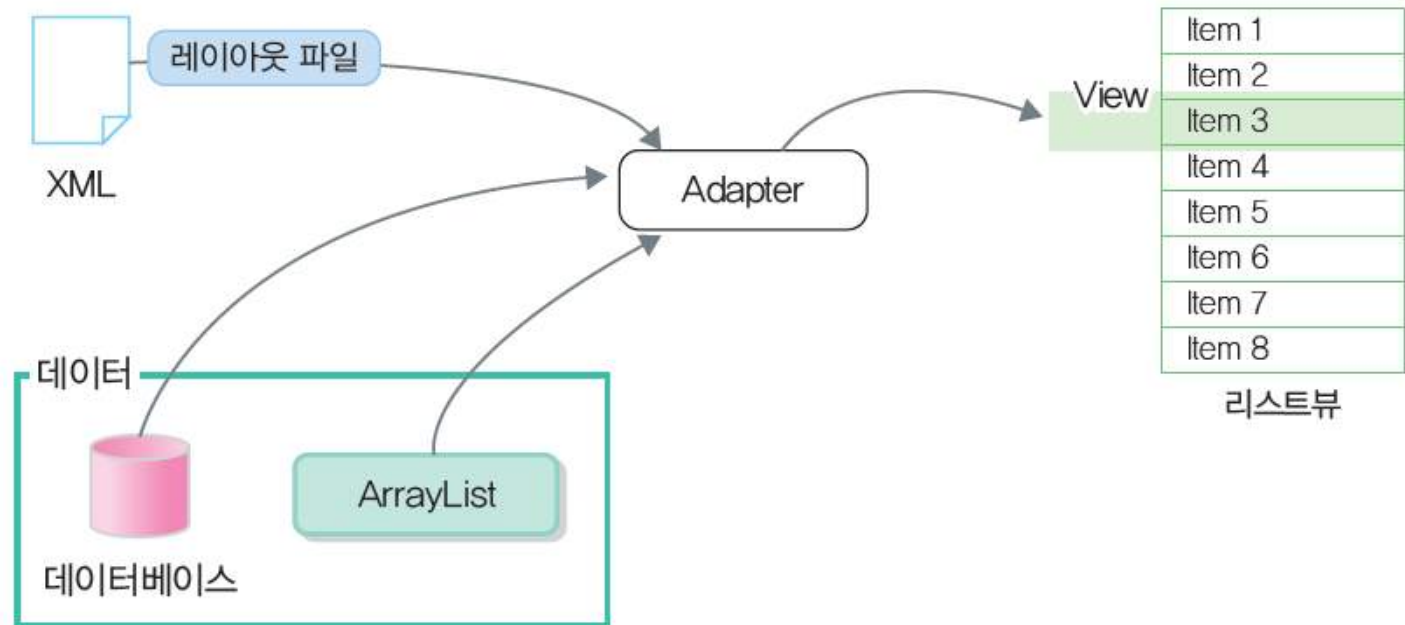


CHAP 7. 고급 위젯과 프래그먼트

어댑터 뷰

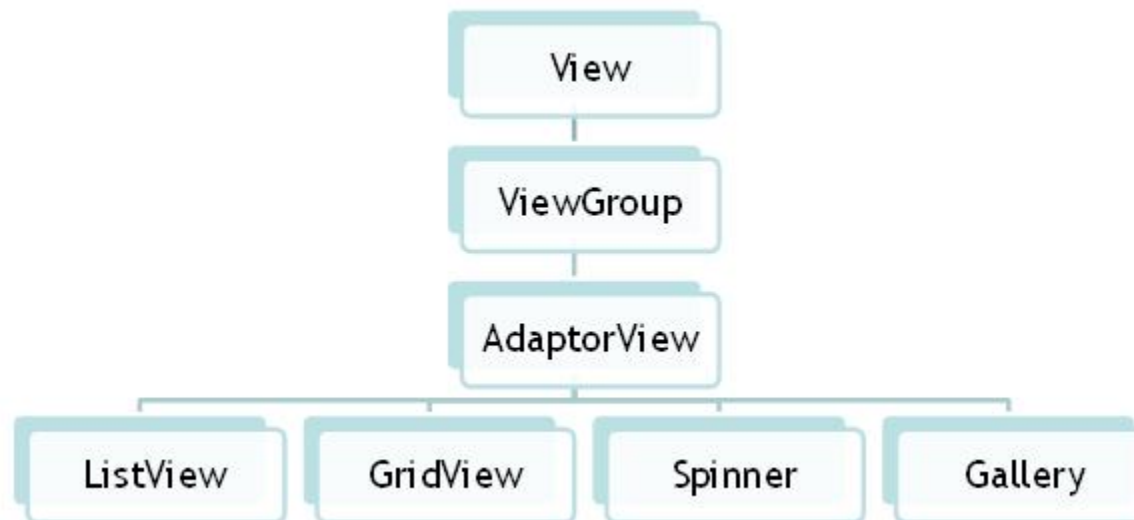
- 어댑터 뷰(**AdapterView**)는 배열이나 파일, 데이터베이스에 저장된 데이터를 화면에 표시할 때 유용한 뷰

리스트뷰와 어댑터

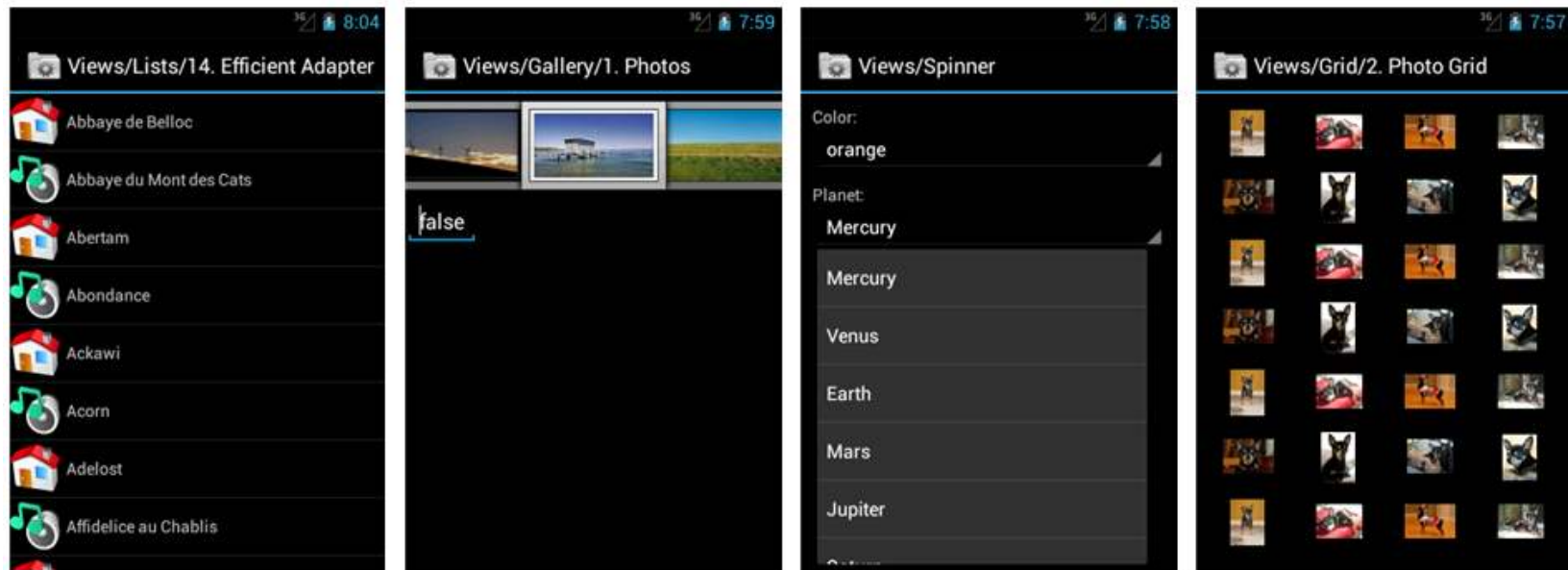


어댑터 뷰의 종류

- 리스트 뷰(ListView), 갤러리(Gallery), 스피너(Spinner), 그리드 뷰(Gridview)



어댑터 뷰의 종류



리스트 뷰,

갤러리,

스피너,

그리드 뷰

리스트 뷰

- 리스트 뷰(ListView)는 항목들을 수직으로 보여주는 어댑터 뷰로서 상하로 스크롤이 가능



리스트 뷰 예제

MainActivity.java

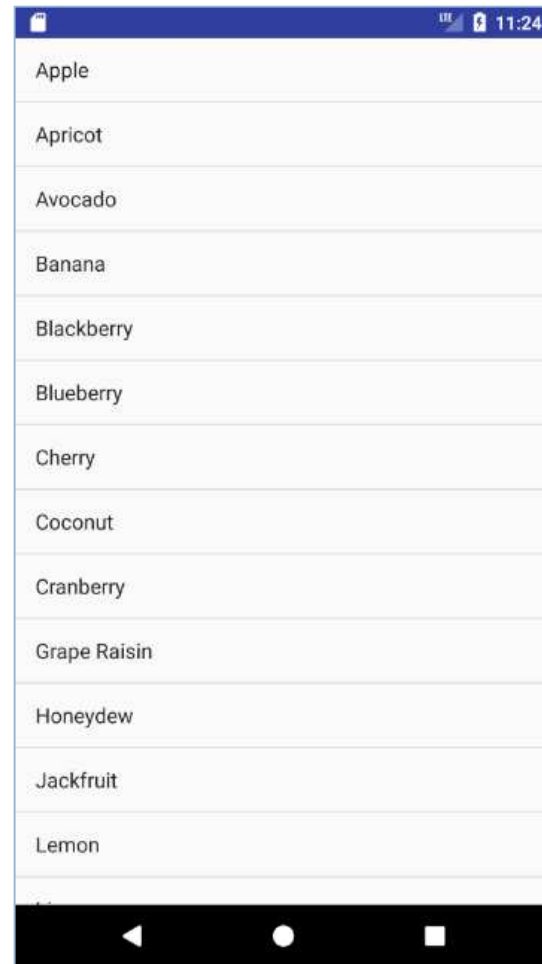
```
package kr.co.company.listview01;
// 소스만 입력하고 Alt+Enter를 눌러서 import 문장을 자동으로 생성한다.

public class MainActivity extends ListActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        String[] values = { "Apple", "Apricot", "Avocado", "Banana", "Blackberry",
                            "Blueberry", "Cherry", "Coconut", "Cranberry",
                            "Grape Raisin", "Honeydew", "Jackfruit", "Lemon", "Lime",
                            "Mango", "Watermelon" };

        ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
                                                                android.R.layout.simple_list_item_1, values);
        setListAdapter(adapter);
    }

    @Override
    protected void onListItemClick(ListView l, View v, int position, long id) {
        String item = (String) getListAdapter().getItem(position);
        Toast.makeText(this, item + " selected", Toast.LENGTH_LONG).show();
    }
}
```

시험결과 관심관



The image shows a screenshot of a mobile application interface. At the top, there is a blue status bar with the time 11:24 and some icons. Below the status bar is a list of fruits, each in a separate row with a light gray background and a thin border. The fruits listed are: Apple, Apricot, Avocado, Banana, Blackberry, Blueberry, Cherry, Coconut, Cranberry, Grape Raisin, Honeydew, Jackfruit, and Lemon. At the bottom of the screen, there is a black navigation bar with three white icons: a back arrow, a circle, and a square.

Apple
Apricot
Avocado
Banana
Blackberry
Blueberry
Cherry
Coconut
Cranberry
Grape Raisin
Honeydew
Jackfruit
Lemon

리스트 뷰의 표준 레이아웃

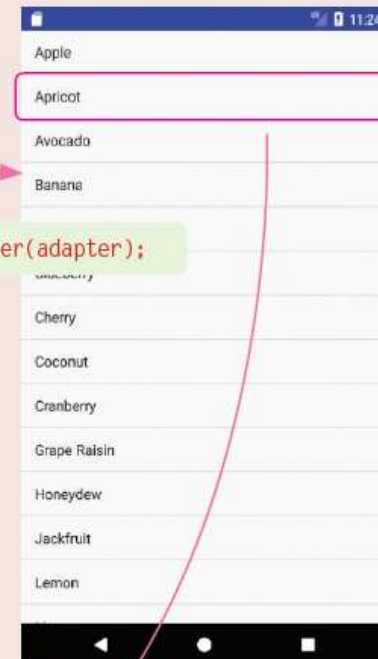
레이아웃 ID	설명
simple_list_item_1	하나의 텍스트 뷰 사용
simple_list_item_2	두개의 텍스트 뷰 사용
simple_list_item_checked	항목당 체크 표시
simple_list_item_single_choice	한 개의 항목만 선택
simple_list_item_multiple_choice	여러 개의 항목 선택 가능

리스트 뷰와 ArrayAdapter

```
String[] values = { "Apple", "Apricot",  
"Avocado", "Banana", "Blackberry",  
"Blueberry", "Cherry", "Coconut",  
"Cranberry", "Grape Raisin",  
"Honeydew", "Jackfruit", "Lemon",  
"Lime", "Mango", "Watermelon" };
```

```
adapter = new ArrayAdapter<String>(this,  
    android.R.layout.simple_list_item_1, values);
```

setAdapter(adapter);




리스트 뷰에서 사용자가 특정한 항목을 선택하면 이벤트가 발생한다. 이벤트가 발생하면 onListItemClick()이 호출된다.

```
protected void onListItemClick(ListView l, View v, int position, long id) {  
    String item = (String) getListAdapter().getItem(position);  
    Toast.makeText(this, item + " selected", Toast.LENGTH_LONG).show();  
}
```

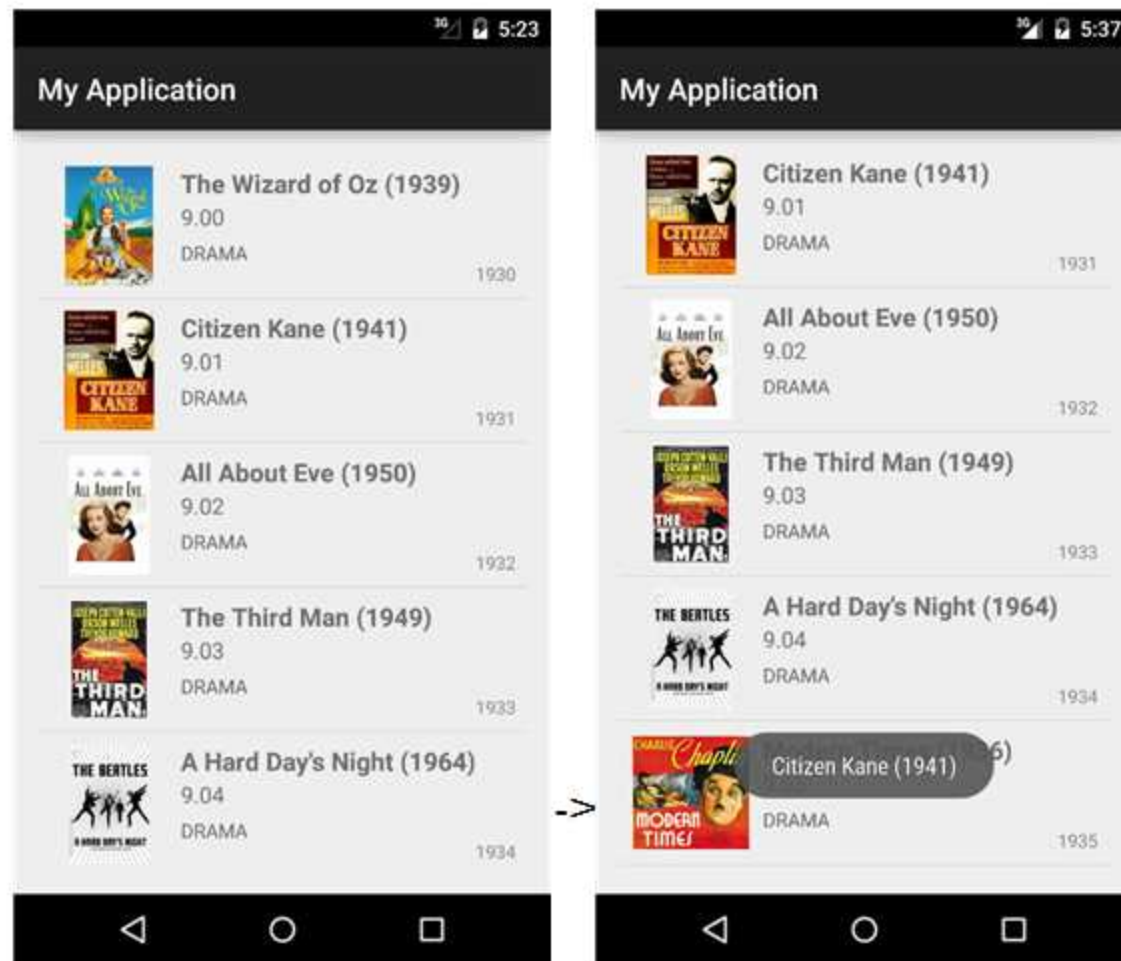
XML에서 데이터를 가져오려면

```
...  
...  
ArrayAdapter adapter =  
ArrayAdapter.createFromResource(this,  
R.array.fruits, R.layout.simple_list_item_1);  
...  
...
```

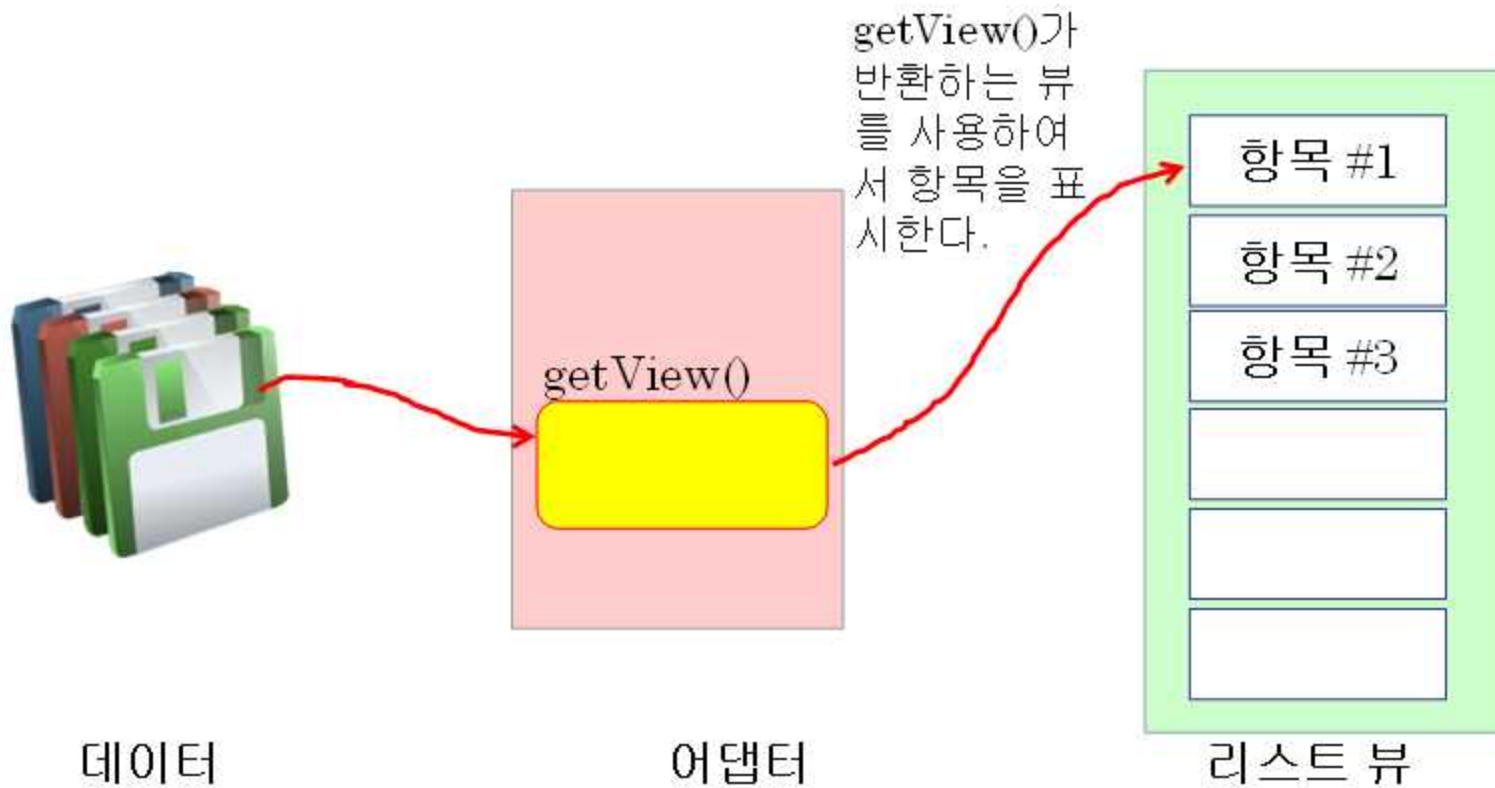


```
<?xml version="1.0" encoding="utf-8"?>  
<resources>  
  
    <string-array name="fruits">  
        <item>Apple</item>  
        <item>Apricot</item>  
        <item>Avocado</item>  
        <item>Banana</item>  
        <item>Blackberry</item>  
        <item>Blueberry</item>  
        <item>Cherry</item>  
        <item>Coconut</item>  
        <item>Cranberry</item>  
        <item>Grape Raisin</item>  
        <item>Honeydew</item>  
    </string-array>  
  
</resources>
```

예제: 커스텀 뷰



리스트 뷰



뷰의 레이아웃 설계



레이아웃 파일

activity_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity" >
```

```
    <ListView
        android:id="@+id/list"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >
    </ListView>
```

레이아웃에 리스트
트뷰를 배치한다.

```
</RelativeLayout>
```


리스트의 항목을 나타내는 뷰 설계

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:background="#eeeeee"
    android:padding="8dp" >
```

```
<ImageView
    android:id="@+id/image"
    android:layout_width="80dp"
    android:layout_height="80dp"
    android:layout_alignParentLeft="true"
    android:layout_marginRight="8dp" />
```

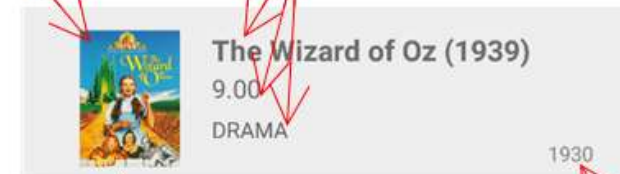
영화 포스터 이미지

```
<TextView
    android:id="@+id/title"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/image"
    android:layout_toRightOf="@+id/image"
    android:textSize="17dp"
    android:textStyle="bold" />
```

```
<TextView
    android:id="@+id/rating"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:layout_below="@+id/title"
    android:layout_marginTop="1dp"
    android:layout_toRightOf="@+id/image"
    android:textSize="15dp" />
```

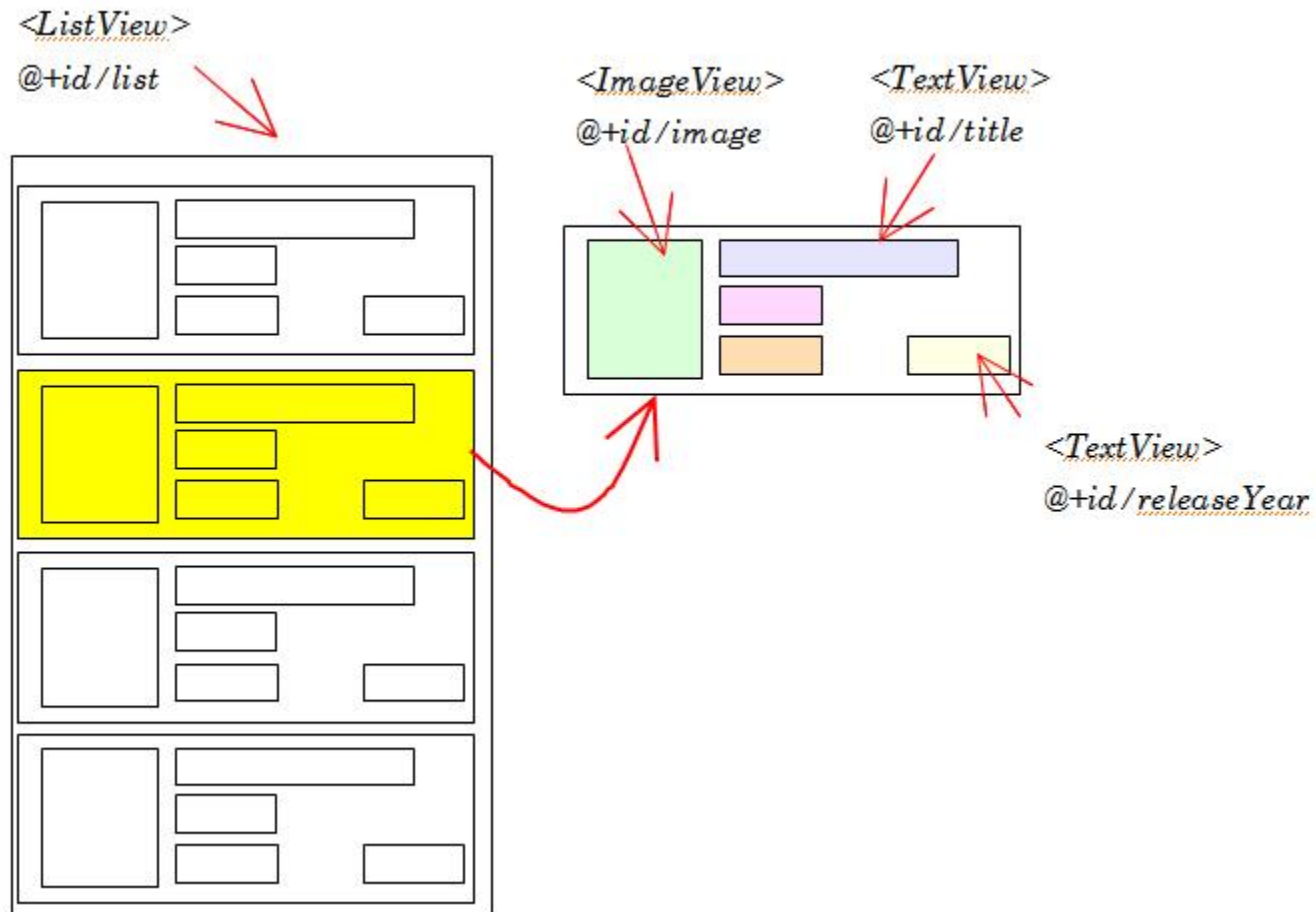
<ImageView>

<<TextView>



<RelativeLayout>

뷰의 id 부여




```

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    CustomList adapter = new
        CustomList(MainActivity.this);
    list=(ListView)findViewById(R.id.list);
    list.setAdapter(adapter);
    list.setOnItemClickListener(new AdapterView.OnItemClickListener() {
        @Override
        public void onItemClick(AdapterView<?> parent, View view,
                                int position, long id) {
            Toast.makeText(getApplicationContext(), titles[+position],
Toast.LENGTH_SHORT).show();
        }
    });
}

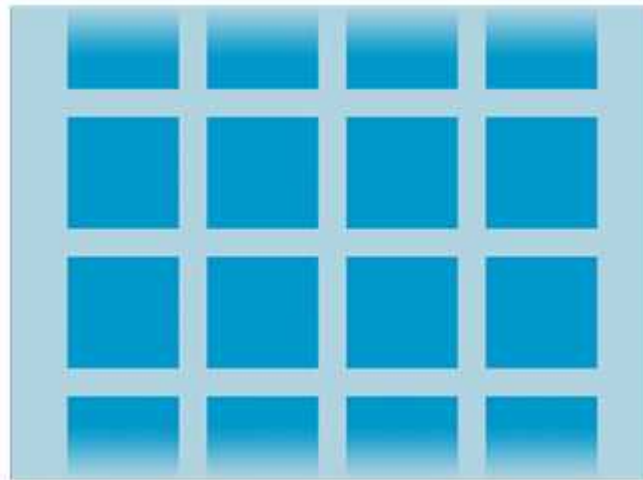
public class CustomList extends ArrayAdapter<String> {
    private final Activity context;
    public CustomList(Activity context ) {
        super(context, R.layout.listitem, titles);
        this.context = context;
    }
    @Override
    public View getView(int position, View view, ViewGroup parent) {
        LayoutInflater inflater = context.getLayoutInflater();
        View rowView= inflater.inflate(R.layout.listitem, null, true);
        ImageView imageView = (ImageView) rowView.findViewById(R.id.image);
        TextView title = (TextView) rowView.findViewById(R.id.title);
        TextView rating = (TextView) rowView.findViewById(R.id.rating);
        TextView genre = (TextView) rowView.findViewById(R.id.genre);
        TextView year = (TextView) rowView.findViewById(R.id.releaseYear);

        title.setText(titles[position]);
        imageView.setImageResource(images[position]);
        rating.setText("9.0"+position);
        genre.setText("DRAMA");
        year.setText(1930+position+"");
        return rowView;
    }
}
}

```

그리드 뷰

- 2차원의 그리드에 항목들을 표시하는 뷰그룹



그리드 뷰 예제

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<GridView xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/GridView01"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:columnWidth="90dp"
    android:numColumns="auto_fit"
    android:verticalSpacing="10dp"
    android:horizontalSpacing="10dp"
    android:stretchMode="columnWidth"
    android:gravity="center"
/>
```

그리드 뷰가 전체 화면을 다 채우도록 레이아웃이 설정되었다. 그리드 뷰의 속성은 이름만 가지고도 의미를 파악할 수 있다. 좀 더 자세한 것은 레퍼런스를 참조하도록 하자.

그리드 뷰 예제

MainActivity.java

```
package kr.co.company.gridviewtest;
// 소스만 입력하고 Alt+Enter를 눌러서 import 문장을 자동으로 생성한다.

public class MainActivity extends AppCompatActivity {

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        GridView gridView = (GridView) findViewById(R.id.GridView01);
        gridView.setAdapter(new ImageAdapter(this));
        gridView.setOnItemClickListener(new OnItemClickListener() {
            public void onItemClick(AdapterView<?> parent, View v,
                int position, long id) {
                Toast.makeText(MainActivity.this, "" + position,
                    Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

ImageAdapter.java

```
package kr.co.company.GridViewTest;
// 소스만 입력하고 Ctrl-Shift-O를 눌러서 import 문장을 자동으로 생성한다.
public class ImageAdapter extends BaseAdapter {
    private Context mContext;

    public ImageAdapter(Context c) {
        mContext = c;
    }

    public int getCount() {
        return mThumbIds.length;
    }

    public Object getItem(int position) {
        return null;
    }

    public long getItemId(int position) {
        return 0;
    }
}
```

```

    public View getView(int position, View convertView, ViewGroup
parent) {
        ImageView imageView;
        if (convertView == null) {
            imageView = new ImageView(mContext);
            imageView.setLayoutParams(new GridView.LayoutParams(85, 85));
            imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);
            imageView.setPadding(8, 8, 8, 8);
        } else {
            imageView = (ImageView) convertView;
        }

        imageView.setImageResource(mThumbIds[position]);
        return imageView;
    }

    // references to our images
    private Integer[] mThumbIds = {
        R.drawable.sample_1, R.drawable.sample_2,
        R.drawable.sample_3, R.drawable.sample_4,
        R.drawable.sample_1, R.drawable.sample_2,
        R.drawable.sample_3, R.drawable.sample_4,
        R.drawable.sample_1, R.drawable.sample_2,
        R.drawable.sample_3, R.drawable.sample_4,
        R.drawable.sample_1, R.drawable.sample_2,
        R.drawable.sample_3, R.drawable.sample_4,
        R.drawable.sample_1, R.drawable.sample_2,
        R.drawable.sample_3, R.drawable.sample_4,
        R.drawable.sample_1, R.drawable.sample_2,
    };
}

```

실행결과



스피너

- 스피너(**Spinner**)는 항목을 선택하기 위한 드롭 다운 리스트



스피너 예제

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:padding="10dip"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dip"
        android:text="@string/planet_prompt"
    />
    <Spinner
        android:id="@+id/spinner"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:prompt="@string/planet_prompt"
    />
</LinearLayout>
```

스피너 예제

strings.xml

```
<?xml version="1.0" encoding="utf-8"?>
<resources>

    <string name="app_name">SpinnerTest</string>
    <string name="action_settings">Settings</string>
    <string name="hello_world">Hello world!</string>
    <string name="planet_prompt">행성을 선택하시오</string>

    <string-array name="planets_array">
        <item>수성</item>
        <item>금성</item>
        <item>지구</item>
        <item>화성</item>
        <item>목성</item>
        <item>토성</item>
        <item>천왕성</item>
        <item>해왕성</item>
    </string-array>

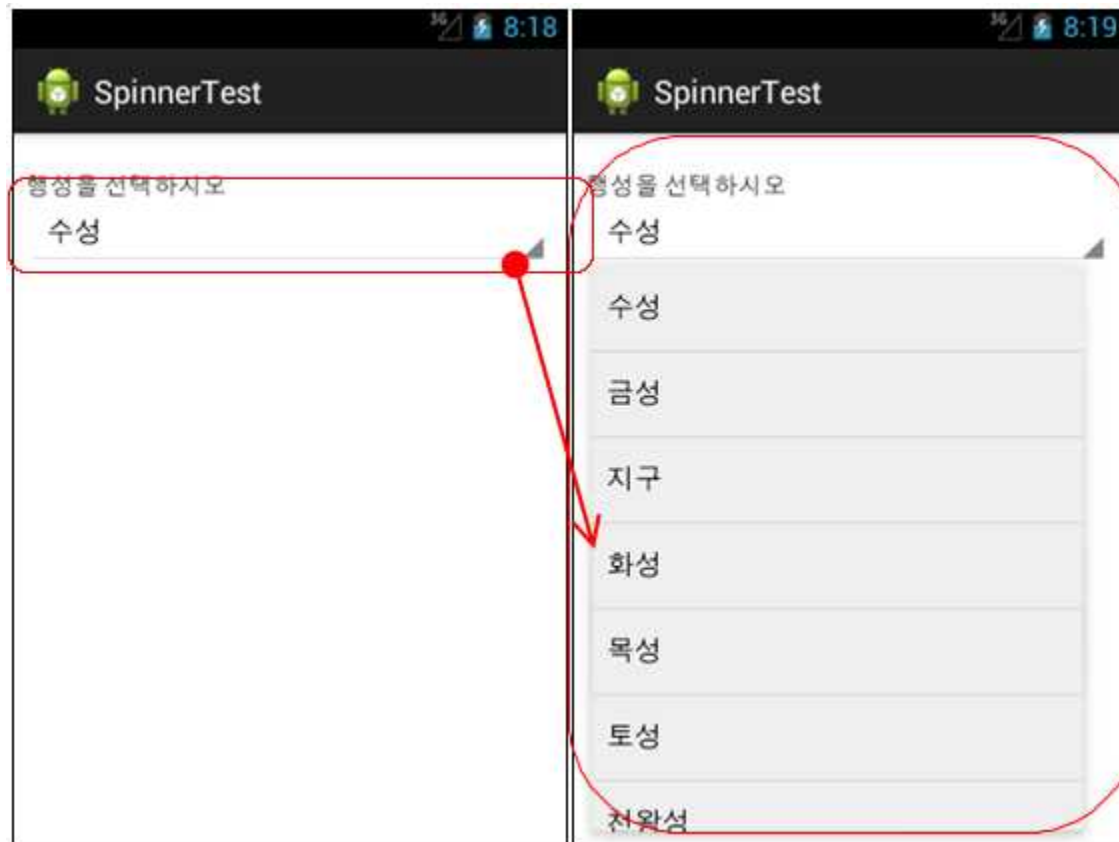
</resources>
```

스피너 예제

@Override

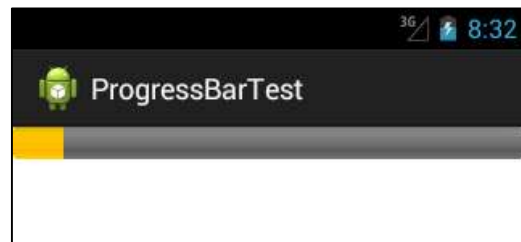
```
public void onCreate(Bundle savedInstanceState) {  
    super.onCreate(savedInstanceState);  
    setContentView(R.layout.main);  
    Spinner spinner = (Spinner) findViewById(R.id.spinner);  
    ArrayAdapter<CharSequence> adapter = ArrayAdapter.createFromResource(  
        this, R.array.planets_array, android.R.layout.simple_spinner_item);  
    adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);  
    spinner.setAdapter(adapter);  
    spinner.setOnItemSelectedListener(new OnItemSelectedListener() {  
        public void onItemSelected(AdapterView<?> parent, View view,  
            int pos, long id) {  
            Toast.makeText(parent.getContext(),  
                "선택된 행성은 " +  
                parent.getItemAtPosition(pos).toString(),  
                Toast.LENGTH_LONG).show();  
        }  
        public void onNothingSelected(AdapterView<?> arg0) {  
        }  
    });  
}
```

실행 결과



프로그레스 바

- 작업의 진행 정도를 표시하는 위젯



레이아웃 파일

activity_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/button1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="150dp"
        android:onClick="start"
        android:text="Start" />

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentRight="true"
        android:layout_alignParentTop="true"
        android:layout_marginTop="19dp"
        android:text="다운로드를 시작하려면 아래 버튼을 누르세요."
        android:textAppearance="?android:attr/textAppearanceLarge" />

</RelativeLayout>
```

```

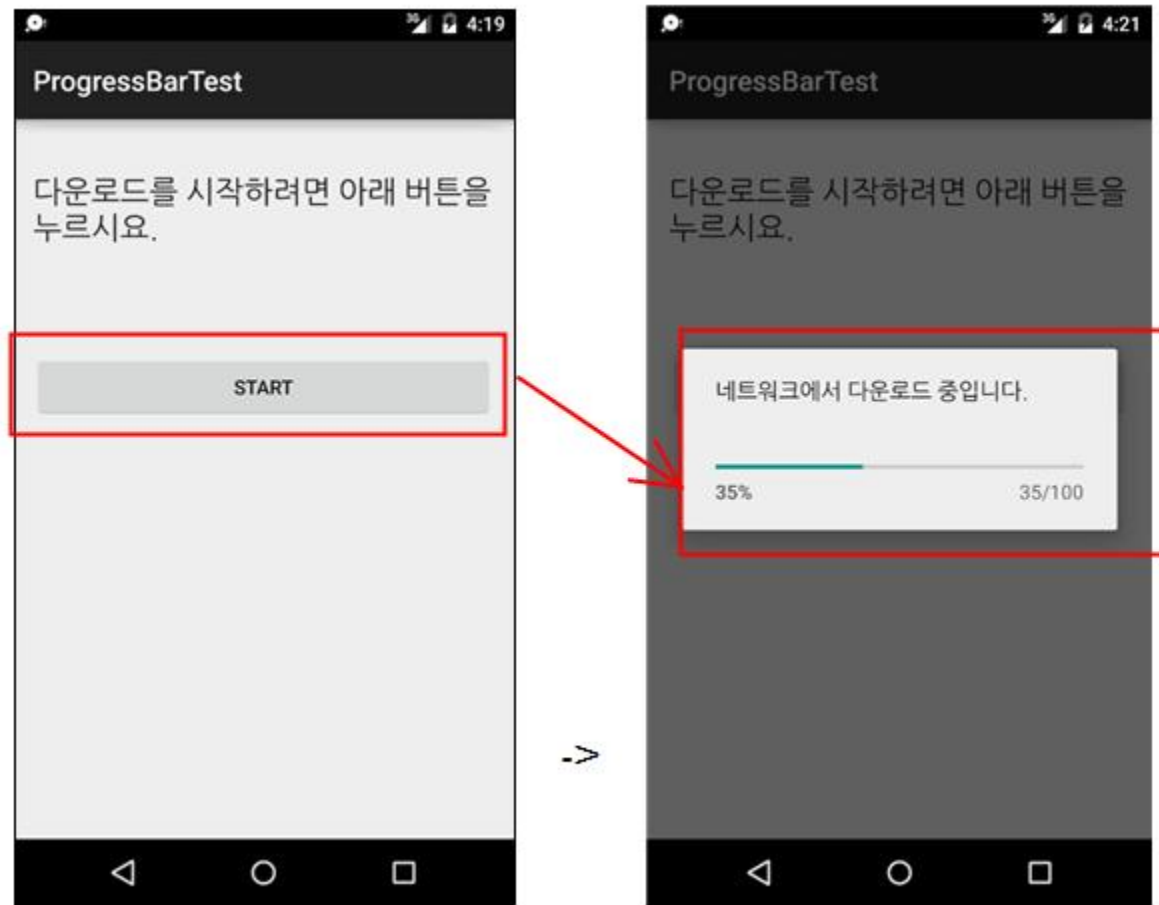
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    progress = new ProgressDialog(this);
}

public void start(View view) {
    progress.setCancelable(true);
    progress.setMessage("네트워크에서 다운로드 중입니다. ");
    progress.setProgressStyle(ProgressDialog.STYLE_HORIZONTAL);
    progress.setProgress(0);
    progress.setMax(100);
    progress.show();

    final Thread t = new Thread() {
        @Override
        public void run() {
            int time = 0;
            while (time < 100) {
                try {
                    sleep(200);
                    time += 5;
                    progress.setProgress(time);
                } catch (InterruptedException e) {
                    e.printStackTrace();
                }
            }
        }
    };
    t.start();
}

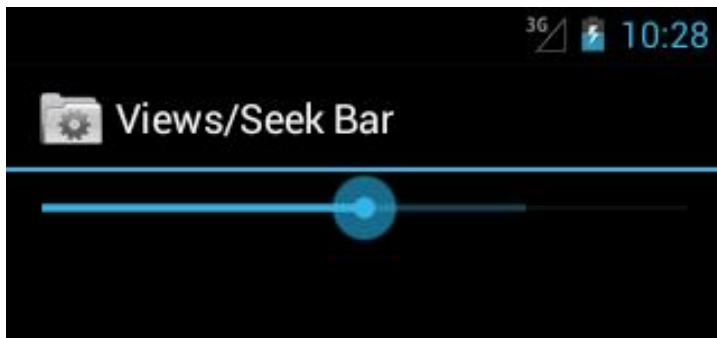
```

실행 결과



시크바

- 시크 바(**SeekBar**)는 프로그레스 바의 확장판
- 사용자가 드래그할 수 있는 썸(thumb)이 추가



레이팅 바

- 레이팅 바는 별을 사용하여 점수를 표시하는 위젯



레이아웃 파일

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical" >

    <TextView
        android:id="@+id/lblRateMe"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="평가해주세요!"
        android:textAppearance="?android:attr/textAppearanceLarge" />

    <RatingBar
        android:id="@+id/ratingBar"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:numStars="5"
        android:rating="2.0"
        android:stepSize="1.0" />

    <Button
        android:id="@+id/button"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="제출" />
```

```

public class MainActivity extends AppCompatActivity {

    private RatingBar ratingBar;
    private TextView value;
    private Button button;

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

        SetupRatingBar();
        SetupButton();
    }

    public void SetupRatingBar() {

        ratingBar = (RatingBar) findViewById(R.id.ratingBar);
        value = (TextView) findViewById(R.id.value);

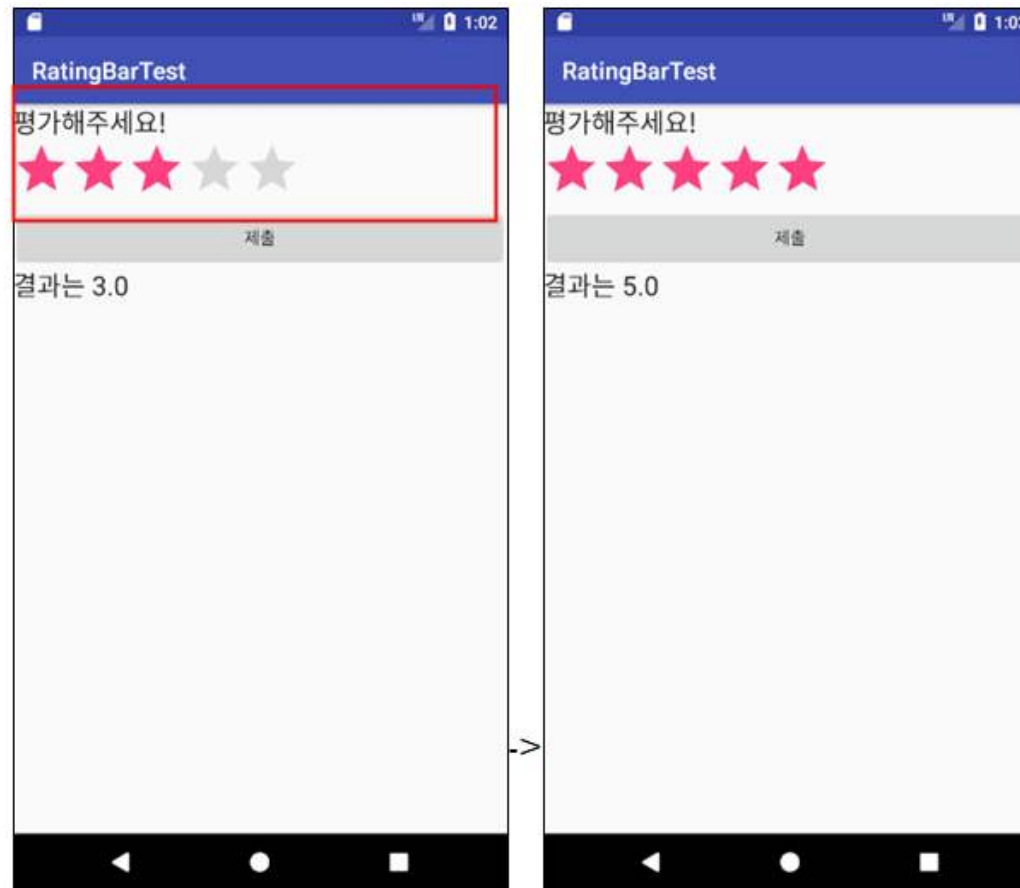
        ratingBar.setOnRatingBarChangeListener(new
            RatingBar.OnRatingBarChangeListener() {

                public void onRatingChanged(RatingBar ratingBar,
                    float rating, boolean fromUser) {
                    value.setText(String.valueOf(rating));
                }
            });
    }
}

```

```
public void SetupButton() {  
    ratingBar = (RatingBar) findViewById(R.id.ratingBar);  
    button = (Button) findViewById(R.id.button);  
  
    button.setOnClickListener(new View.OnClickListener() {  
        @Override  
        public void onClick(View v) {  
            Toast.makeText(getApplicationContext(),  
                String.valueOf(ratingBar.getRating()),  
                Toast.LENGTH_LONG).show();  
        }  
    });  
}
```

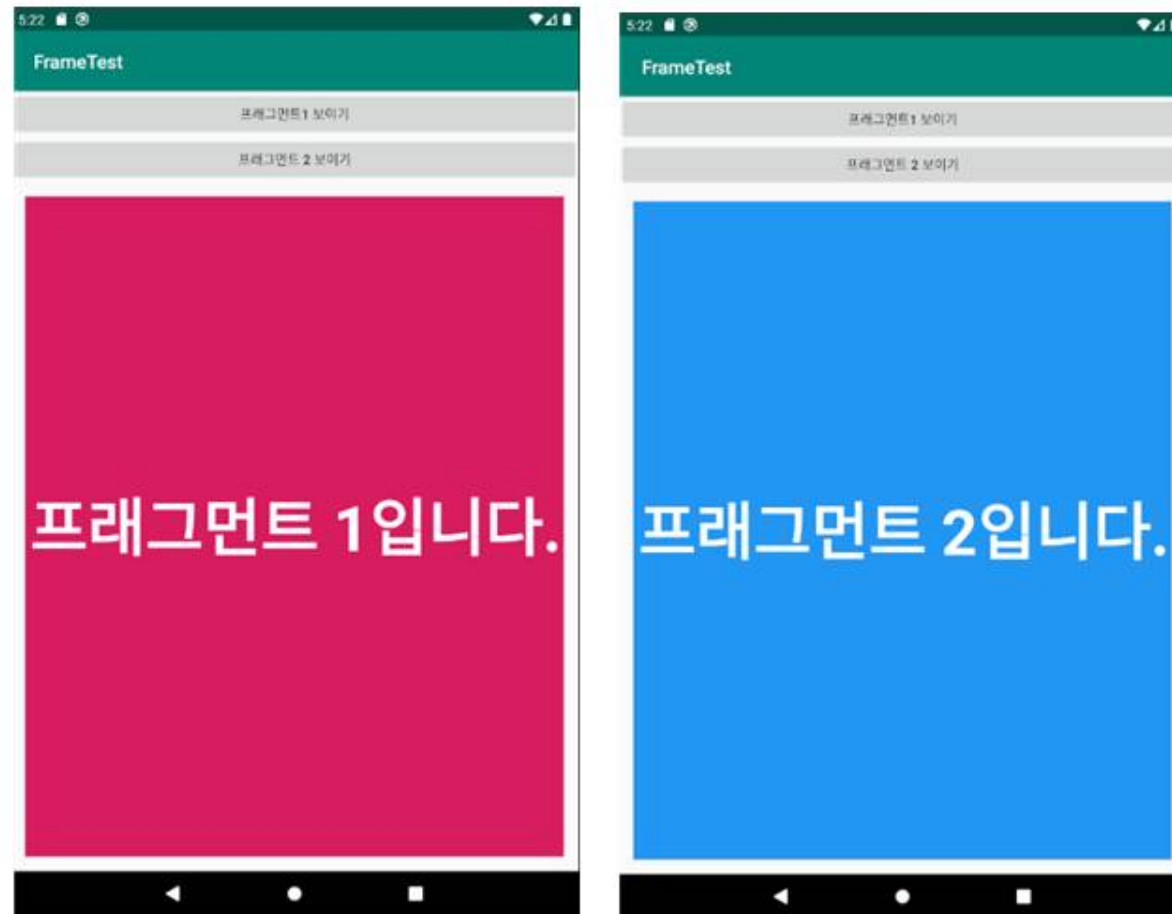
실행 결과



태블릿과 스마트폰에서 화면 다르게 하기



예제



fragment1.java

```
public class Fragment1 extends Fragment {  
  
    public Fragment1() {}  
  
    @Override  
    public void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
    }  
  
    @Override  
    public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle  
savedInstanceState) {  
        return inflater.inflate(R.layout.fragment1, container, false);  
    }  
}
```

fragment1.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".Fragment1">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:background="@color/colorAccent"
        android:gravity="center"
        android:text="프래그먼트 1입니다."
        android:textColor="#fff"
        android:textSize="30pt"
        android:textStyle="bold" />

</FrameLayout>
```

Fragment2.java

```
public class Fragment2 extends Fragment {  
  
    public Fragment2() {}  
  
    @Override  
    public void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
    }  
  
    @Override  
    public View onCreateView(LayoutInflater inflater, ViewGroup container,  
        Bundle savedInstanceState) {  
        return inflater.inflate(R.layout.fragment2, container, false);  
    }  
}
```

Fragment2.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".Fragment2">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:background="#2196F3"
        android:gravity="center"
        android:text="프래그먼트 2입니다."
        android:textColor="#fff"
        android:textSize="30pt"
        android:textStyle="bold" />

</FrameLayout>
```

activity_main.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"
    tools:context=".MainActivity">
```

```
    <Button
        android:id="@+id/button1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:onClick="setFrag1"
        android:text="프래그먼트1 보이기" />
```

```
    <Button
        android:id="@+id/button2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:onClick="setFrag2"
        android:text="프래그먼트 2 보이기" />
```

```
    <FrameLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:id="@+id/frame_container"
        android:layout_margin="15dp">
```

```
</FrameLayout>
```

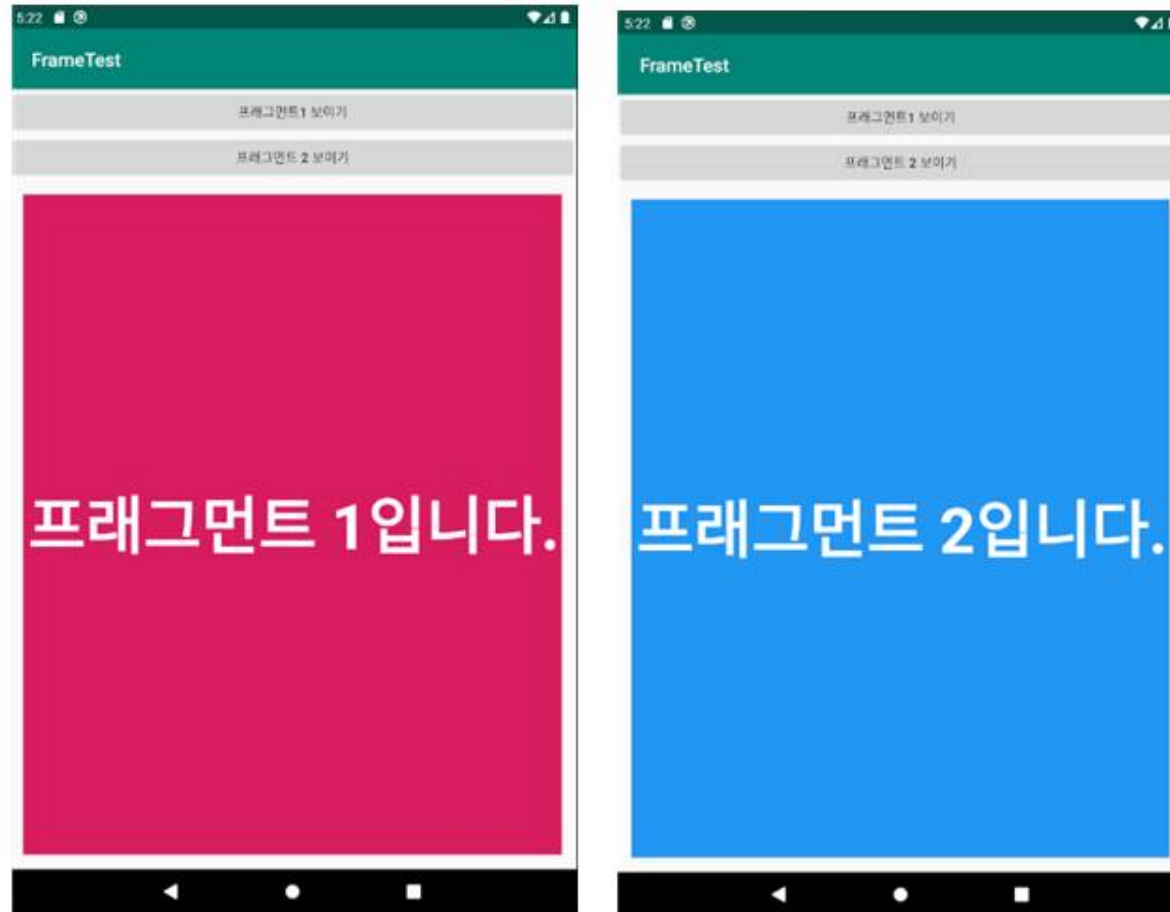
activity_main.xml

```
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void setFrag1(View v) {
        FragmentManager manager = getSupportFragmentManager();
        FragmentTransaction ft = manager.beginTransaction();

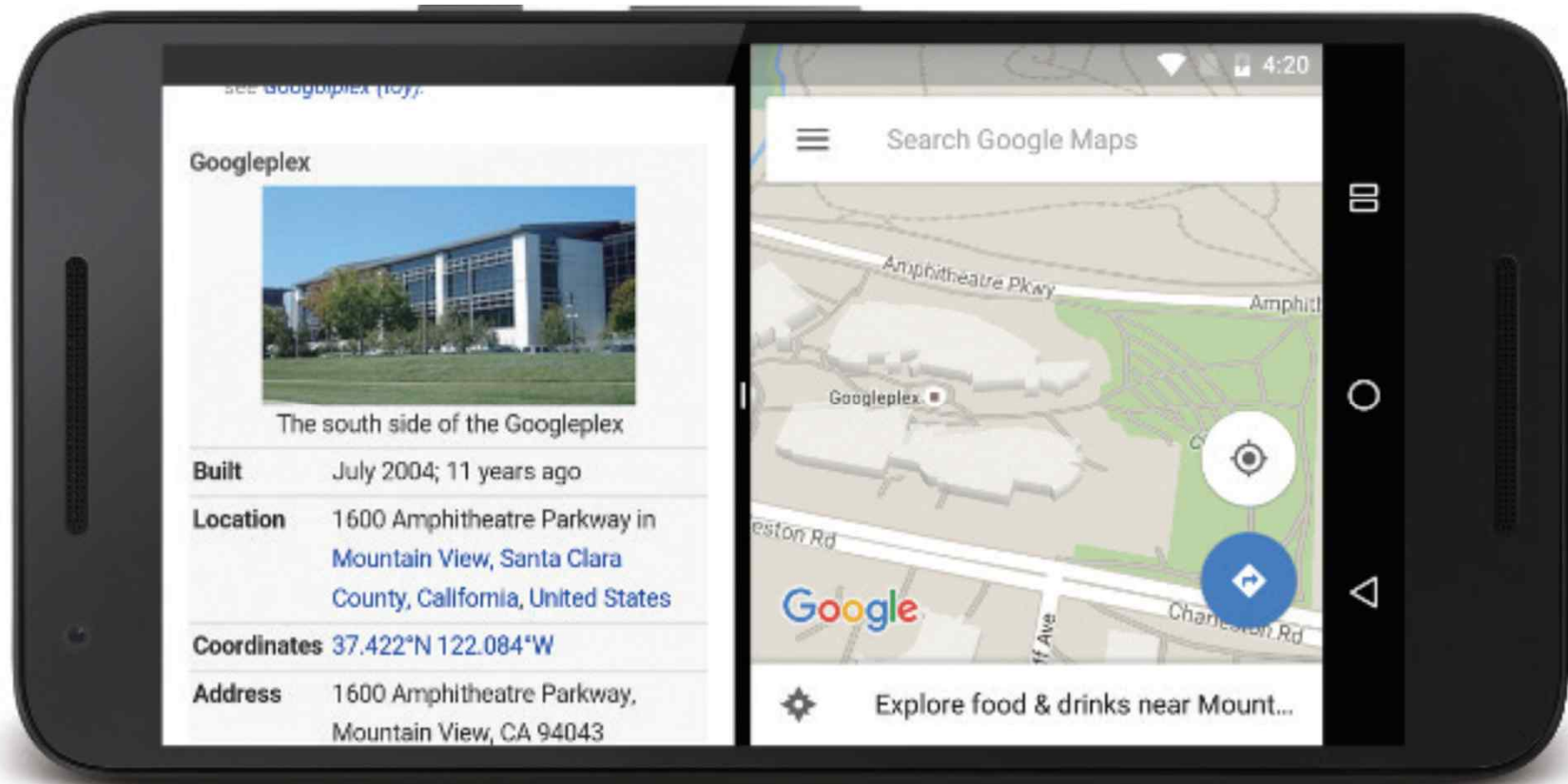
        ft.replace(R.id.frame_container, new Fragment1(), "one");
        ft.commitAllowingStateLoss();
    }
    public void setFrag2(View v) {
        FragmentManager manager = getSupportFragmentManager();
        FragmentTransaction ft = manager.beginTransaction();

        ft.replace(R.id.frame_container, new Fragment2(), "two");
        ft.commitAllowingStateLoss();
    }
}
```

실행 결과



다중 창 지원

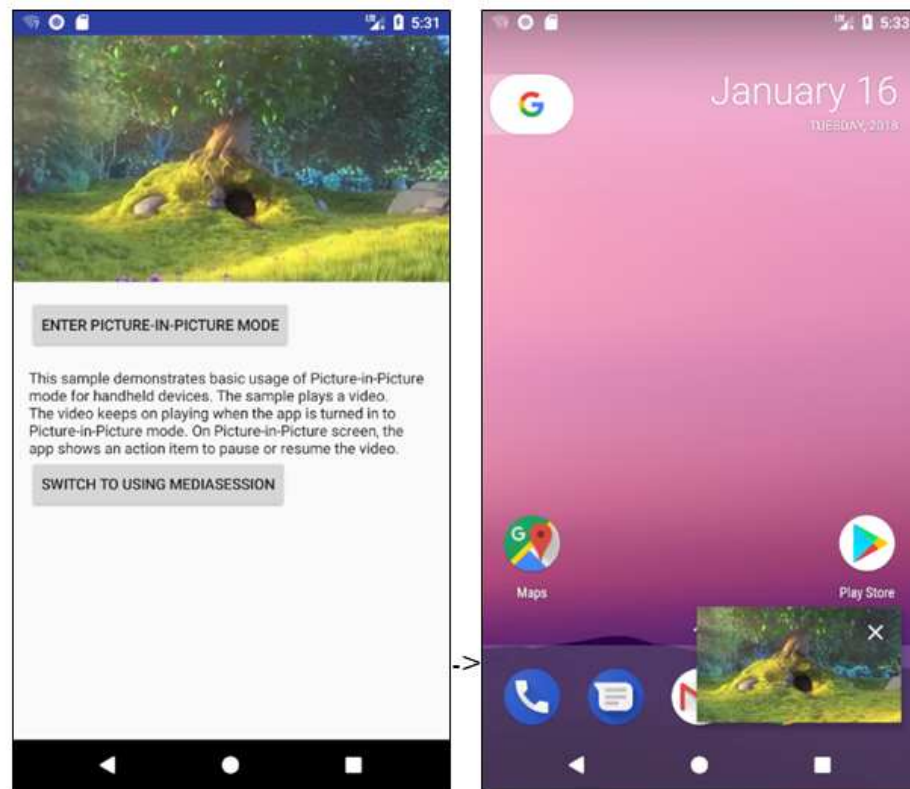


다중 창 모드 전환

- 사용자가 오버뷰 화면을 열고 액티비티 제목을 길게 누르면, 이 액티비티를 화면의 강조 표시된 부분으로 드래그하여 다중 창 모드에 둘 수 있다.
- 사용자가 오버뷰 버튼을 길게 누르면, 장치가 현재 액티비티를 다중 창 모드에 두고 오버뷰 화면을 열며, 사용자는 화면을 공유하기 위한 또 다른 액티비티를 선택할 수 있다.

PIP 모드

- [File]->[Import Sample]을 눌러서 PictureInPicture 샘플을 실행



예제

Manifest.xml

```
<activity
  android:name=".MainActivity"
  android:launchMode="singleTask"
  android:supportsPictureInPicture="true" >
  <intent-filter>
    <action android:name="android.intent.action.MAIN" />
    <category android:name="android.intent.category.LAUNCHER" />
  </intent-filter>
</activity>
```

예제

activity_main.xml

```
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center"
        android:text="This is a PIP test."
        android:textSize="30pt"
        android:textStyle="bold" />
    <Button
        android:id="@+id/pip"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button" />
    <FrameLayout
        android:id="@+id/player"
        android:layout_width="match_parent"
        android:layout_height="match_parent">
    </FrameLayout>
</FrameLayout>
```

사실은 여기에 동영상 플레이어
어를 넣어야 한다. 그냥 우리
는 **FrameLayout**으로 플레이어
를 대신한다.

예제

```
public class MainActivity extends AppCompatActivity {
    private Button button;
    private FrameLayout player;

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

        player = findViewById(R.id.player);
        button = findViewById(R.id.pip);
        button.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                if (android.os.Build.VERSION.SDK_INT >= 26) {
                    try {
                        Rational rational = new Rational(player.getWidth(),
player.getHeight());

                        PictureInPictureParams mParams =
                            new PictureInPictureParams.Builder()
                                .setAspectRatio(rational)
                                .build();

                        enterPictureInPictureMode(mParams);
                    } catch (Exception e) {
                        // Handle exception
                    }
                }
            }
        });
    }
}
```


예제

```
        } catch (IllegalStateException e) {
            e.printStackTrace();
        }
    } else {
        Toast.makeText(getApplicationContext(), "API 26가 필요합니다.",
Toast.LENGTH_SHORT).show();
    }
}
});
}
@Override
public void onPictureInPictureModeChanged(boolean isInPictureInPictureMode) {
    super.onPictureInPictureModeChanged(isInPictureInPictureMode);
    if (!isInPictureInPictureMode) {
        button.setVisibility(View.VISIBLE);
    } else {
        button.setVisibility(View.GONE);
    }
}
}
```


실행 결과

