

Android Architecture

Memory
Related



search "gravatly" to center text

res/values/string.xml

1. Drag button, text... to View.
2. Change text size, boundaries, bold...
3. Add every text to string.xml (Run → Warning → Fix it)
& give it a name
4. Change id (every button, items that we'll modify in our code)
→ refactor
5. Set background color
6. Go to Main-activity.java page, start coding.

*. Note:

Uncomment \Rightarrow Ctrl + /

MainActivity.java

```

activity_main.xml × MainActivity.java × strings.xml ×
1 package com.logan.makeitrain;
2
3 import ...
4
5 public class MainActivity extends AppCompatActivity {
6     private Button makeItRain;           // Declare Object
7     private Button showInfo;            // Has nothing to do with
8     private TextView moneyValue;        // Params that declare in res/ or gui
9     private int moneyCounter;
10
11    @Override
12    protected void onCreate(Bundle savedInstanceState) {
13        super.onCreate(savedInstanceState);
14        setContentView(R.layout.activity_main);
15
16        makeItRain = findViewById(R.id.buttonMakeItRain); // connect Palette id to Object
17        moneyValue = findViewById(R.id.moneyValue);
18
19        moneyValue.setText(R.string.test); // test is a name of a string
20        // R represents res folder, everything
21        // starts with R means it is defined
22        // through gui or res/ file
23
24        makeItRain.setOnClickListener(new View.OnClickListener() {
25            @Override
26            public void onClick(View view) {
27                Log.d(tag: "MainActivity", msg: "onClick: Make it rain!");
28            }
29        });
30    }
31
32    ②
33
34    ③
35
36

```

宣告變量，須先將在gui中設定的id使用
要顯示的layout.xml
gui中設定的id
connect
gui item & variables

① 設定 TextView 中顯示的文字

1° 先打 `moneyValue.setText("Hello logan");`

2° 單燈泡 \rightarrow Extract Resource \rightarrow 決定 Resource name

\rightarrow OK \rightarrow "Hello logan" 會變成 `R.string.resource-name`

表示字符串已被寫入 `string.xml` 中

②

`Log.d` \Rightarrow 會在 Logcat 視窗中 print 出的 msg

tag: 可自定義、隨便取

msg: 为顯示字符串

③ OnClick Listener 寫法(=): 從 XML file 著手

*.activity_main.xml

```
29     android:textSize="48sp"
30     android:textStyle="bold"
31     app:layout_constraintBottom_toBottomOf="parent"
32     app:layout_constraintEnd_toEndOf="parent"
33     app:layout_constraintHorizontal_bias="0.497"
34     app:layout_constraintStart_toStartOf="parent"
35     app:layout_constraintTop_toBottomOf="@+id/textView2"
36     app:layout_constraintVertical_bias="0.117" />
37
38     <Button                                     ← Make it rain by button
39     android:id="@+id/buttonMakeItRain"
40     android:layout_width="wrap_content"
41     android:layout_height="wrap_content"
42     android:onClick="showMoney"                 ← add this line
```

```
43     android:text="@string/make_it_rain"
44     app:layout_constraintBottom_toBottomOf="parent"
45     app:layout_constraintEnd_toEndOf="parent"
46     app:layout_constraintHorizontal_bias="0.498"
47     app:layout_constraintStart_toStartOf="parent"
48     app:layout_constraintTop_toBottomOf="@+id/moneyValue"
49     app:layout_constraintVertical_bias="0.132" />
50
```

接下來...

1° 把 cursor 放在 "showMoney" 中間

2° 按右鍵 → 選 Create 'showMoney (View)' in 'MainActivity'

3° - 延 OnClick 互動功能的 function, 叫 showMoney

被放在 MainActivity.java 中

* MainActivity.java

```
public void showMoney(View view) { // After choosing "Create in MainActivity", this will show up
    NumberFormat numberFormat = NumberFormat.getCurrencyInstance(); // Add dollar sign
    moneyCounter += 1000;
    moneyValue.setText(String.valueOf(numberFormat.format(moneyCounter))); // setText only takes string
    // Thus, use valueof to
    // convert int to string
}
Log.d( tag: "MIR" , msg: "onClick: " + moneyCounter); // Log.d : msg that shows in debug terminal
// tag : user define
}
```

Next, 創造 showInfo button 的 OnClick function.

1° 在 gui 中的 showInfo button, 在右側的 Attribute tab

搜尋 onClick 並輸入 onclick function 的名稱 showInfo

android:onClick="showInfo" 便出現於 activity_main.xml

2° put cursor between "showInfo" → Create showInfo in MainActivity

3° Modify showInfo function in MainActivity.java

- Toast function: 顯示 msg 在手机上

```
47  
48     public void showInfo(View view) {  
49         Toast.makeText(context: MainActivity.this,  
50             R.string.app_info,  
51             Toast.LENGTH_SHORT)  
52             .show();  
53         }  
54     }
```

顯示時間很短
別忘記!!

① 1° 先打 R.string.app_info

2° put cursor between R.string.app_info → 延長泡泡

→ Create String value resource 'app-info'

→ 重新输入 Resource value → ok

- Snackbar function: 將 msg 以 navigation bar 的形式顯示於手机中

```
47  
48     public void showInfo(View view) {  
49         Snackbar.make(moneyValue, R.string.app_info, Snackbar.LENGTH_LONG)  
50             .setAction(text: "More", new View.OnClickListener() {  
51                 @Override  
52                 public void onClick(View view) {  
53                     Log.d(tag: "Snack", msg: "showInfo: Snackbar");  
54                 }  
55             })  
56             .show();  
57     }  
58 }
```

Print 在手机的 msg
顯示 - 个 More 的超連結
print 在 logcat 的 msg
Don't forget!

* 請定之字顏色

```
51
52     <法一>: moneyValue.setTextColor(Color.rgb( red: 255, green: 255, blue: 255));
53
54     <法二>: moneyValue.setTextColor(ContextCompat.getColor(
55             context: MainActivity.this,
56             R.color.white));
57 ■
```

color.xml 中的名稱

Summary

* 本章總整：

App development steps

1° 放 button, TextView 到 gui 畫面

2° 設定各元件的字型, 內容, id

- id 改 refactor (使 id 傳到 activity-main.xml 中)

- text 改完後, Design page 左下的 Component Tree

會出現 warning, 有  → Fix it (Extract String resources)

→ 輸入 resource name → 字串出現於 strings.xml 中

MainActivity 中再使用 R.string.resource_name 呼叫

- 所有利用“R.”呼叫的皆收錄於 res/ 中

res/string.xml → R.string...

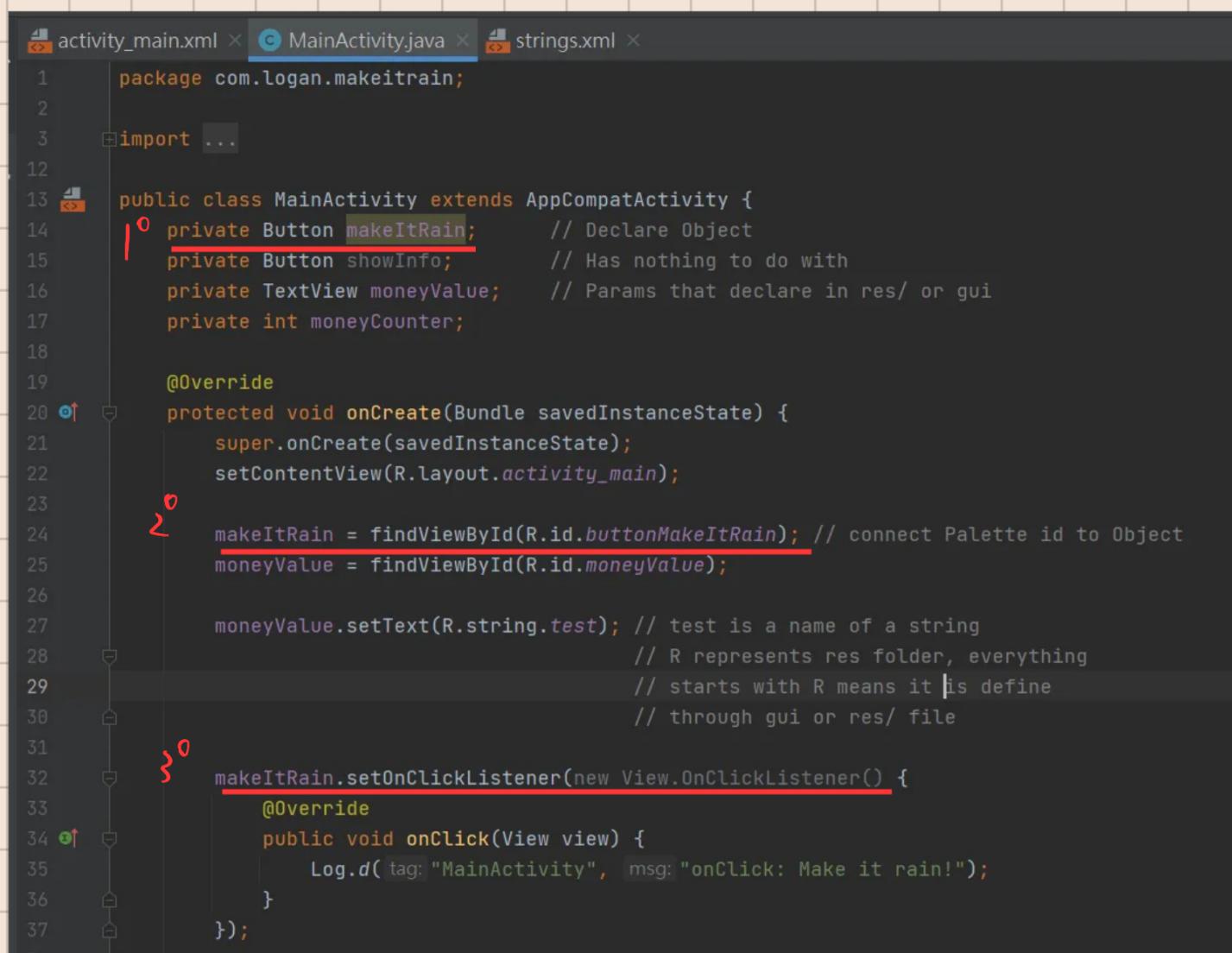
3° MainActivity.java 中宣告 private 变量

4° 将变量与 gui 中的 item 透过 id 連結 (R.id....)

5° 透过 function 操控 gui item:

- onClickListener:

<语法→ 由 Button Obj 调用 .setOnClickListener()



```
activity_main.xml x MainActivity.java x strings.xml x
1 package com.logan.makeitrain;
2
3 import ...
4
5 public class MainActivity extends AppCompatActivity {
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7     private Button showInfo;            // Has nothing to do with
8     private TextView moneyValue;        // Params that declare in res/ or gui
9     private int moneyCounter;
10
11
12     @Override
13     protected void onCreate(Bundle savedInstanceState) {
14         super.onCreate(savedInstanceState);
15         setContentView(R.layout.activity_main);
16
17         makeItRain = findViewById(R.id.buttonMakeItRain); // connect Palette id to Object
18         moneyValue = findViewById(R.id.moneyValue);
19
20         moneyValue.setText(R.string.test); // test is a name of a string
21                                         // R represents res folder, everything
22                                         // starts with R means it is define
23                                         // through gui or res/ file
24
25     }
26
27
28     makeItRain.setOnClickListener(new View.OnClickListener() {
29         @Override
30         public void onClick(View view) {
31             Log.d(tag: "MainActivity", msg: "onClick: Make it rain!");
32         }
33     });
34 }
```

<语法二> 由 Design 面板設定 onClickListener function

1° 让 android:onClick="showInfo" 出现在 activity_main.xml

(直接寫在 activity_main.xml)
也可

在 gui 中的 showInfo button，在右側的 Attribute tab

搜尋 onClick 並輸入 onClick function 的名稱 showInfo

2° 讓自定義的 onClick function 出現在 MainActivity.java

put cursor between "showInfo" (in activity_main.xml)

→ Create showInfo in MainActivity your onclick function name

3° Modify showInfo function in MainActivity.java

```
47
48     public void showInfo(View view) {
49         Snackbar.make(moneyValue, R.string.app_info, Snackbar.LENGTH_LONG)
50             .setAction("More", new View.OnClickListener() {
51                 @Override
52                 public void onClick(View view) {
53                     Log.d("Snack", "showInfo: Snackbar");
54                 }
55             })
56             .show();
57     }
58 }
```

- findViewById()
- setText()
- Log.d()
- Toast.makeText().show()
- Snackbar.make().setAction().show()
- setTextColor()

