스마트폰 프로그래밍
Assign #03

(제목 : Linear Layout Activity 작성)

학번 : 2018305068

성명 : 정 동 기

제출일자 : 2022.10.23
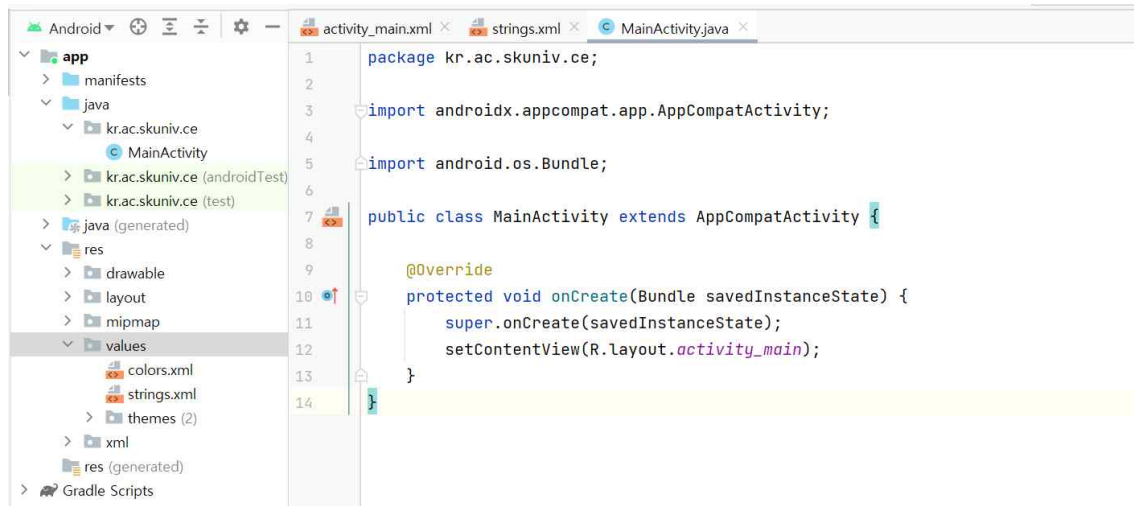
본인은 타인이나 다른 매체를 도용하지 않았음을 확인합니다 <정동기>

1. 여러 개의 LinearLayout을 사용해 Button 위젯을 다음과 같이 배열하는 Activitiy를 XML만을 이용하여 작성하시오.

<실행화면>

<MainActivity.java>


```java
package kr.ac.skuniv.ce;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
}
}
```
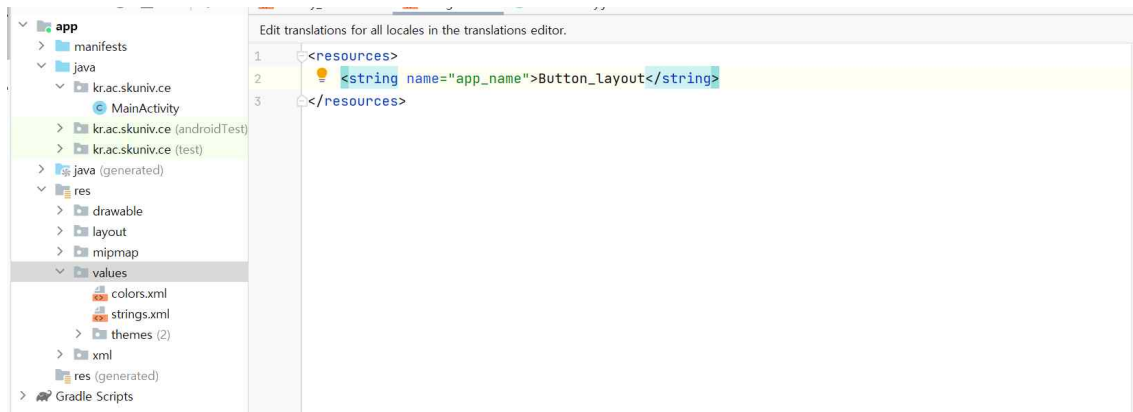
<string.xml>


```
<resources>
<string name="app_name">Button_layout</string>
</resources>
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:gravity="center"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <LinearLayout
        android:gravity="center"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="vertical">
        <Button
            android:id="@+id/button1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:background="#D8E98A"
            android:padding="15dp"
            android:text="버튼1"
            android:textSize="30dp" />

        <Button
            android:id="@+id/button2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:layout_weight="1"
            android:background="#D8E98A"
            android:padding="15dp"
            android:text="버튼2"
            android:textSize="30dp" />
        <LinearLayout
            android:layout_marginTop="100dp"
            android:layout_marginBottom="100dp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:orientation="horizontal">
            <Button
                android:id="@+id/button3"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:background="#D8E98A"
                android:textSize="30dp"
                android:padding="15dp"
                android:text="버튼3" />
            <Button
                android:layout_marginLeft="10dp"
                android:id="@+id/button4"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:background="#D8E98A"
                android:textSize="30dp"
                android:padding="15dp"
                android:text="버튼4" />
        </LinearLayout>
        <Button
            android:id="@+id/button5"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:background="#D8E98A"
            android:textSize="30dp"
            android:padding="15dp"
            android:text="버튼5" />
        <Button
            android:id="@+id/button6"
```

```
69          android:layout_width="wrap_content"
70          android:layout_height="wrap_content"
71          android:layout_marginTop="10dp"
72          android:layout_weight="1"
73 ■        android:background="#D8E98A"
74          android:textSize="30dp"
75          android:padding="15dp"
76          android:text="버튼6" />
77      </LinearLayout>
78
79 </LinearLayout>
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
android:gravity="center"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical">
<LinearLayout
android:gravity="center"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:orientation="vertical">
<Button
android:id="@+id/button1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:background="#D8E98A"
android:padding="15dp"
android:text="버튼1"
android:textSize="30dp" />

<Button
android:id="@+id/button2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="10dp"
android:layout_weight="1"
android:background="#D8E98A"
android:padding="15dp"
android:text="버튼2"
android:textSize="30dp" />
<LinearLayout
android:layout_marginTop="100dp"
android:layout_marginBottom="100dp"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:orientation="horizontal">
<Button
android:id="@+id/button3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:background="#D8E98A"
android:textSize="30dp"
android:padding="15dp"
android:text="버튼3" />
<Button
android:layout_marginLeft="10dp"
android:id="@+id/button4"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:background="#D8E98A"
android:textSize="30dp"
```

```xml
        android:padding="15dp"
        android:text="버튼4" />
    </LinearLayout>
    <Button
        android:id="@+id/button5"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:background="#D8E98A"
        android:textSize="30dp"
        android:padding="15dp"
        android:text="버튼5" />
    <Button
        android:id="@+id/button6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:layout_weight="1"
        android:background="#D8E98A"
        android:textSize="30dp"
        android:padding="15dp"
        android:text="버튼6" />
    </LinearLayout>

</LinearLayout>
```
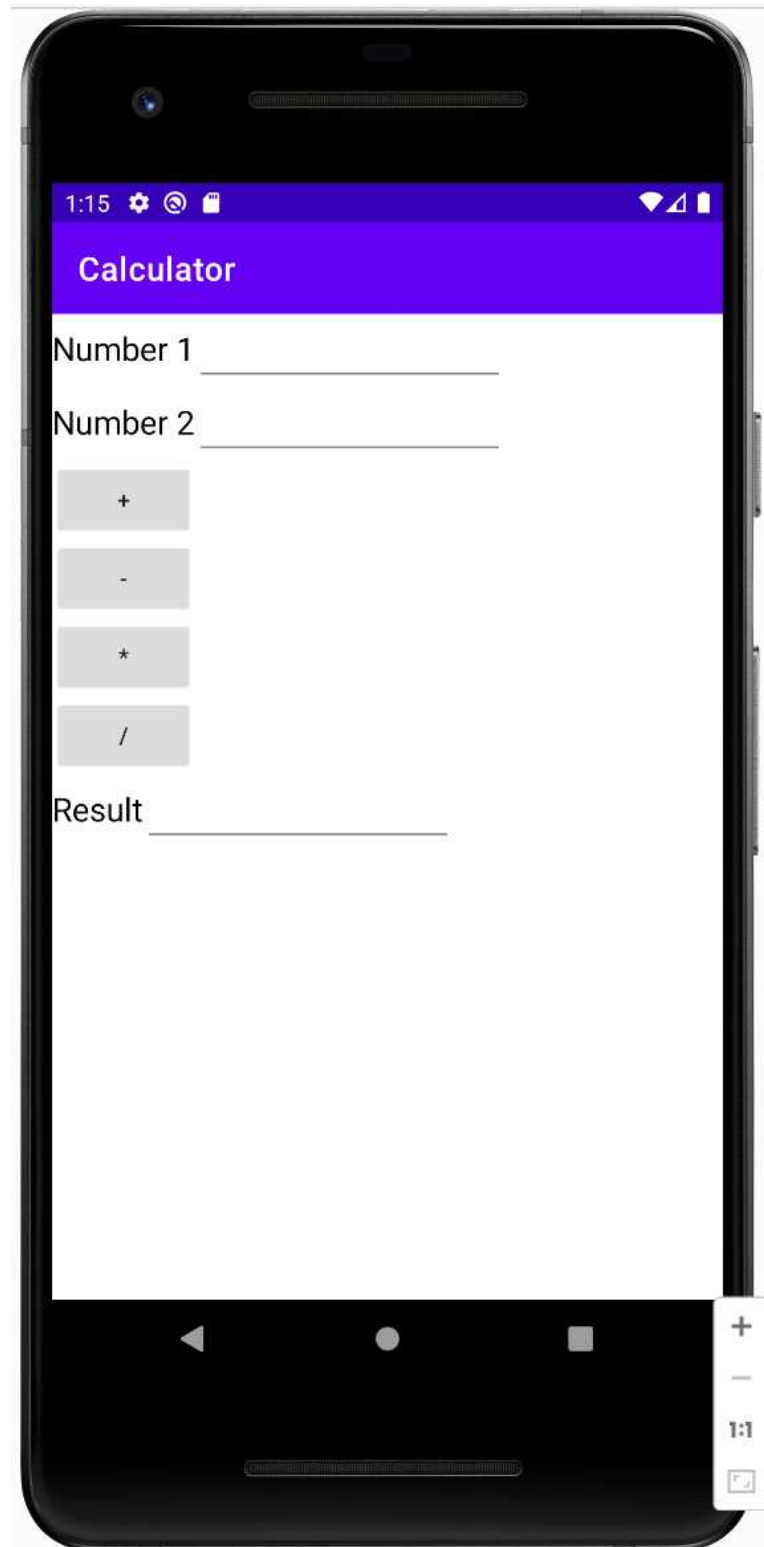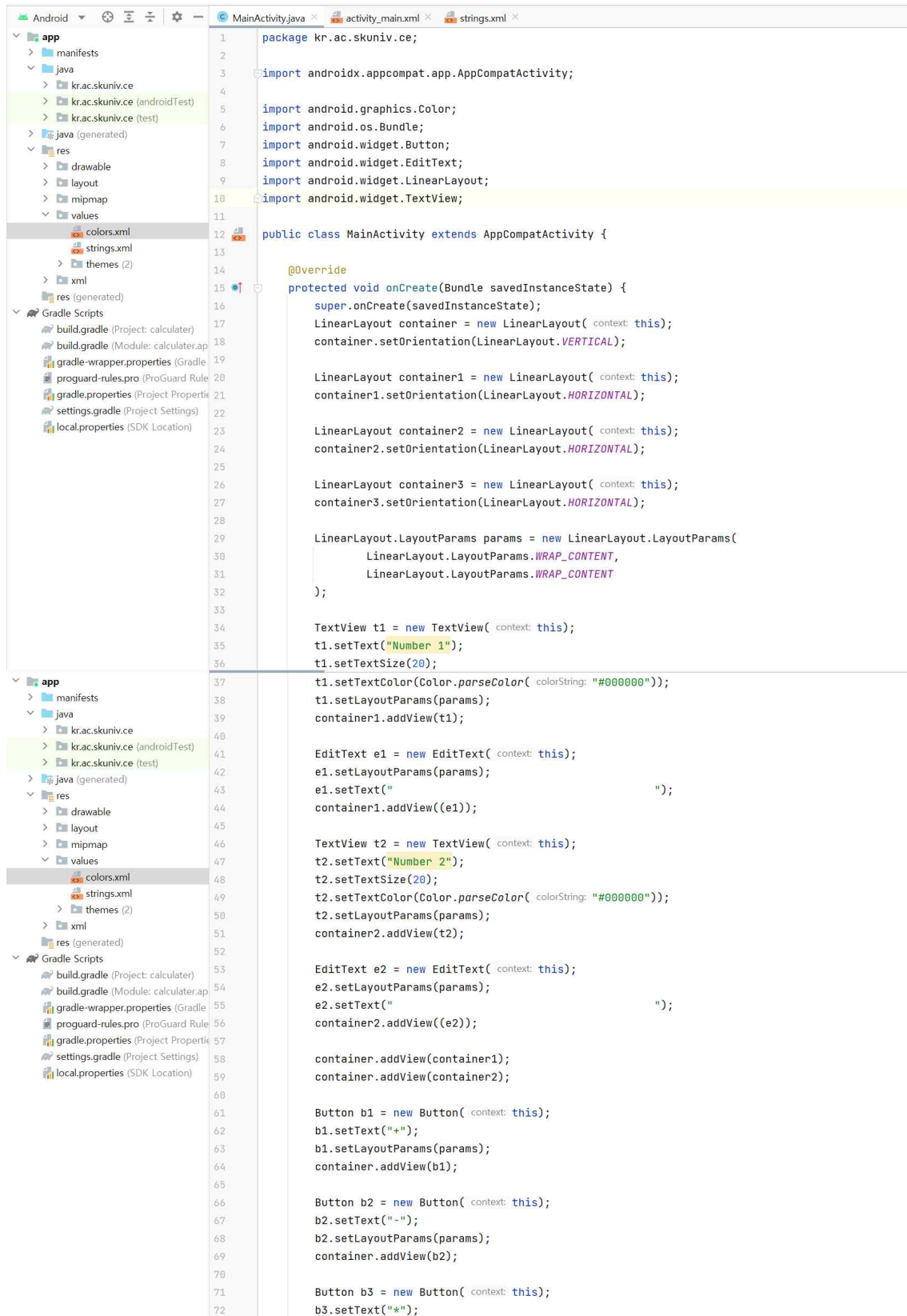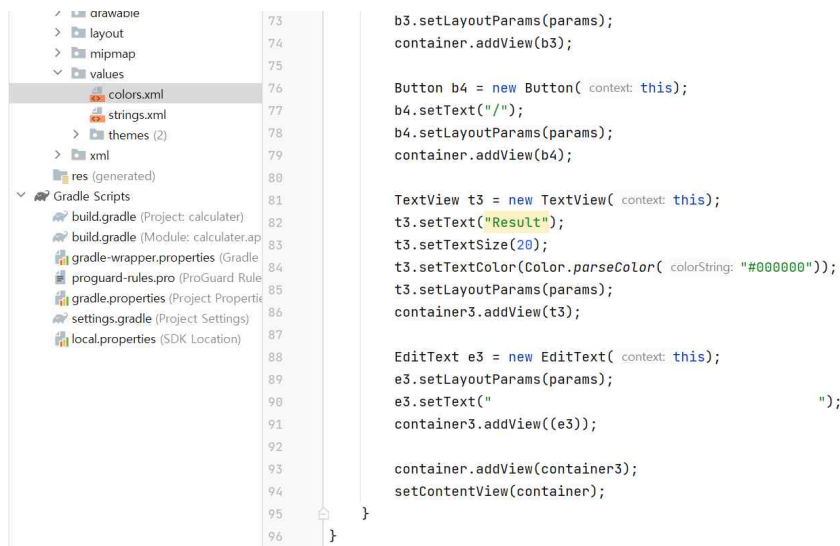
2. 교제 p. 161의 Activity를 Java만을 이용해 구현하시오(XML 사용 금지)

<실행화면>

\<MainActivity.java\>

```java
package kr.ac.skuniv.ce;

import androidx.appcompat.app.AppCompatActivity;

import android.graphics.Color;
import android.os.Bundle;
import android.widget.Button;
import android.widget.EditText;
import android.widget.LinearLayout;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        LinearLayout container = new LinearLayout( context: this);
        container.setOrientation(LinearLayout.VERTICAL);

        LinearLayout container1 = new LinearLayout( context: this);
        container1.setOrientation(LinearLayout.HORIZONTAL);

        LinearLayout container2 = new LinearLayout( context: this);
        container2.setOrientation(LinearLayout.HORIZONTAL);

        LinearLayout container3 = new LinearLayout( context: this);
        container3.setOrientation(LinearLayout.HORIZONTAL);

        LinearLayout.LayoutParams params = new LinearLayout.LayoutParams(
                LinearLayout.LayoutParams.WRAP_CONTENT,
                LinearLayout.LayoutParams.WRAP_CONTENT
        );

        TextView t1 = new TextView( context: this);
        t1.setText("Number 1");
        t1.setTextSize(20);
        t1.setTextColor(Color.parseColor( colorString: "#000000"));
        t1.setLayoutParams(params);
        container1.addView(t1);

        EditText e1 = new EditText( context: this);
        e1.setLayoutParams(params);
        e1.setText("                              ");
        container1.addView((e1));

        TextView t2 = new TextView( context: this);
        t2.setText("Number 2");
        t2.setTextSize(20);
        t2.setTextColor(Color.parseColor( colorString: "#000000"));
        t2.setLayoutParams(params);
        container2.addView(t2);

        EditText e2 = new EditText( context: this);
        e2.setLayoutParams(params);
        e2.setText("                              ");
        container2.addView((e2));

        container.addView(container1);
        container.addView(container2);

        Button b1 = new Button( context: this);
        b1.setText("+");
        b1.setLayoutParams(params);
        container.addView(b1);

        Button b2 = new Button( context: this);
        b2.setText("-");
        b2.setLayoutParams(params);
        container.addView(b2);

        Button b3 = new Button( context: this);
        b3.setText("*");
```

```
73        b3.setLayoutParams(params);
74        container.addView(b3);
75
76        Button b4 = new Button( context: this);
77        b4.setText("/");
78        b4.setLayoutParams(params);
79        container.addView(b4);
80
81        TextView t3 = new TextView( context: this);
82        t3.setText("Result");
83        t3.setTextSize(20);
84        t3.setTextColor(Color.parseColor( colorString: "#000000"));
85        t3.setLayoutParams(params);
86        container3.addView(t3);
87
88        EditText e3 = new EditText( context: this);
89        e3.setLayoutParams(params);
90        e3.setText("                                ");
91        container3.addView((e3));
92
93        container.addView(container3);
94        setContentView(container);
95    }
96 }
```

```java
package kr.ac.skuniv.ce;

import androidx.appcompat.app.AppCompatActivity;

import android.graphics.Color;
import android.os.Bundle;
import android.widget.Button;
import android.widget.EditText;
import android.widget.LinearLayout;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
LinearLayout container = new LinearLayout(this);
container.setOrientation(LinearLayout.VERTICAL);

LinearLayout container1 = new LinearLayout(this);
container1.setOrientation(LinearLayout.HORIZONTAL);

LinearLayout container2 = new LinearLayout(this);
container2.setOrientation(LinearLayout.HORIZONTAL);

LinearLayout container3 = new LinearLayout(this);
container3.setOrientation(LinearLayout.HORIZONTAL);

LinearLayout.LayoutParams params = new LinearLayout.LayoutParams(
LinearLayout.LayoutParams.WRAP_CONTENT,
LinearLayout.LayoutParams.WRAP_CONTENT
);

TextView t1 = new TextView(this);
t1.setText("Number 1");
t1.setTextSize(20);
t1.setTextColor(Color.parseColor("#000000"));
t1.setLayoutParams(params);
container1.addView(t1);

EditText e1 = new EditText(this);
e1.setLayoutParams(params);
e1.setText("                                ");
container1.addView((e1));
```

```java
TextView t2 = new TextView(this);
t2.setText("Number 2");
t2.setTextSize(20);
t2.setTextColor(Color.parseColor("#000000"));
t2.setLayoutParams(params);
container2.addView(t2);

EditText e2 = new EditText(this);
e2.setLayoutParams(params);
e2.setText("                                    ");
container2.addView((e2));

container.addView(container1);
container.addView(container2);

Button b1 = new Button(this);
b1.setText("+");
b1.setLayoutParams(params);
container.addView(b1);

Button b2 = new Button(this);
b2.setText("-");
b2.setLayoutParams(params);
container.addView(b2);

Button b3 = new Button(this);
b3.setText("*");
b3.setLayoutParams(params);
container.addView(b3);

Button b4 = new Button(this);
b4.setText("/");
b4.setLayoutParams(params);
container.addView(b4);

TextView t3 = new TextView(this);
t3.setText("Result");
t3.setTextSize(20);
t3.setTextColor(Color.parseColor("#000000"));
t3.setLayoutParams(params);
container3.addView(t3);

EditText e3 = new EditText(this);
e3.setLayoutParams(params);
e3.setText("                                    ");
container3.addView((e3));

container.addView(container3);
setContentView(container);
}
}
```
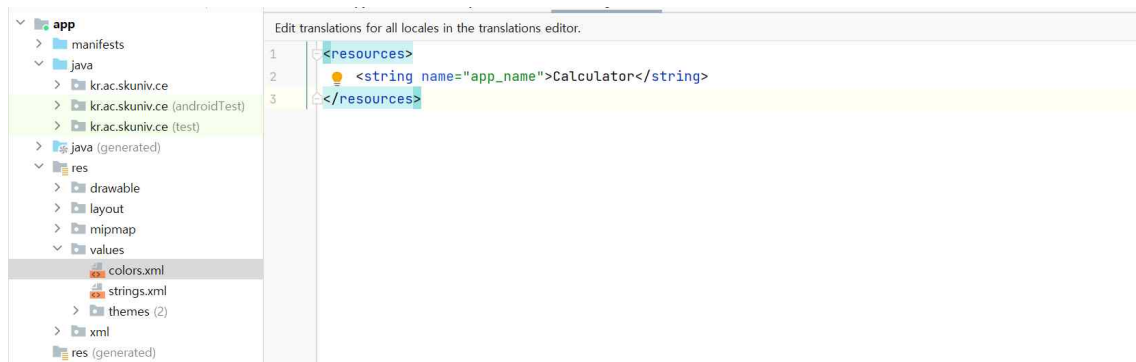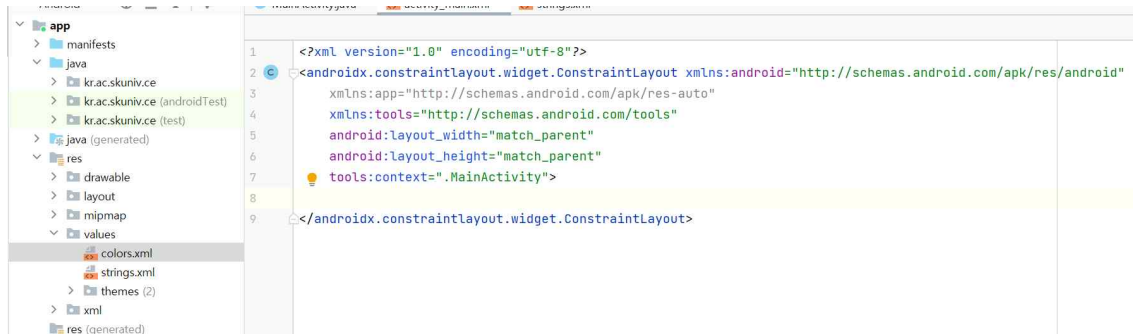
<string.xml>


```xml
<resources>
<string name="app_name">Calculator</string>
</resources>
```

\<activity_main.xml\>
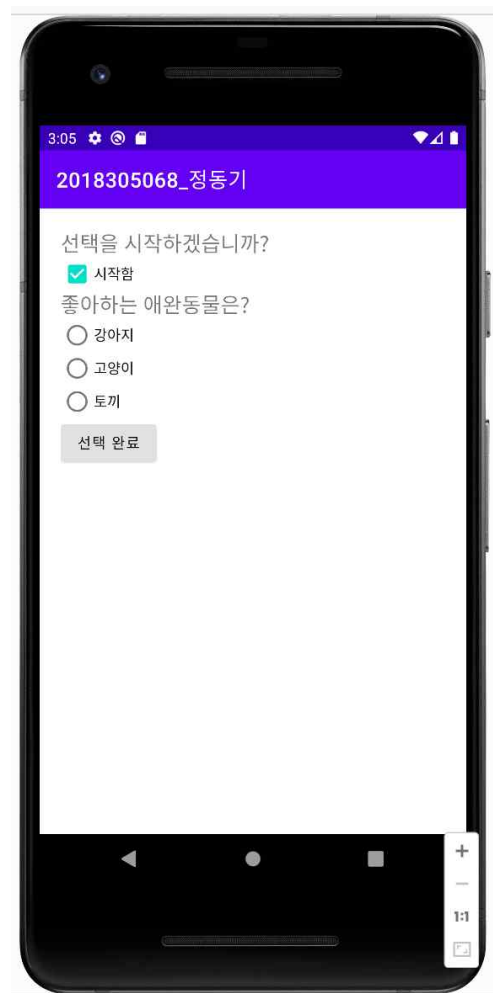


```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

</androidx.constraintlayout.widget.ConstraintLayout>
```
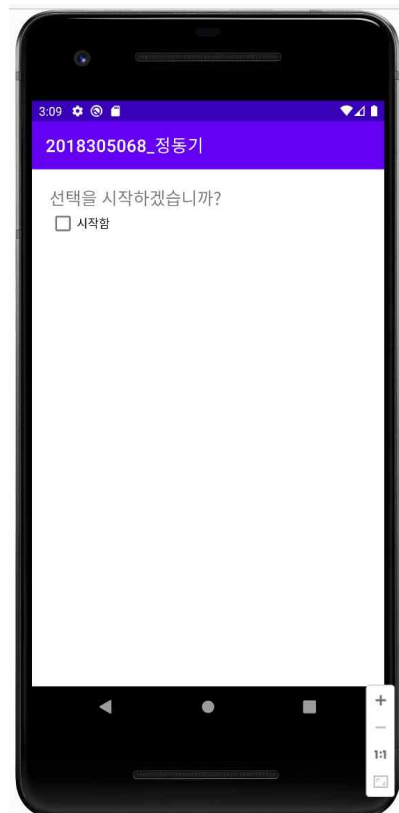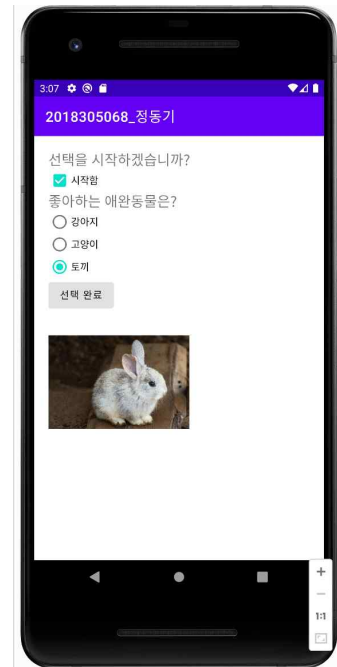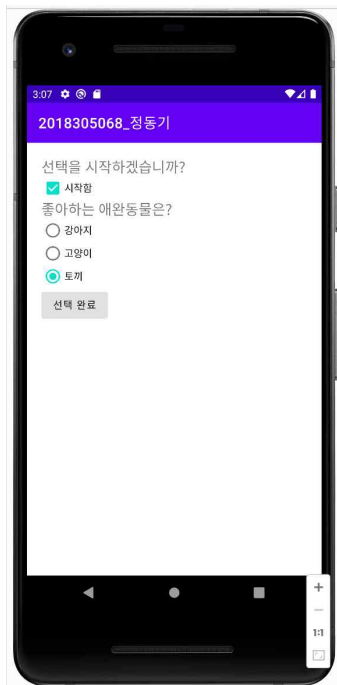
3. 아래와 같은 TextView와 CheckBox를 가진 초기화면(좌측)을 작성하고, 시작함을 체크하면 우측 그림과 같이 좋아하는 애완동물을 선택하는 RadioButton과 선택 완료 Button이 나타난다(미리 만들어 놓았다가 Visible 속성 변경)
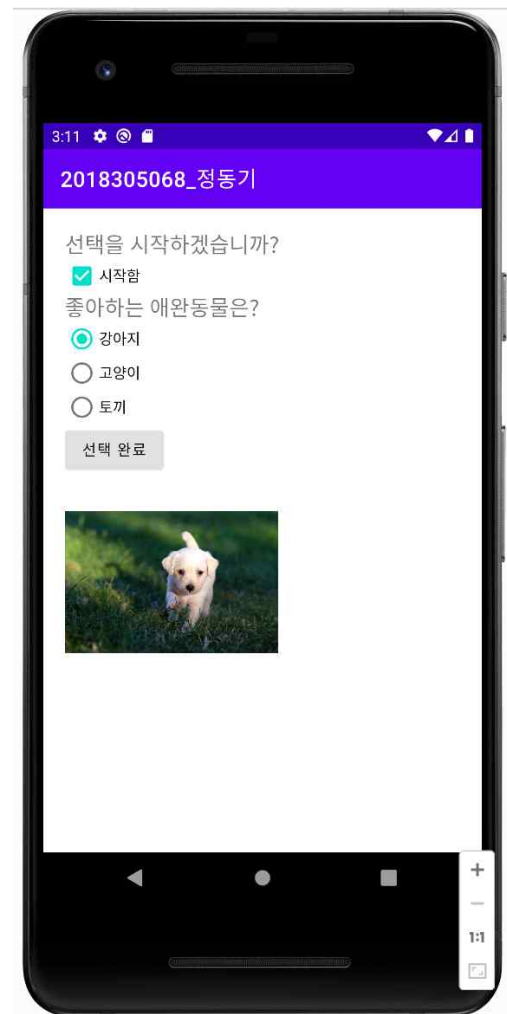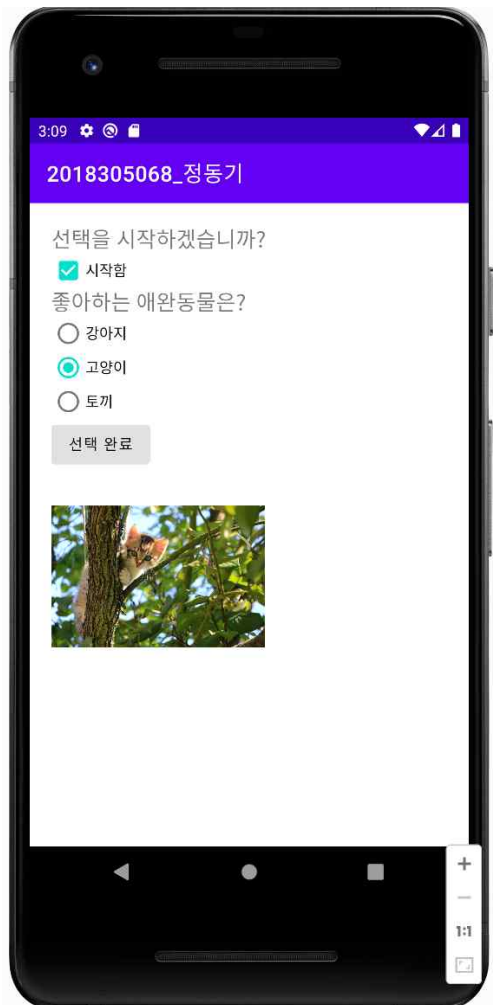
<실행화면>

여기에서 좋아하는 애완동물을 선택하고 선택 완료 Button을 누르면 해당 동물의 사진(임의로 선정해 사용)이 나타난다(좌측). 언제나 시작함 체크를 해제하면 초기화면으로 돌아간다.
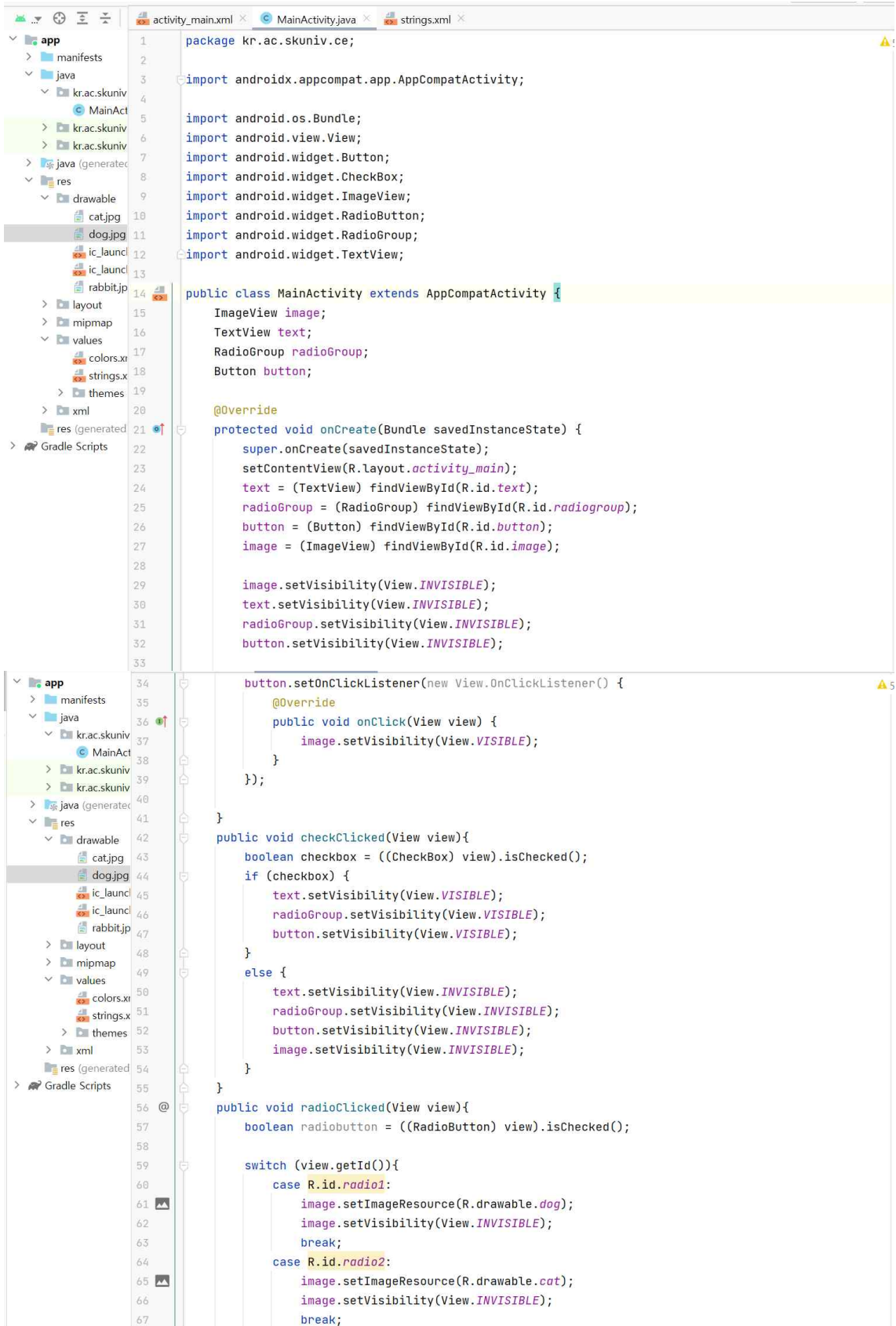

checkbox 끔

다른 예시이다(고양이, 강아지)

```
activity_main.xml      MainActivity.java      strings.xml

1    package kr.ac.skuniv.ce;
2
3    import androidx.appcompat.app.AppCompatActivity;
4
5    import android.os.Bundle;
6    import android.view.View;
7    import android.widget.Button;
8    import android.widget.CheckBox;
9    import android.widget.ImageView;
10   import android.widget.RadioButton;
11   import android.widget.RadioGroup;
12   import android.widget.TextView;
13
14   public class MainActivity extends AppCompatActivity {
15       ImageView image;
16       TextView text;
17       RadioGroup radioGroup;
18       Button button;
19
20       @Override
21       protected void onCreate(Bundle savedInstanceState) {
22           super.onCreate(savedInstanceState);
23           setContentView(R.layout.activity_main);
24           text = (TextView) findViewById(R.id.text);
25           radioGroup = (RadioGroup) findViewById(R.id.radiogroup);
26           button = (Button) findViewById(R.id.button);
27           image = (ImageView) findViewById(R.id.image);
28
29           image.setVisibility(View.INVISIBLE);
30           text.setVisibility(View.INVISIBLE);
31           radioGroup.setVisibility(View.INVISIBLE);
32           button.setVisibility(View.INVISIBLE);
33
34           button.setOnClickListener(new View.OnClickListener() {
35               @Override
36               public void onClick(View view) {
37                   image.setVisibility(View.VISIBLE);
38               }
39           });
40
41       }
42       public void checkClicked(View view){
43           boolean checkbox = ((CheckBox) view).isChecked();
44           if (checkbox) {
45               text.setVisibility(View.VISIBLE);
46               radioGroup.setVisibility(View.VISIBLE);
47               button.setVisibility(View.VISIBLE);
48           }
49           else {
50               text.setVisibility(View.INVISIBLE);
51               radioGroup.setVisibility(View.INVISIBLE);
52               button.setVisibility(View.INVISIBLE);
53               image.setVisibility(View.INVISIBLE);
54           }
55       }
56       public void radioClicked(View view){
57           boolean radiobutton = ((RadioButton) view).isChecked();
58
59           switch (view.getId()){
60               case R.id.radio1:
61                   image.setImageResource(R.drawable.dog);
62                   image.setVisibility(View.INVISIBLE);
63                   break;
64               case R.id.radio2:
65                   image.setImageResource(R.drawable.cat);
66                   image.setVisibility(View.INVISIBLE);
67                   break;
```

```
68          case R.id.radio3:
69              image.setImageResource(R.drawable.rabbit);
70              image.setVisibility(View.INVISIBLE);
71              break;
72      }
73  }
74 }
```

package kr.ac.skuniv.ce;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.ImageView;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
ImageView image;
TextView text;
RadioGroup radioGroup;
Button button;

@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
text = (TextView) findViewById(R.id.text);
radioGroup = (RadioGroup) findViewById(R.id.radiogroup);
button = (Button) findViewById(R.id.button);
image = (ImageView) findViewById(R.id.image);

image.setVisibility(View.INVISIBLE);
text.setVisibility(View.INVISIBLE);
radioGroup.setVisibility(View.INVISIBLE);
button.setVisibility(View.INVISIBLE);

button.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View view) {
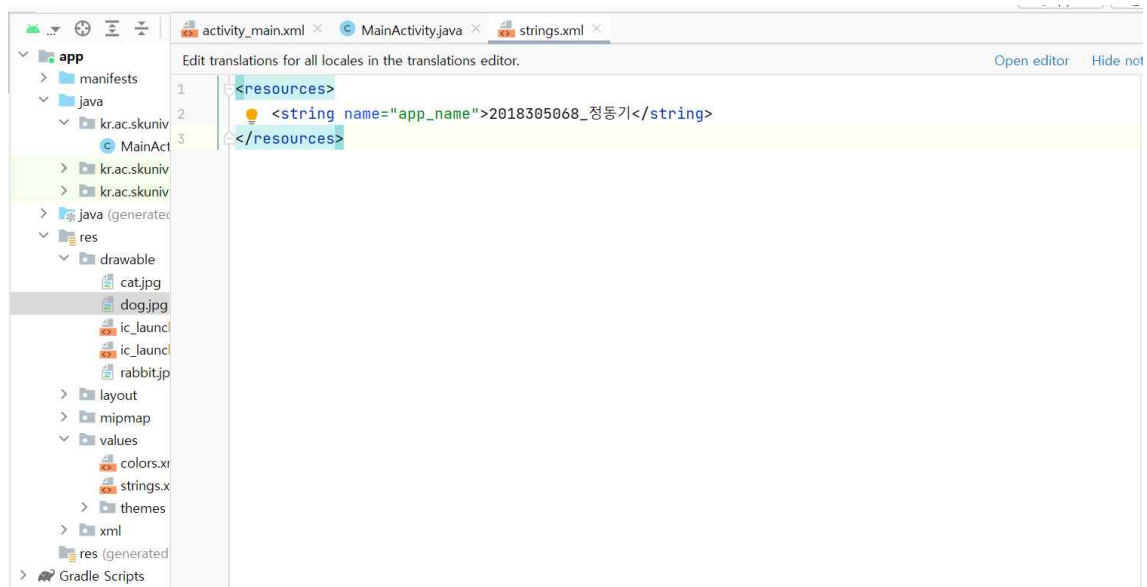image.setVisibility(View.VISIBLE);
}
});

}
public void checkClicked(View view){
boolean checkbox = ((CheckBox) view).isChecked();
if (checkbox) {
text.setVisibility(View.VISIBLE);
radioGroup.setVisibility(View.VISIBLE);
button.setVisibility(View.VISIBLE);
}
else {
text.setVisibility(View.INVISIBLE);
radioGroup.setVisibility(View.INVISIBLE);
button.setVisibility(View.INVISIBLE);
image.setVisibility(View.INVISIBLE);
}
}
public void radioClicked(View view){
boolean radiobutton = ((RadioButton) view).isChecked();

```java
switch (view.getId()){
case R.id.radio1:
image.setImageResource(R.drawable.dog);
image.setVisibility(View.INVISIBLE);
break;
case R.id.radio2:
image.setImageResource(R.drawable.cat);
image.setVisibility(View.INVISIBLE);
break;
case R.id.radio3:
image.setImageResource(R.drawable.rabbit);
image.setVisibility(View.INVISIBLE);
break;
}
}
}
```

```xml
<resources>
    <string name="app_name">2018305068_정동기</string>
</resources>
```

```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"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_marginLeft="20dp"
    android:orientation="vertical">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:text="선택을 시작하겠습니까?"
        android:textSize="20dp"/>
    <CheckBox android:id="@+id/checkbox"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:minWidth="0dp"
        android:minHeight="0dp"
        android:onClick="checkClicked"
        android:text="시작함"
        />
    <TextView android:id="@+id/text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="좋아하는 애완동물은?"
        android:textSize="20dp"/>
    <RadioGroup android:id="@+id/radiogroup"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical">
        <RadioButton android:id="@+id/radio1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:minWidth="0dp"
            android:minHeight="0dp"
            android:onClick="radioClicked"
            android:text="강아지"/>
        <RadioButton android:id="@+id/radio2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:minWidth="0dp"
            android:minHeight="0dp"
            android:onClick="radioClicked"
            android:text="고양이"/>
        <RadioButton android:id="@+id/radio3"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:minWidth="0dp"
            android:minHeight="0dp"
            android:onClick="radioClicked"
            android:text="토끼"/>
    </RadioGroup>
    <Button android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:backgroundTint="#DBDBDB"
        android:textColor="#000000"
        android:text="선택 완료"/>

    <ImageView
        android:id="@+id/image"
        android:layout_width="200dp"
        android:layout_height="200dp" />
</LinearLayout>
```

```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"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:layout_marginLeft="20dp"
android:orientation="vertical">
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="20dp"
android:text="선택을 시작하겠습니까?"
android:textSize="20dp"/>
<CheckBox android:id="@+id/checkbox"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:minWidth="0dp"
android:minHeight="0dp"
android:onClick="checkClicked"
android:text="시작함"
/>
<TextView android:id="@+id/text"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="좋아하는 애완동물은?"
android:textSize="20dp"/>
<RadioGroup android:id="@+id/radiogroup"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="vertical">
<RadioButton android:id="@+id/radio1"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:minWidth="0dp"
android:minHeight="0dp"
android:onClick="radioClicked"
android:text="강아지"/>
<RadioButton android:id="@+id/radio2"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:minWidth="0dp"
android:minHeight="0dp"
android:onClick="radioClicked"
android:text="고양이"/>
<RadioButton android:id="@+id/radio3"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:minWidth="0dp"
android:minHeight="0dp"
android:onClick="radioClicked"
android:text="토끼"/>
</RadioGroup>
<Button android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:backgroundTint="#DBDBDB"
android:textColor="#000000"
android:text="선택 완료"/>

<ImageView
android:id="@+id/image"
android:layout_width="200dp"
android:layout_height="200dp" />
</LinearLayout>
```