		#FF8EFF		#CA8EFF
	#d0d0d0		#ff7575		#ffaad5		#ffa6ff		#d3a4ff
	#E0E0E0		#FF9797		#FFC1E0		#FFBFFF		#DCB5FF
	#F0F0F0		#FFB5B5		#FFD9EC		#FFD0FF		#E6CAFF
	#FCFCFC		#FFD2D2		#FFECF5		#FFE6FF		#F1E1FF
	#FFFFFF		#FFECEC		#FFF7FB		#FFF7FF		#FAF4FF
	#000079		#000079		#003E3E		#006030		#006000
	#000093		#003D79		#005757		#01814A		#007500
	#0000C6		#004B97		#007979		#019858		#009100
	#0000C6		#005AB5		#009393		#01B468		#00A600
	#0000E3		#0066CC		#00AEAE		#02C874		#00BB00
	#2828FF		#0072E3		#00CACA		#02DF82		#00DB00
	#4A4AFF		#0080FF		#00E3E3		#02F78E		#00EC00
	#6A6AFF		#2894FF		#00FFFF		#1AFD9C		#28FF28
	#7D7DFF		#46A3FF		#4DFFFF		#4EFEB3		#53FF53
	#9393FF		#66B3FF		#80FFFF		#7AFEC6		#79FF79
	#AAAAFF		#84C1FF		#A6FFFF		#96FED1		#93FF93
	#B9B9FF		#97CBFF		#BBFFFF		#ADFEDC		#A6FFA6
	#CECEFF		#ACD6FF		#CAFFFF		#C1FFE4		#BBFFBB

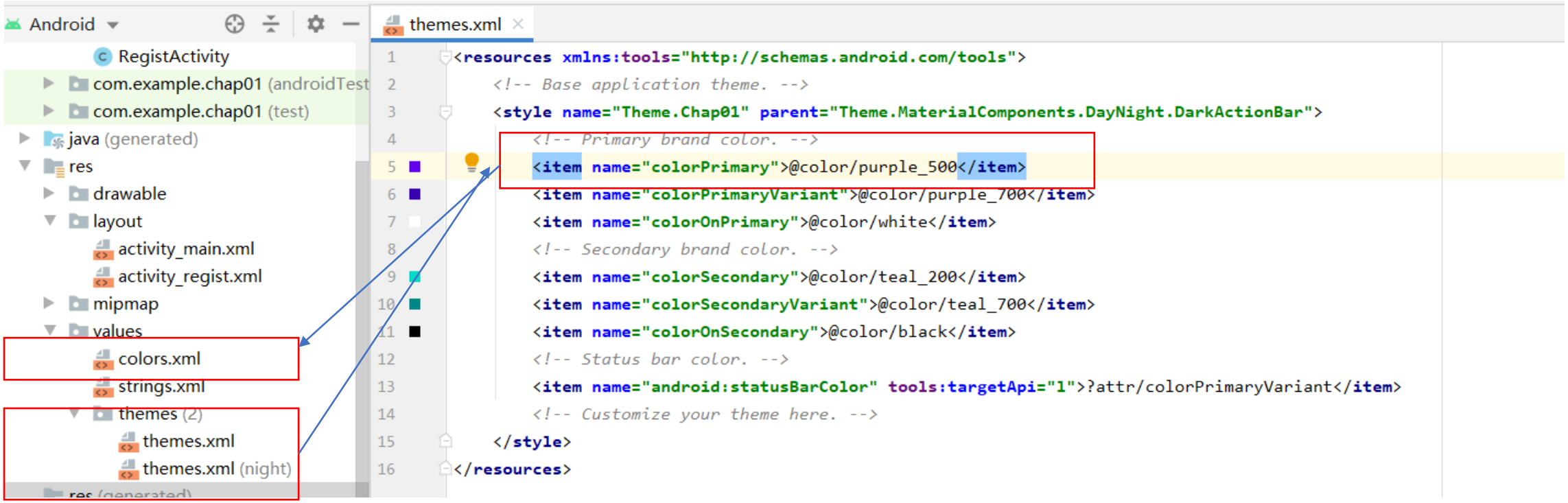
	#DDDDFF		#C4E1FF		#D9FFFF		#D7FFEE		#CEFFCE
	#ECECFF		#D2E9FF		#ECFFFF		#E8FFF5		#DFFFDF
	#FBFBFF		#ECF5FF		#FDFFFF		#FBFFFD		#F0FFF0
	#467500		#424200		#5B4B00		#844200		#642100
	#548C00		#5B5B00		#796400		#9F5000		#842B00
	#64A600		#737300		#977C00		#BB5E00		#A23400
	#73BF00		#8C8C00		#AE8F00		#D26900		#BB3D00
	#82D900		#A6A600		#C6A300		#EA7500		#D94600
	#8CEA00		#C4C400		#D9B300		#FF8000		#F75000
	#9AFF02		#E1E100		#EAC100		#FF9224		#FF5809
	#A8FF24		#F9F900		#FFD306		#FFA042		#FF8040
	#B7FF4A		#FFFF37		#FFDC35		#FFAF60		#FF8F59
	#C2FF68		#FFFF6F		#FFE153		#FFBB77		#FF9D6F
	#CCFF80		#FFFF93		#FFE66F		#FFC78E		#FFAD86
	#D3FF93		#FFFFAA		#FFED97		#FFD1A4		#FFBD9D
	#DEFFAC		#FFFFB9		#FFF0AC		#FFDCB9		#FFCBB3
	#E8FFC4		#FFFFCE		#FFF4C1		#FFE4CA		#FFDAC8
	#EFFFD7		#FFFFDF		#FFF8D7		#FFEEDD		#FFE6D9
	#F5FFE8		#FFFFF4		#FFFCEC		#FFFAF4		#FFF3EE
	#613030		#616130		#336666		#484891		#6C3365
	#743A3A		#707038		#3D7878		#5151A2		#7E3D76
	#804040		#808040		#408080		#5A5AAD		#8F4586
	#984B4B		#949449		#4F9D9D		#7373B9		#9F4D95
	#AD5A5A		#A5A552		#5CADAD		#8080C0		#AE57A4
	#B87070		#AFAF61		#6FB7B7		#9999CC		#B766AD
	#C48888		#B9B973		#81C0C0		#A6A6D2		#C07AB8
	#CF9E9E		#C2C287		#95CACA		#B8B8DC		#CA8EC2
	#D9B3B3		#CDCD9A		#A3D1D1		#C7C7E2		#D2A2CC
	#E1C4C4		#D6D6AD		#B3D9D9		#D8D8EB		#DAB1D5
	#EBD6D6		#DEDEBE		#C4E1E1		#E6E6F2		#E2C2DE
	#F2E6E6		#E8E8D0		#D1E9E9		#F3F3FA		#EBD3E8

修改字体颜色

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="账号:"
    android:textSize="25sp"
    android:textColor="#FF5151"
    >
```

修改字体颜色通过颜色数值即可修改

修改主题皮肤



Themes是android的主体，注意内定义的颜色使用的是colors中的颜色定义

颜色定义

themes.xml | colors.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#FF03DAC5</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#FF000000</color>
    <color name="white">#FFFFFFFF</color>
    <color name="red">#AE0000</color>
</resources>
```

```xml
<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Theme.Chap01" parent="Theme.MaterialComponents.DayNight.DarkActionBar">
        <!-- Primary brand color. -->
        <item name="colorPrimary">@color/red</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. -->
    </style>
```

注册页面

activity_main.xml | activity_regist.xml

Code | Split | Design

```
        android:orientation="horizontal"
        android:layout_marginTop="40dp"
        android:gravity="center_vertical">
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="确认密码:"
            android:textSize="25sp"
            android:textColor="#FF5151">
        </TextView>
        <EditText
            android:id="@+id/textAgainPassword"
            android:layout_width="match_parent"
            android:layout_height="50dp"
            android:hint="请再次输入密码"
            android:inputType="textPassword"
            android:layout_marginLeft="10dp"
            android:textSize="18sp">
        </EditText>
    </LinearLayout>
    <Button
        android:id="@+id/btLogin"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="登录"
        android:textSize="18sp"
        android:layout_marginTop="20dp"
        android:background="#00CACA">
    </Button>
</LinearLayout>
```

Success

Layout Validation

activity_regist.xml | Pixel Devices

Pixel 3 (1080 x 2160)

更改页面标题

activity_main.xml | activity_regist.xml | RegistActivity.java

```
1  package com.example.chap01;
2
3  import ...
6
7  public class RegistActivity extends AppCompatActivity {
8      @Override
9      protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_regist);
12
13         this.setTitle("注册");
14     }
15 }
```

确认密码是否一致

```
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_regist);

    this.setTitle("注册");
    Button button = findViewById(R.id.btRegist);
    TextView textViewPass = findViewById(R.id.textRegPassword);
    TextView textViewPassAg = findViewById(R.id.textAgainPassword);
    button.setOnClickListener(view -> {
        String textPass = textViewPass.getText().toString();
        String textPassAga = textViewPassAg.getText().toString();

        if(textPass == null || "".equals(textPass)) {
            Toast.makeText( context: RegistActivity.this,  text: "请输入密码", Toast.LENGTH_LONG).show();
            return;
        } else if(textPassAga == null || "".equals(textPassAga)) {
            Toast.makeText( context: RegistActivity.this,  text: "请输入确认密码", Toast.LENGTH_LONG).show();
            return;
        } else if(!textPassAga.equals(textPass)) {
            Toast.makeText( context: RegistActivity.this,  text: "两次密码输入不一致", Toast.LENGTH_LONG).show();
            return;
        }
        Intent intent = new Intent( packageContext: RegistActivity.this, MainActivity.class);
        startActivity(intent);
    });
}
```

页面之间的跳转


```
Intent intent = new
Intent(MainActivity.t
his,
RegistActivity.class)
;
startActivity(intent)
;
```


```
Intent intent = new
Intent(RegistActivity
.this,
MainActivity.class);
startActivity(intent)
;
```