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Android APP 開發—spinner元件介紹 (以兩數做四則運算為例)



```
<Spinner
```

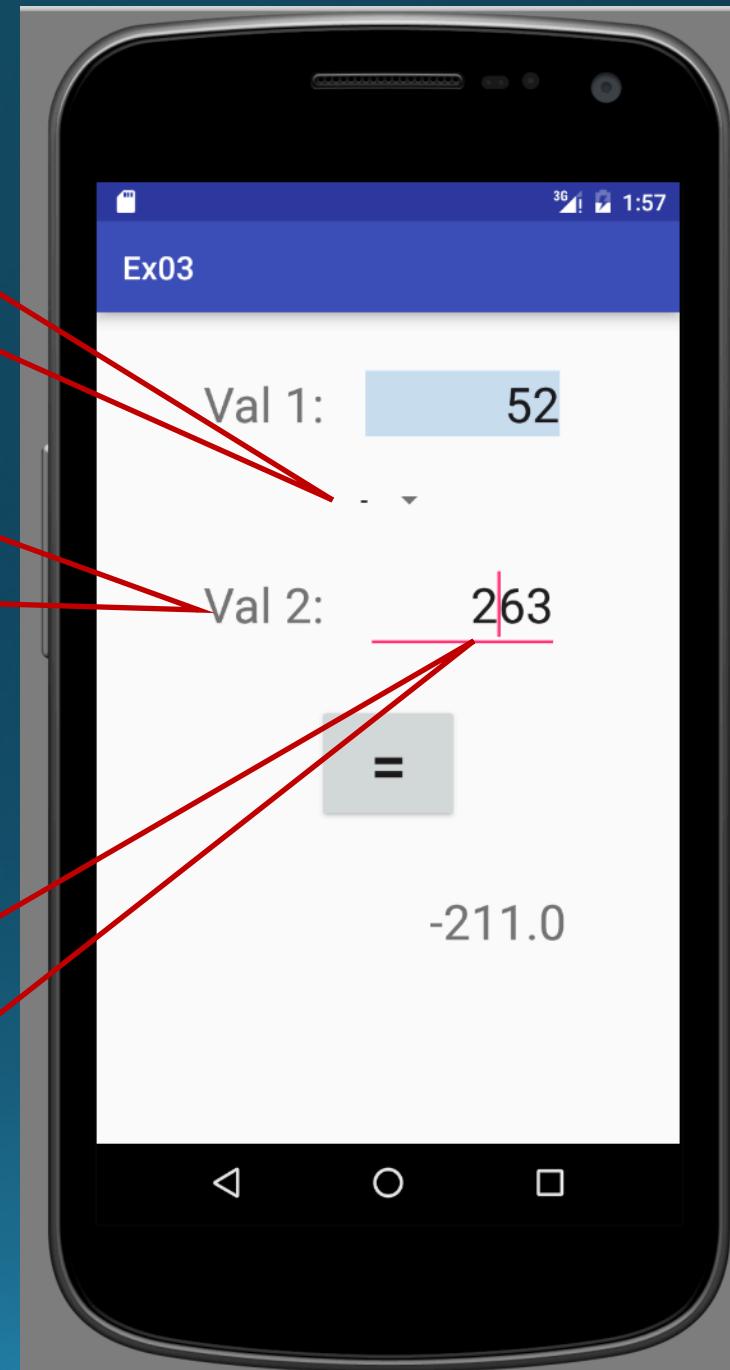
```
    android:id="@+id/spin0P"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="15dp"
    android:layout_below="@+id/etV1">
</Spinner>
```

```
<TextView
```

```
    android:id="@+id/tv2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textSize="30dp"
    android:width="100dp"
    android:text="Val 2: "
    android:layout_below="@+id/spin0P"
    android:layout_marginTop="20dp"
    android:layout_marginLeft="50dp"/>
```

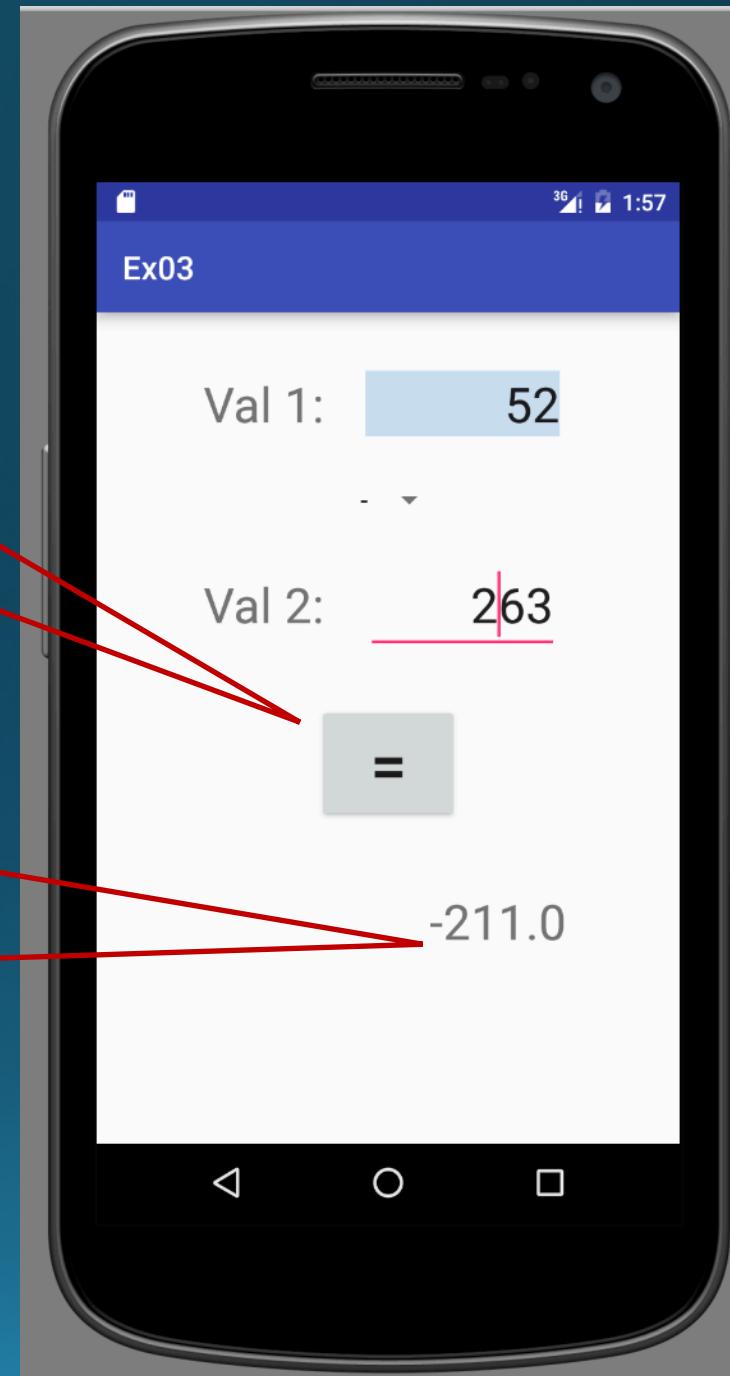
```
<EditText
```

```
    android:id="@+id/etV2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textSize="30dp"
    android:width="120dp"
    android:textAlignment="textEnd"
    android:inputType="numberSigned"
    android:layout_below="@+id/spin0P"
    android:layout_toEndOf="@+id/tv2"
    android:layout_alignBaseline="@+id/tv2"/>
```

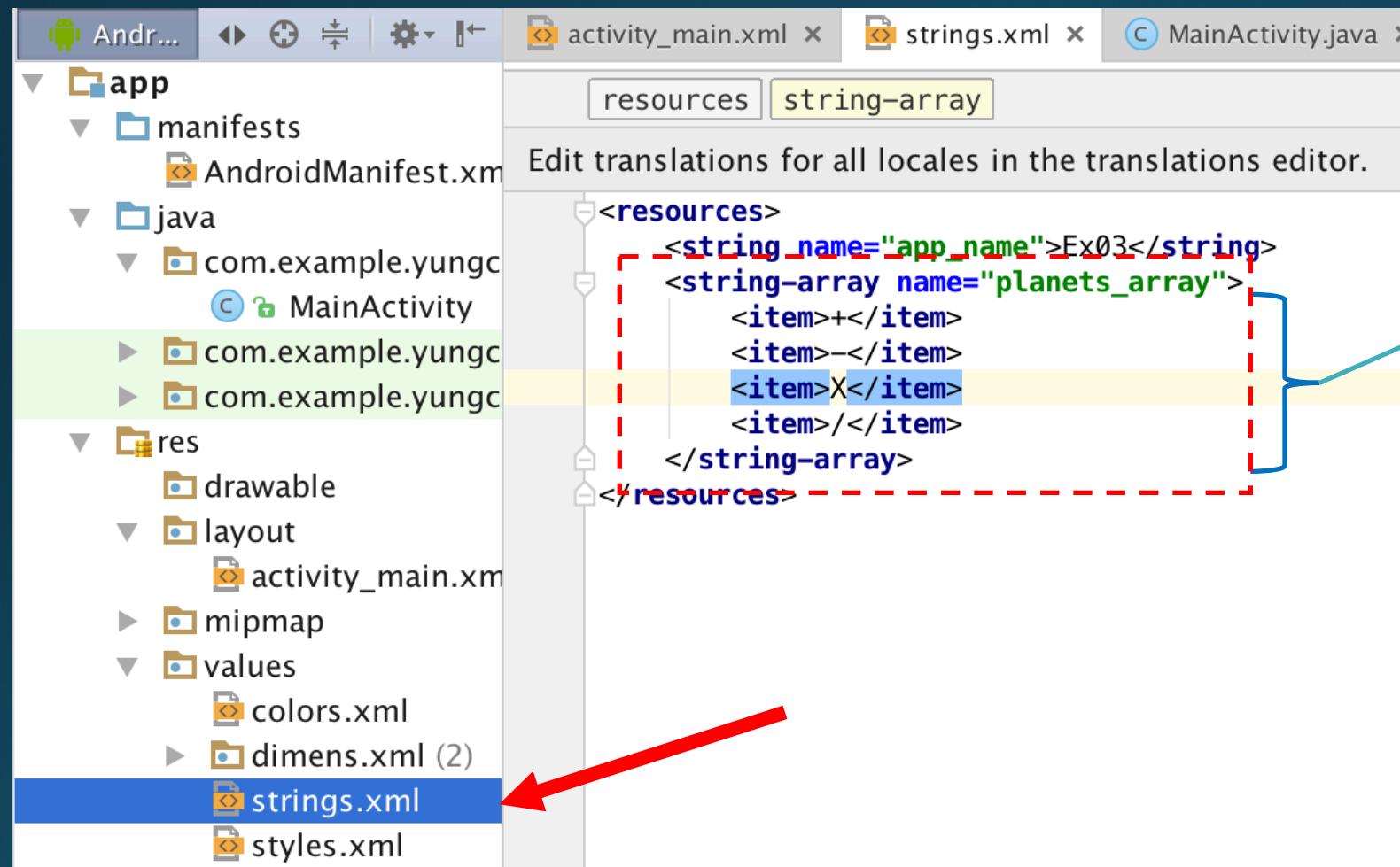


```
<Button  
    android:id="@+id/runBtn"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="="  
    android:textSize="40dp"  
    android:layout_centerHorizontal="true"  
    android:layout_below="@+id/etV2"  
    android:layout_marginTop="30dp"/>
```

```
<TextView  
    android:id="@+id/tvResult"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_centerHorizontal="true"  
    android:textSize="30dp"  
    android:layout_marginTop="40dp"  
    android:width="220dp"  
    android:layout_below="@+id/runBtn"  
    android:textAlignment="textEnd"  
    android:text="0" />
```



APP 的 UI 佈局



The screenshot shows the Android Studio interface with the project structure on the left and the code editor on the right.

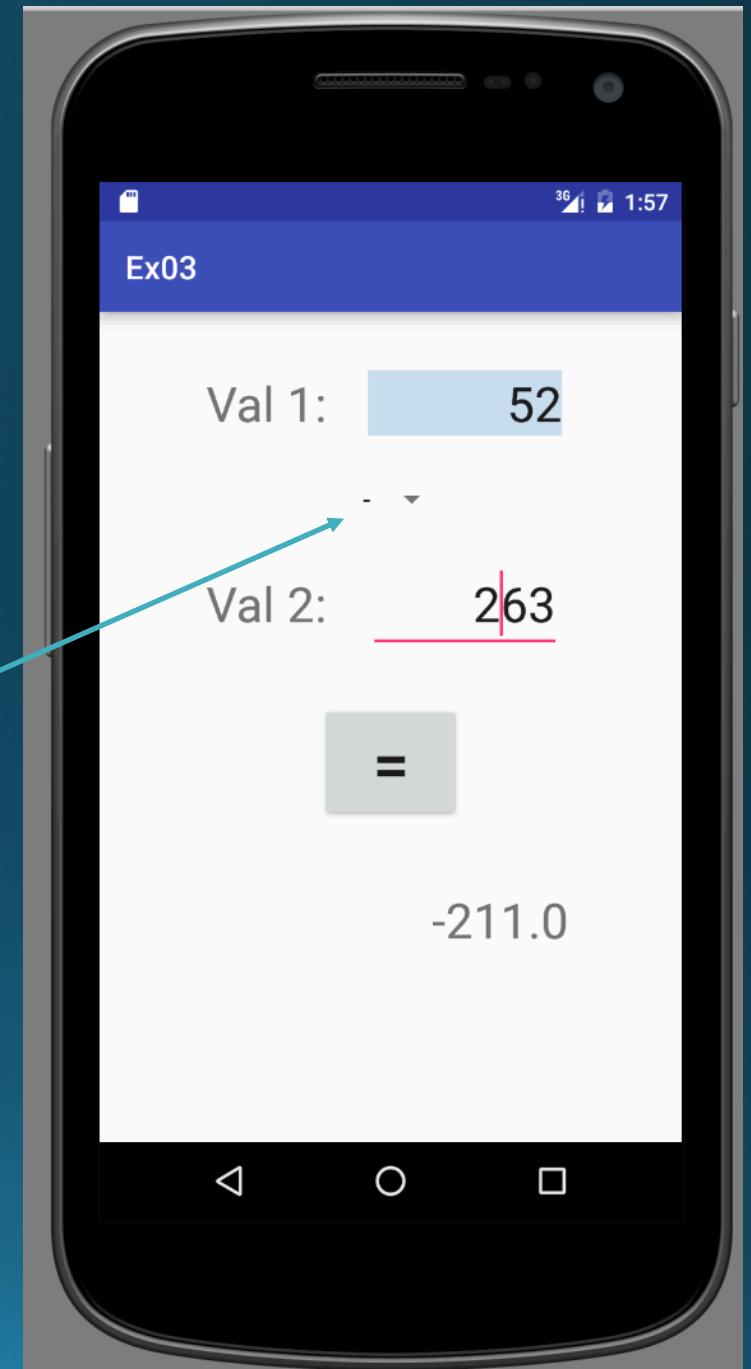
Project Structure:

- app
- manifests
- java
- res
 - drawable
 - layout
 - activity_main.xml
 - mipmap
 - values
 - colors.xml
 - dimens.xml (2)
 - strings.xml
 - styles.xml

Code Editor (strings.xml):

```
<resources>
    <string name="app_name">Ex03</string>
    <string-array name="planets_array">
        <item>+</item>
        <item>-</item>
        <item>X</item>
        <item>/</item>
    </string-array>
</resources>
```

A red arrow points from the bottom of the project structure to the strings.xml file in the code editor.



MainActivity.java

```
17 public class MainActivity extends AppCompatActivity {  
18     protected Spinner spinOP1;  
19     protected TextView tvResult1;  
20     protected Button btnRun1;  
21     protected EditText etVal1, etVal2;  
22     protected int opType = 0; // 0 => +, 1 => -, 2 => *, 3 => /  
23  
24     @Override  
25     protected void onCreate(Bundle savedInstanceState) {  
26         super.onCreate(savedInstanceState);  
27         setContentView(R.layout.activity_main);  
28         setupUI(findViewById(R.id.parent));  
29  
30         tvResult1 = (TextView) findViewById(R.id.tvResult);  
31  
32         spinOP1 = (Spinner) findViewById(R.id.spinOP);  
33         ArrayAdapter<CharSequence> adapter1 =  
34             ArrayAdapter.createFromResource(this, R.array.planets_array, R.layout.support_simple_spinner_dropdown_item);  
35         adapter1.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);  
36         spinOP1.setAdapter(adapter1);  
37         spinOP1.setOnItemSelectedListener(new SpinnerActivity());  
38  
39         etVal1 = (EditText) findViewById(R.id.etV1);  
40         etVal2 = (EditText) findViewById(R.id.etV2);
```

使用者在 EditText 裡 Key in 資料時, key 完後點擊其他地方時希望鍵盤能自動隱藏, 需要呼叫 setupUI() 函式 (68~83列程式)

Spinner元件要加入 item 的作法是先用一個 ArrayAdapter 將在 strings.xml 裡指定的資料導到 ArrayAdapter 裡再用它來定 spinner 裡用到的 adapter

用來傾聽 spinner 選項改變的事件

```
42     btnRun1 = (Button) findViewById(R.id.runBtn);
43     btnRun1.setOnClickListener(new View.OnClickListener() {
44         @Override
45         ↑
46         public void onClick(View v) {
47             float tmpVal = 0.0f,
48                 v1 = Float.parseFloat(etVal1.getText().toString()),
49                 v2 = Float.parseFloat(etVal2.getText().toString());
50             switch (opType){
51                 case 0:
52                     tmpVal = v1 + v2;
53                     break;
54                 case 1:
55                     tmpVal = v1 - v2;
56                     break;
57                 case 2:
58                     tmpVal = v1 * v2;
59                     break;
60                 case 3:
61                     tmpVal = v1 / v2;
62                     break;
63             }
64             tvResult1.setText(Float.toString(tmpVal));
65         });
66     });

```

```
68     public static void hideSoftKeyboard(Activity activity) {  
69         InputMethodManager inputMethodManager =  
70             (InputMethodManager) activity.getSystemService(Activity.INPUT_METHOD_SERVICE);  
71         inputMethodManager.hideSoftInputFromWindow(activity.getCurrentFocus().getWindowToken(), 0);  
72     }  
73  
74     public void setupUI(View view) {  
75         //Set up touch listener for non-text box views to hide keyboard.  
76         if(!(view instanceof EditText)) {  
77             view.setOnTouchListener(new View.OnTouchListener() {  
78                 public boolean onTouch(View v, MotionEvent event) {  
79                     hideSoftKeyboard(MainActivity.this);  
80                     return false;  
81                 }  
82             });  
83         }  
84     }  
85     //If a layout container, iterate over children and seed recursion.  
86     if (view instanceof ViewGroup) {  
87         for (int i = 0; i < ((ViewGroup) view).getChildCount(); i++) {  
88             View innerView = ((ViewGroup) view).getChildAt(i);  
89             setupUI(innerView);  
90         }  
91     }  
92 }
```

用來隱藏鍵盤的

用來判斷是不是離開
EditText的元件, 如果
是, 就去呼叫上方的鍵
盤隱藏函數

```
94 class SpinnerActivity extends Activity implements AdapterView.OnItemSelectedListener {  
95     ①↑     public void onItemSelected(AdapterView<?> parent, View view, int pos, long id) {  
96         // An item was selected. You can retrieve the selected item using  
97         // parent.getItemAtPosition(pos)  
98         opType = pos;  
99     }  
100  
101    ①↑     public void onNothingSelected(AdapterView<?> parent) {  
102         // Another interface callback  
103     }  
104 }  
105 }
```

用來判斷 spinner 元件選項
是不是改變了,如果改變了就
去更新 opType 變數的值,
pos 是 spinner 裡項目的序號