Widget 익히기 실습

배 희호 교수
경복대학교
스마트IT과

RatingBar 예제

- 유명한 미술가인 르느와르 그림에 대한 선호도를 투표하고, 결과를 RatingBar로 보여준 앱을 만들어보자
    - 메인 Activity에서 좋아하는 그림에 투표한 후 <투표 종료>를 클릭하면 결과가 다른 Activity가 열리면서 나온다

RatingBar 예제

- activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:orientation="horizontal"
        android:layout_weight="3" >
        <ImageView
            android:id="@+id/iv1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:src="@drawable/pic1"
            android:layout_weight="1"/>
```

RatingBar 예제

■ activity_main.xml

```xml
<ImageView
    android:id="@+id/iv2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="5dp"
    android:src="@drawable/pic2"
    android:layout_weight="1"/>
<ImageView
    android:id="@+id/iv3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="5dp"
    android:src="@drawable/pic3"
    android:layout_weight="1"/>
</LinearLayout>
```

RatingBar 예제

■ activity_main.xml

```xml
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:orientation="horizontal"
    android:layout_weight="3">
    <ImageView
        android:id="@+id/iv4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="5dp"
        android:src="@drawable/pic4"
        android:layout_weight="1"/>
    <ImageView
        android:id="@+id/iv5"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="5dp"
        android:src="@drawable/pic5"
        android:layout_weight="1"/>
```

RatingBar 예제

■ activity_main.xml

```xml
    <ImageView
        android:id="@+id/iv6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="5dp"
        android:src="@drawable/pic6"
        android:layout_weight="1"/>
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:orientation="horizontal"
    android:layout_weight="3">
```

RatingBar 예제

■ activity_main.xml

```xml
<ImageView
    android:id="@+id/iv7"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="5dp"
    android:src="@drawable/pic7"
    android:layout_weight="1"/>
<ImageView
    android:id="@+id/iv8"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="5dp"
    android:src="@drawable/pic8"
    android:layout_weight="1"/>
```

RatingBar 예제

■ activity_main.xml

```xml
        <ImageView
            android:id="@+id/iv9"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_margin="5dp"
            android:src="@drawable/pic9"
            android:layout_weight="1"/>
    </LinearLayout>

    <Button
            android:id="@+id/btnResult"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="투표종료"/>
    </LinearLayout>
```

RatingBar 예제

■ activity_main2.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center_vertical"
    android:stretchColumns="0">

    <TableRow>
        <TextView
            android:id="@+id/tv1"
            android:layout_gravity="center_vertical"
            android:text="그림1"
            android:textSize="17sp" />
        <RatingBar
            android:id="@+id/rbar1"
            style="?android:attr/ratingBarStyleIndicator"
            android:layout_gravity="right" />
    </TableRow>
```

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RatingBar 예제

■ activity_main2.xml

```xml
<TableRow>
  <TextView
    android:id="@+id/tv2"
    android:layout_gravity="center_vertical"
    android:text="그림2"
    android:textSize="17sp" />
  <RatingBar
    android:id="@+id/rbar2"
    style="?android:attr/ratingBarStyleIndicator"
    android:layout_gravity="right" />
</TableRow>
<TableRow>
  <TextView
    android:id="@+id/tv3"
    android:layout_gravity="center_vertical"
    android:text="그림3"
    android:textSize="17sp" />
```

RatingBar 예제

- activity_main2.xml

```xml
    <RatingBar
        android:id="@+id/rbar3"
        style="?android:attr/ratingBarStyleIndicator"
        android:layout_gravity="right" />
</TableRow>
<TableRow>
    <TextView
        android:id="@+id/tv4"
        android:layout_gravity="center_vertical"
        android:text="그림4"
        android:textSize="17sp" />
    <RatingBar
        android:id="@+id/rbar4"
        style="?android:attr/ratingBarStyleIndicator"
        android:layout_gravity="right" />
</TableRow>
```

RatingBar 예제

■ activity_main2.xml

```xml
<TableRow>
    <TextView
        android:id="@+id/tv5"
        android:layout_gravity="center_vertical"
        android:text="그림5"
        android:textSize="17sp" />
    <RatingBar
        android:id="@+id/rbar5"
        style="?android:attr/ratingBarStyleIndicator"
        android:layout_gravity="right" />
</TableRow>
<TableRow>
    <TextView
        android:id="@+id/tv6"
        android:layout_gravity="center_vertical"
        android:text="그림6"
        android:textSize="17sp" />
```

RatingBar 예제

■ activity_main2.xml

```xml
    <RatingBar
        android:id="@+id/rbar6"
        style="?android:attr/ratingBarStyleIndicator"
        android:layout_gravity="right" />
</TableRow>

<TableRow>
    <TextView
        android:id="@+id/tv7"
        android:layout_gravity="center_vertical"
        android:text="그림7"
        android:textSize="17sp" />
    <RatingBar
        android:id="@+id/rbar7"
        style="?android:attr/ratingBarStyleIndicator"
        android:layout_gravity="right" />
</TableRow>
```

RatingBar 예제

■ activity_main2.xml

```xml
<TableRow>
  <TextView
     android:id="@+id/tv8"
     android:layout_gravity="center_vertical"
     android:text="그림8"
     android:textSize="17sp" />
  <RatingBar
     android:id="@+id/rbar8"
     style="?android:attr/ratingBarStyleIndicator"
     android:layout_gravity="right" />
</TableRow>
<TableRow>
  <TextView
     android:id="@+id/tv9"
     android:layout_gravity="center_vertical"
     android:text="그림9"
     android:textSize="17sp" />
```

RatingBar 예제

■ activity_main2.xml

```xml
        <RatingBar
            android:id="@+id/rbar9"
            style="?android:attr/ratingBarStyleIndicator"
            android:layout_gravity="right" />
    </TableRow>

    <TableRow>
        <Button
            android:id="@+id/bntReturn"
            android:layout_span="2"
            android:text="돌아가기" />
    </TableRow>
</TableLayout>
```

RatingBar 예제

■ MainActivity.JAVA

```java
public class MainActivity extends AppCompatActivity {

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

        final int[] voteCount =new int[9];
        for (int i = 0; i < 9; i++) {
            voteCount[i] = 0;
        }

        final ImageView[] image = new ImageView[9];
        Integer[] imageID = {R.id.iv1, R.id.iv2, R.id.iv3, R.id.iv4,
                            R.id.iv5, R.id.iv6, R.id.iv7, R.id.iv8, R.id.iv9};
```

RatingBar 예제

MainActivity.JAVA

```java
final String[] imgName = {
    "독서하는 소녀", "꽃장식 모자 소녀","부채를 든 소녀",
    "이레느깡 단 베르양","잠자는 소녀","테라스의 두 자매",
    "피아노 레슨","피아노 앞의 소녀들","해변에서"};

for (int i = 0; i < imageID.length; i++) {
    final int index = i;    //내무 클래스 사용위해 final 선언
    image[index] = (ImageView) findViewById(imageID[index]);
    image[index].setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            voteCount[index]++;
            Toast.makeText(getApplicationContext(), imgName[index]
                + ": 총 " + voteCount[index] + " 표",
                                    Toast.LENGTH_LONG).show();
        }
    });
}
```

RatingBar 예제

■ MainActivity.JAVA

```java
Button button = findViewById(R.id.btnResult);
button.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Intent intent = new Intent(getApplicationContext(),
                            Main2Activity.class);
        intent.putExtra("VoteCount", voteCount);
        intent.putExtra("ImageName",imgName);
        startActivity(intent);
    }
});
}
}
```

RatingBar 예제

■ MainActivity2.JAVA

```java
public class Main2Activity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);

        Intent intent = getIntent();
        int[] voteResult = intent.getIntArrayExtra("VoteCount");
        String[] imageName = intent.getStringArrayExtra("ImageName");

        TextView[] tv = new TextView[imageName.length];
        RatingBar[] ratingBar = new RatingBar[imageName.length];
        Integer[] tvID = {R.id.tv1, R.id.tv2, R.id.tv3, R.id.tv4, R.id.tv5,
                          R.id.tv6, R.id.tv7, R.id.tv8, R.id.tv9 };
```
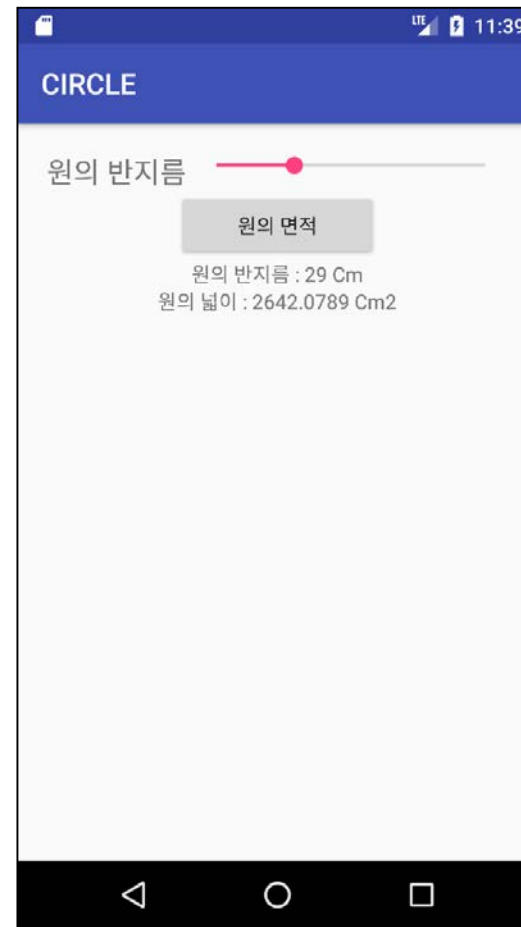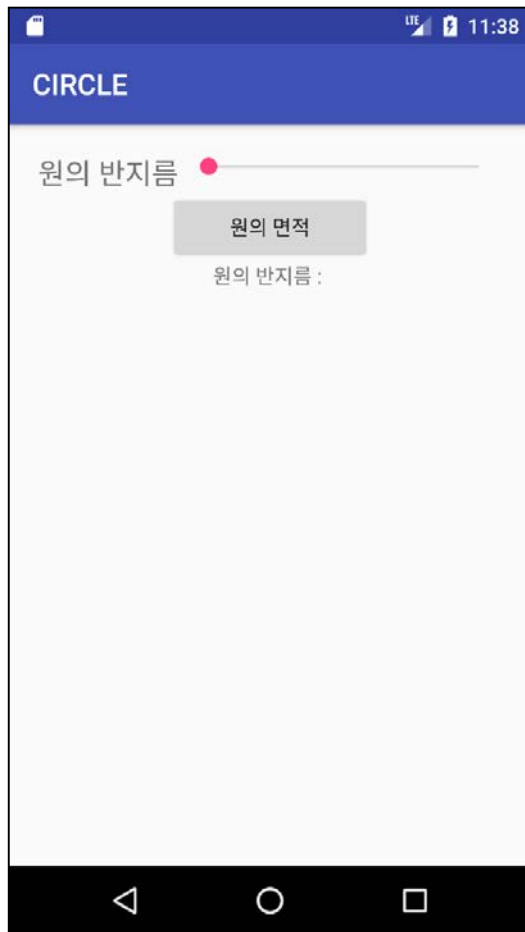
RatingBar 예제

MainActivity2.JAVA

```java
Integer[] rbarID = {
        R.id.rbar1, R.id.rbar2, R.id.rbar3, R.id.rbar4, R.id.rbar5,
        R.id.rbar6, R.id.rbar7, R.id.rbar8, R.id.rbar9 };
for( int i = 0; i < voteResult.length; i++ ) {
    tv[i] = (TextView)findViewById(tvID[i]);
    ratingBar[i] = (RatingBar)findViewById(rbarID[i]);
}
for( int i = 0; i < voteResult.length; i++ ) {
    tv[i].setText(imageName[i]);
    ratingBar[i].setRating((float)voteResult[i]);
}
Button button = findViewById(R.id.bntReturn);
button.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        finish();
    }
});
    }
}
```

SeekBar 예제 1

■ 다음과 같이 SeekBar를 이용하여 원의 반지름을 1에서 100 까지 입력하여 원의 면적을 구해보자

SeekBar 예제 1

■ 사용자 인터페이스

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:orientation="vertical"
    android:padding="20dp"
    tools:context=".MainActivity">
```

SeekBar 예제 1

■ 사용자 인터페이스

```xml
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="원의 반지름 "
        android:textSize="20dp"/>

    <SeekBar
        android:id="@+id/seekbar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:max="100" />
</LinearLayout>
```

SeekBar 예제 1

■ 사용자 인터페이스

```xml
<Button
    android:id="@+id/button"
    android:layout_width="140dp"
    android:layout_height="wrap_content"
    android:text="원의 면적" />

<TextView
    android:id="@+id/textView1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text ="원의 반지름 : " />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text =" " />
</LinearLayou
```

SeekBar 예제 1

■ MainActivity.JAVA

```java
public class MainActivity extends AppCompatActivity {
    final float PI = 3.141592f;
    int radius;

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

        TextView textView = findViewById(R.id.textView1);
        TextView textView1 = findViewById(R.id.textView2);
        SeekBar seekBar = findViewById(R.id.seekbar);
```

SeekBar 예제 1

■ MainActivity.JAVA

```java
Button button = findViewById(R.id.button);
button.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        float area = PI * radius * radius;
        textView1.setText("원의 넓이 : " + area + " Cm2");
    }
});
```

SeekBar 예제 1

■ MainActivity.JAVA

```java
        seekBar.setOnSeekBarChangeListener(
                                new SeekBar.OnSeekBarChangeListener() {
            @Override
            public void onProgressChanged(SeekBar seekBar, int i, boolean b) {
                radius = i + 1;
                textView.setText("원의 반지름 : " + radius + " Cm");
                textView1.setText("");
            }

            @Override
            public void onStartTrackingTouch(SeekBar seekBar) {
            }

            @Override
            public void onStopTrackingTouch(SeekBar seekBar) {
            }
        });
    }
}
```

SeekBar 예제 1

- SeekBar는 기본적으로 0부터 max 속성으로 지정한 값까지 입력할 수 있음
- 따라서 1부터 시작하려면 ?

```java
public void onProgressChanged(SeekBar seekBar, int i, boolean b) {
        radius = i + 1;
        textView.setText("원의 반지름 : " + radius + " Cm");
        textView1.setText("");
    }
```

- 그럼 만약에 0.1부터 0.1 단위로 50.0까지 입력하려면 어떻게 해야 할까 ?

```java
public void onProgressChanged(SeekBar seekBar, int i, boolean b) {
    radius = i * 0.1f + 0.1f;
    textView.setText("원의 반지름 : " + radius + " Cm");
    textView1.setText("");
}
```
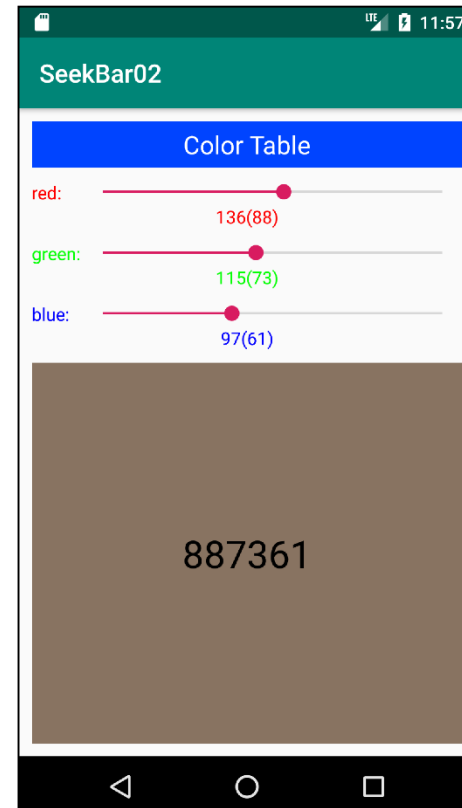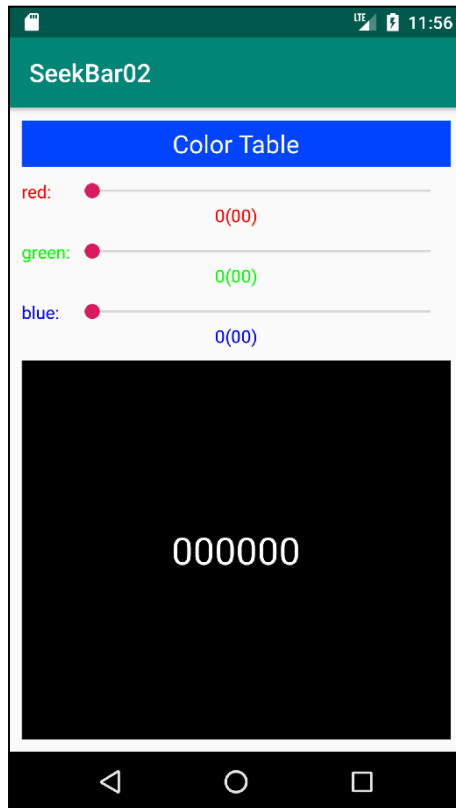max= 499

SeekBar 예제 2

- SeekBar 3개를 이용해서 TextView의 배경 색상을 바꾸는 프로그램을 만들어보자
  - 배경 색상은 RGB로 되어 있고, SeekBar에는 각각 R, G, B의 값을 보여주고 변경할 수 있음

SeekBar 예제 2

■ activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
    android:orientation="vertical"
    android:padding="10dp"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:padding="5dp"
        android:text="Color Table"
        android:textColor="#FFFFFF"
        android:background="#0044FF"
        android:textSize="20sp" />
```

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SeekBar 예제 2

■ activity_main.xml

```xml
<LinearLayout
    android:layout_marginTop="10dp"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <TextView
        android:layout_width="40dp"
        android:layout_height="wrap_content"
        android:text="red:"
        android:textColor="#ff0000"/>

    <SeekBar
        android:id="@+id/redBar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:max="255"
        android:progress="0" />
</LinearLayout>
```

SeekBar 예제 2

■ activity_main.xml

```xml
<TextView
    android:id="@+id/red"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:text="0(00)"
    android:textColor="#FF0000"/>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp">
    <TextView
        android:layout_width="40dp"
        android:layout_height="wrap_content"
        android:text="green:"
        android:textColor="#00ff00"/>
```

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SeekBar 예제 2

■ activity_main.xml

```xml
    <SeekBar
        android:id="@+id/greenBar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:progress="0"
        android:max="255"/>
</LinearLayout>
<TextView
    android:id="@+id/green"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:text="0(00)"
    android:textColor="#00FF00"/>
```

SeekBar 예제 2

■ activity_main.xml

```xml
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp">
    <TextView
        android:layout_width="40dp"
        android:layout_height="wrap_content"
        android:text="blue:"
        android:textColor="#0000ff"/>

    <SeekBar
        android:id="@+id/blueBar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:max="255"
        android:progress="0"/>
</LinearLayout>
```

SeekBar 예제 2

■ activity_main.xml

```xml
<TextView
    android:id="@+id/blue"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:text="0(00)"
    android:textColor="#0000FF"/>
<TextView
    android:id="@+id/resultView"
    android:layout_marginTop="10dp"
    android:padding="20dp"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:text="000000"
    android:textSize="30dp"
    android:gravity="center"
    android:textColor="#FFFFFF"
    android:background="#000000"/>
</LinearLayout>
```

SeekBar 예제 2

MAinActivity.JAVA

```java
public class MainActivity extends AppCompatActivity {
    SeekBar redBar, greenBar, blueBar;
    TextView redText, greenText,blueText;
    TextView resultView;

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

        redBar = findViewById(R.id.redBar);
        blueBar = findViewById(R.id.blueBar);
        greenBar = findViewById(R.id.greenBar);

        resultView = findViewById(R.id.resultView);
        redText = findViewById(R.id.red);
        greenText = findViewById(R.id.green);
        blueText = findViewById(R.id.blue);
```

SeekBar 예제 2

■ MAinActivity.JAVA

```java
redBar.setOnSeekBarChangeListener(
        new SeekBar.OnSeekBarChangeListener() {
    @Override
    public void onProgressChanged(SeekBar seekBar, int progress,
                                boolean fromUser) {
        changeColorText();
    }


    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {
    }


    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {
    }
});
```

SeekBar 예제 2

■ MAinActivity.JAVA

```java
greenBar.setOnSeekBarChangeListener(
            new SeekBar.OnSeekBarChangeListener() {
    @Override
    public void onProgressChanged(SeekBar seekBar,int progress,
                                    boolean fromUser) {
        changeColorText();
    }

    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {
    }

    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {
    }
});
```

SeekBar 예제 2

■ MAinActivity.JAVA

```java
blueBar.setOnSeekBarChangeListener(
            new SeekBar.OnSeekBarChangeListener() {

    @Override
    public void onProgressChanged(SeekBar seekBar,int progress,
                                    boolean fromUser) {
        changeColorText();
    }

    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {
    }

    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {
    }
});
}
```

SeekBar 예제 2

■ MAinActivity.JAVA

```java
public void changeColorText(){
    int red = redBar.getProgress();
    int green = greenBar.getProgress();
    int blue = blueBar.getProgress();

    int rgb = Color.rgb(red,green,blue);
    String temp = String.format("%2H%2H%2H", red, green, blue);
    String code = temp.replaceAll(" ", "0");

    redText.setText(red +"("+
            (red == 0 ? "00": String.format("%2H",red)) +")");
    greenText.setText(green+"("+
            (green == 0 ? "00": String.format("%2H",green))+")");
    blueText.setText(blue+"("+
            (blue == 0 ? "00": String.format("%2H",blue))+")");
```

SeekBar 예제 2

■ MAinActivity.JAVA
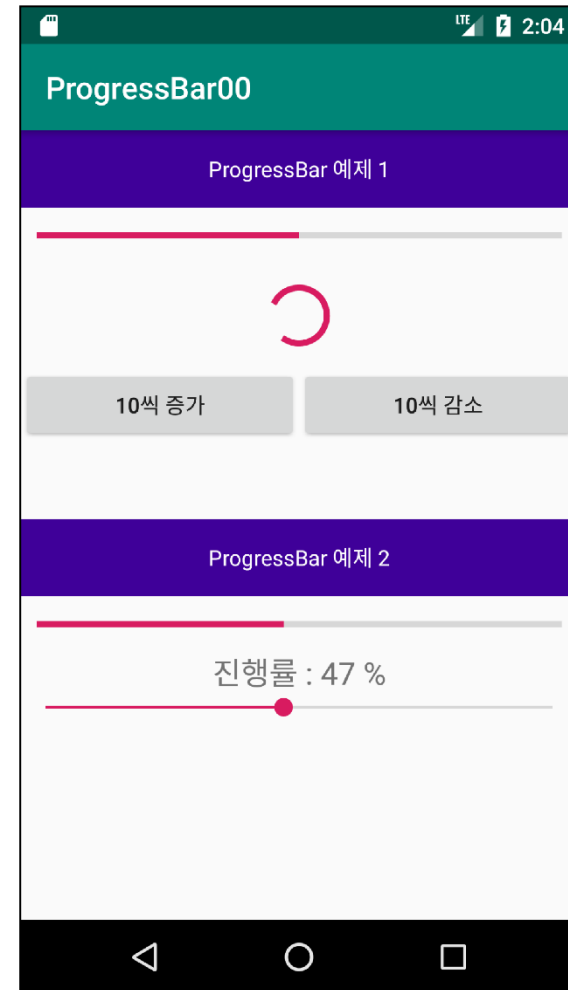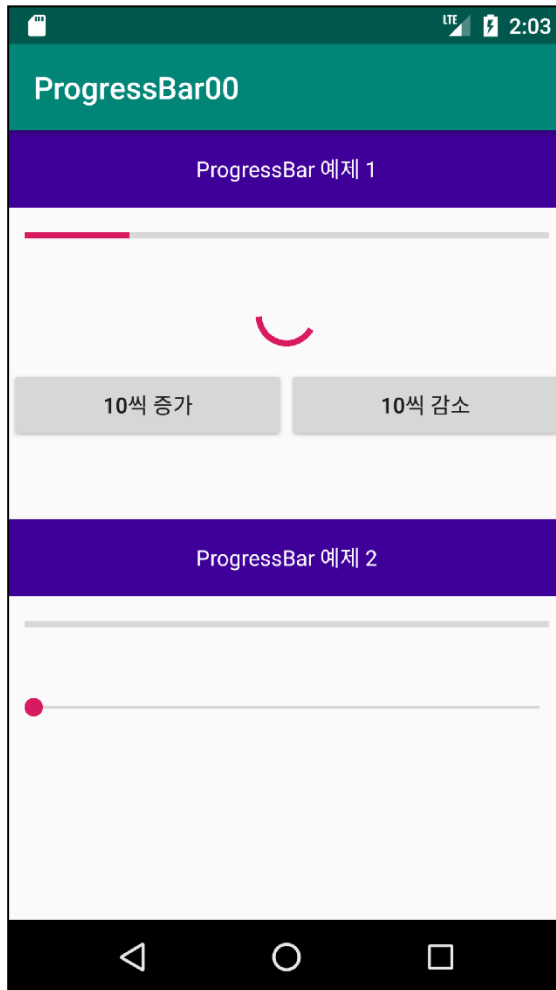
```java
        if (code.compareTo("800000") < 0)
            resultView.setTextColor(Color.WHITE);
        else
            resultView.setTextColor(Color.BLACK);

        resultView.setBackgroundColor(rgb);
        resultView.setText(code);
    }
}
```

ProgressBar 예제 0

■ 다음과 같은 ProgressBar를 만들어보자

ProgressBar 예제 0

■ 사용자 인터페이스

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:background="#3F0099"
        android:gravity="center"
        android:text="ProgressBar 예제 1"
        android:textColor="#FFFFFF" />
```

ProgressBar 예제 0

■ 사용자 인터페이스

```xml
<ProgressBar
    android:id="@+id/progressBar1"
    style="?android:attr/progressBarStyleHorizontal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:max="100"
    android:padding="10dp"
    android:progress="20" />

<ProgressBar
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:max="100"
    android:padding="10dp"
    android:progress="0" />
```

ProgressBar 예제 0

■ 사용자 인터페이스

```xml
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <Button
        android:id="@+id/btnInc"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="10씩 증가" />

    <Button
        android:id="@+id/btnDec"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="10씩 감소" />
</LinearLayout>
```

■ 사용자 인터페이스

```xml
<TextView
    android:layout_width="match_parent"
    android:layout_height="50dp"
    android:layout_marginTop="50dp"
    android:background="#3F0099"
    android:gravity="center"
    android:text="ProgressBar 예제 2"
    android:textColor="#FFFFFF" />

<ProgressBar
    android:id="@+id/progressBar2"
    style="?android:attr/progressBarStyleHorizontal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:max="100"
    android:padding="10dp"
    android:progress="0" />
```

ProgressBar 예제 0

■ 사용자 인터페이스

```xml
<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:textSize="20dp" />

<SeekBar
    android:id="@+id/seekBar"
    android:layout_width="match_parent"
    android:layout_height="wrap_content" />
</LinearLayout>
```

ProgressBar 예제 0

■ MainActivity.JAVA

```java
public class MainActivity extends AppCompatActivity {

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

        final ProgressBar progressBar = findViewById(R.id.progressBar1);
        final ProgressBar progressBar1 = findViewById(R.id.progressBar2);
        final TextView textView = findViewById(R.id.textView);
        Button button1 = findViewById(R.id.btnInc);
        button1.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                progressBar.incrementProgressBy(10);
            }
        });
```

ProgressBar 예제 0

■ MainActivity.JAVA

```java
Button button2 = findViewById(R.id.btnDec);
button2.setOnClickListener(new View.OnClickListener() {
    public void onClick(View v) {
        progressBar.incrementProgressBy(-10);
    }
});
```

ProgressBar 예제 0

MainActivity.JAVA

```java
SeekBar seekBar = findViewById(R.id.seekBar);
seekBar.setOnSeekBarChangeListener(
                            new SeekBar.OnSeekBarChangeListener() {
    public void onStopTrackingTouch(SeekBar seekBar) {
    }

    public void onStartTrackingTouch(SeekBar seekBar) {
    }

    public void onProgressChanged(SeekBar seekBar, int progress,
                                        boolean fromUser) {
        progressBar1.setProgress(progress);
        textView.setText("진행률 : " + progress + " %");
    }
});
}
}
```
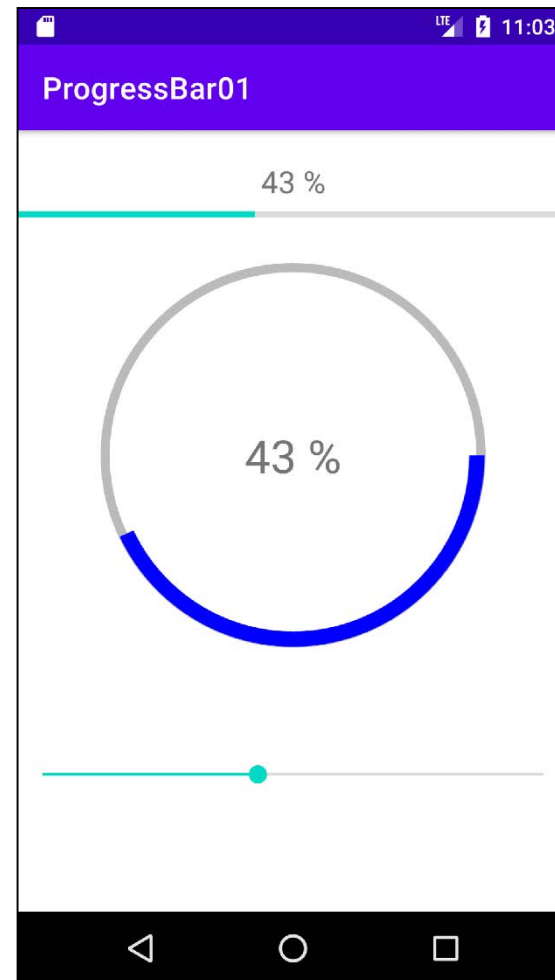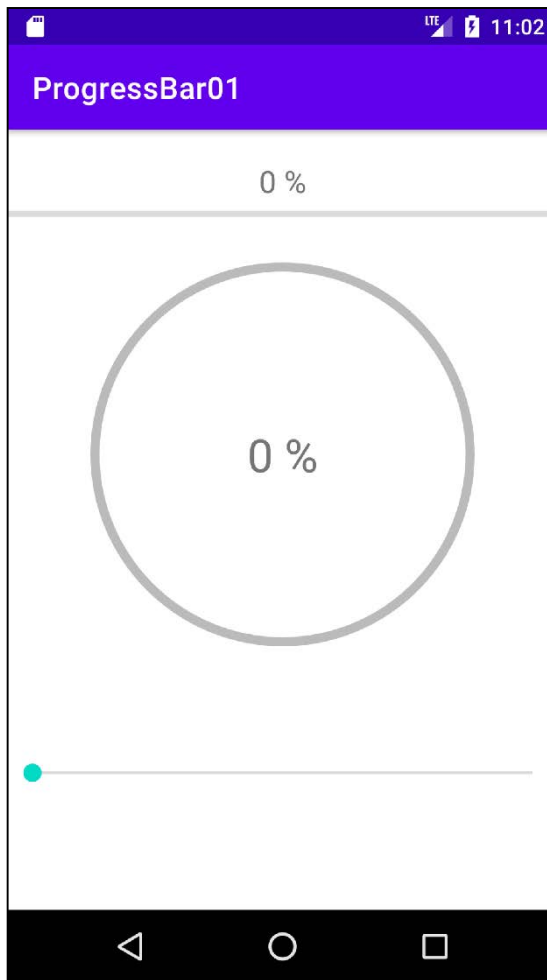
ProgressBar 예제 1

■ 다음과 같은 ProgressBar를 만들어보자

ProgressBar 예제 1

■ 사용자 인터페이스

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
    android:gravity="center|top"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:gravity="center"
        android:text="0 %"
        android:textSize="20dp" />
```

ProgressBar 예제 1

■ 사용자 인터페이스

```xml
<ProgressBar
    android:id="@+id/progress1"
    style="?android:attr/progressBarStyleHorizontal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_gravity="center" />

<FrameLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <ProgressBar
        android:id="@+id/progress2"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="300dp"
        android:layout_height="300dp"
        android:layout_gravity="center"
        android:background="@drawable/circle_shape"
        android:progress="0"
        android:progressDrawable="@drawable/circle" />
```

ProgressBar 예제 1

■ 사용자 인터페이스

```xml
    <TextView
        android:id="@+id/textView2"
        android:layout_width="match_parent"
        android:layout_height="300dp"
        android:gravity="center"
        android:text="0 %"
        android:textSize="30dp" />
</FrameLayout>

    <SeekBar
        android:id="@+id/seekBar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:max="100" />
</LinearLayout>
```

ProgressBar 예제 1

■ drawable/circle.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android"
    android:shape="ring"
    android:innerRadiusRatio="2.6"
    android:thickness="10dp"
    android:useLevel= "true" >
    <solid android:color="#0000FF" />
</shape>
```

ProgressBar 예제 1

■ drawable/circle_shape.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android"
    android:shape="ring"
    android:innerRadiusRatio="2.5"
    android:thickness="18sp"
    android:useLevel= "false" >
    <solid android:color="#BBBBBB"/>
</shape>
```

ProgressBar 예제 1

■ MainActivity.JAVA

```java
public class MainActivity extends AppCompatActivity {

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

        ProgressBar progressBar1 = findViewById(R.id.progress1);
        TextView textView1 = findViewById(R.id.textView1);
        ProgressBar progressBar2 = findViewById(R.id.progress2);
        TextView textView2 = findViewById(R.id.textView2);
```
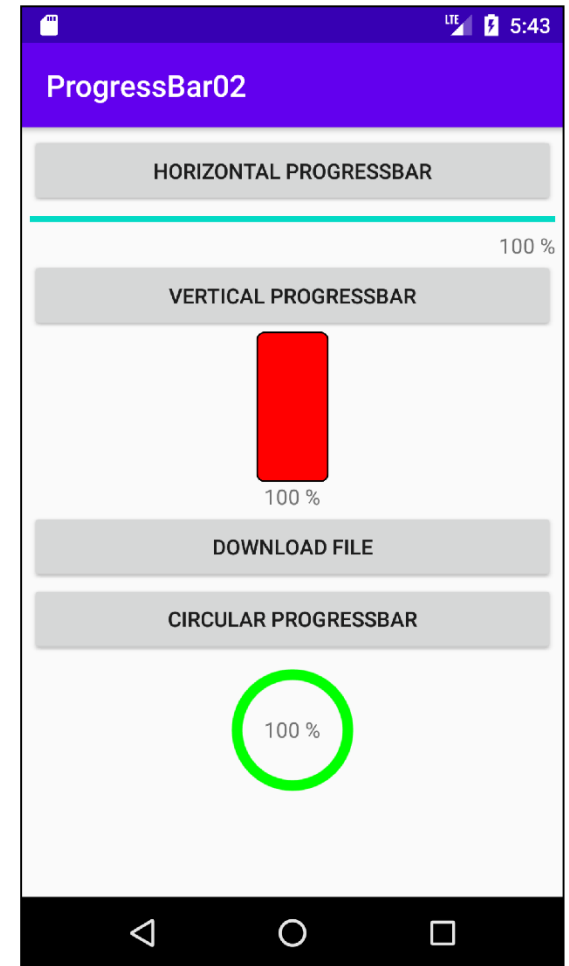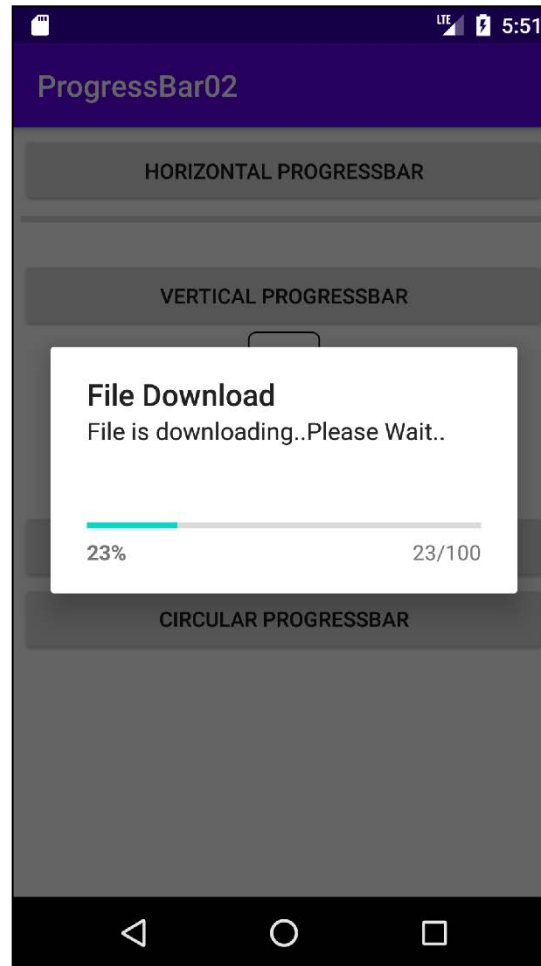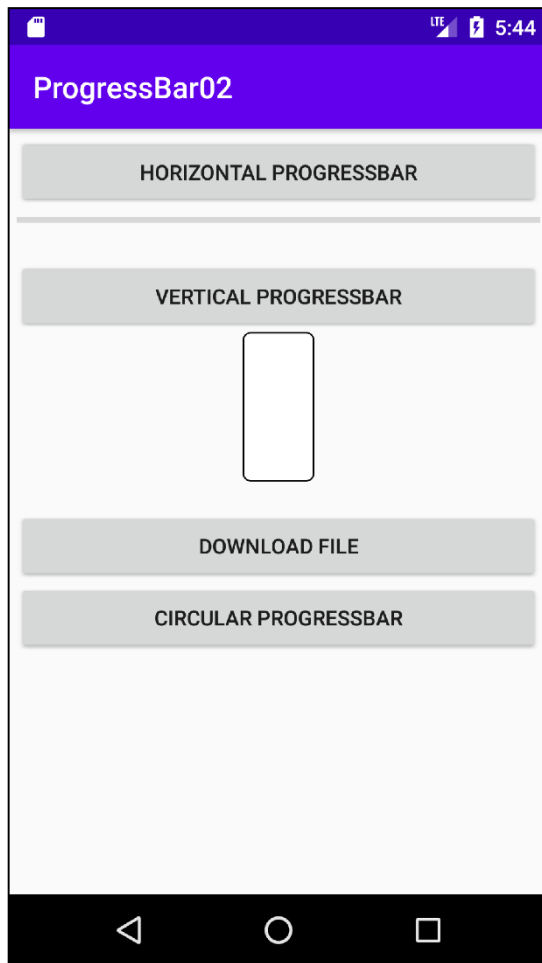
ProgressBar 예제 1

```java
SeekBar seekBar = findViewById(R.id.seekBar);
seekBar.setOnSeekBarChangeListener(
            new SeekBar.OnSeekBarChangeListener() {
    @Override
    public void onProgressChanged(SeekBar seekBar, int progress,
                                    boolean fromUser) {

        progressBar1.setProgress(progress);
        textView1.setText(progress + " %");
        progressBar2.setProgress(progress);
        textView2.setText(progress + " %");
    }
    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {
    }
    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {
    }
});
    }
}
```

ProgressBar 예제 2

ProgressBar 예제 2

- circular_progressbar.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<layer-list xmlns:android="http://schemas.android.com/apk/res/android" >

    <!-- By default Progress -->
    <item android:id="@android:id/secondaryProgress">
        <shape
            android:innerRadiusRatio="3"
            android:shape="ring"
            android:thicknessRatio="14.0" >
            <gradient
                android:centerColor="#FFFFFF"
                android:endColor="#FFFFFF"
                android:startColor="#FFFFFF"
                android:type="sweep" />
        </shape>
    </item>
```

ProgressBar 예제 2

■ circular_progressbar.xml

```xml
<!-- on Progress Update  -->
<item android:id="@android:id/progress">
  <rotate
      android:fromDegrees="270"
      android:pivotX="50%"
      android:pivotY="50%"
      android:toDegrees="270" >
      <shape
          android:innerRadiusRatio="3"
          android:shape="ring"
          android:thicknessRatio="14.0" >
          <rotate
              android:fromDegrees="0"
              android:pivotX="50%"
              android:pivotY="50%"
              android:toDegrees="360" />
```

circular_progressbar.xml

```xml
            <!-- Color to be shown when progress bar is updating -->
            <gradient
                android:centerColor="#00FF00"
                android:endColor="#00FF00"
                android:startColor="#00FF00"
                android:type="sweep" />
        </shape>
      </rotate>
    </item>
</layer-list>
```

ProgressBar 예제 2

■ vertical_progressbar.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<layer-list xmlns:android="http://schemas.android.com/apk/res/android" >

    <!-- By default progressbar -->
    <item android:id="@android:id/background">
        <shape>
            <corners android:radius="5dip" />
            <solid android:color="#FFFFFF" />
            <stroke
                android:width="1dp"
                android:color="#FF000000" />
        </shape>
    </item>
```

ProgressBar 예제 2

■ vertical_progressbar.xml

```xml
<!-- on Progress Update -->
<item android:id="@android:id/progress">
    <clip
        android:clipOrientation="vertical"
        android:gravity="bottom" >
        <shape>
            <corners android:radius="5dip" />
            <!-- Color to be shown on progressbar update -->
            <solid android:color="#FF00" />
            <stroke
                android:width="1dp"
                android:color="#FF000000" />
        </shape>
    </clip>
</item>
</layer-list>
```

ProgressBar 예제 2

■ 사용자 인터페이스

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
    android:layout_gravity="center"
    android:orientation="vertical"
    android:padding="5dp"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/button1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Horizontal ProgressBar" />
```

ProgressBar 예제 2

■ 사용자 인터페이스

```xml
<ProgressBar
    android:id="@+id/progressbar1"
    style="?android:attr/progressBarStyleHorizontal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content" />

<TextView
    android:id="@+id/textView1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="right"/>

<Button
    android:id="@+id/button2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Vertical ProgressBar" />
```

ProgressBar 예제 2

■ 사용자 인터페이스

```xml
<ProgressBar
    android:id="@+id/progressbar2"
    style="?android:attr/progressBarStyleHorizontal"
    android:layout_width="wrap_content"
    android:layout_height="100dp"
    android:layout_gravity="center_horizontal"
    android:progressDrawable="@drawable/vertical_progressbar" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center_horizontal" />
<Button
    android:id="@+id/button3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Download File" />
```

ProgressBar 예제 2

■ 사용자 인터페이스

```xml
<Button
    android:id="@+id/button4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Circular ProgressBar" />

<FrameLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content">

    <ProgressBar
        android:id="@+id/progressbar3"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:layout_gravity="center_horizontal"
        android:progressDrawable="@drawable/circular_progressbar" />
```

■ 사용자 인터페이스

```xml
    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="40dp"
        android:layout_gravity="center_horizontal" />
    </FrameLayout>
</LinearLayout>
```

ProgressBar 예제 2

■ MainActivity.JAVA

```java
public class MainActivity extends AppCompatActivity
                                        implements View.OnClickListener {
    private ProgressBar horizontal, vertical, circular;
    private TextView textView1, textView2, textView3;

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

        horizontal = findViewById(R.id.progressbar1);
        textView1 = findViewById(R.id.textView1);
        vertical = findViewById(R.id.progressbar2);
        textView2 = findViewById(R.id.textView2);
        circular = findViewById(R.id.progressbar3);
        textView3 = findViewById(R.id.textView3);
```

ProgressBar 예제 2

■ MainActivity.JAVA

```java
    Button button1 = findViewById(R.id.button1);
    button1.setOnClickListener(this);
    Button button2 = findViewById(R.id.button2);
    button2.setOnClickListener(this);
    Button download_file = findViewById(R.id.button3);
    download_file.setOnClickListener(this);
    Button button4 = findViewById(R.id.button4);
    button4.setOnClickListener(this);
}

@Override
public void onClick(View v) {
    switch (v.getId()) {
        case R.id.button1:
            DisplayProgressBar thread =
                            new DisplayProgressBar(horizontal, textView1);
            thread.start();
            break;
```

ProgressBar 예제 2

■ MainActivity.JAVA

```java
        case R.id.button2:
            DisplayProgressBar thread1 =
                             new DisplayProgressBar(vertical, textView2);
            thread1.start();
            break;
        case R.id.button3:
            DownloadFile task = new DownloadFile(MainActivity.this);
            task.execute();
            break;
        case R.id.button4:
            DisplayProgressBar thread2 =
                             new DisplayProgressBar(circular, textView3);
            thread2.start();
            break;
    }
  }
}
```

ProgressBar 예제 2

- DisplayPrograssBar.JAVA

```java
public class DisplayProgressBar extends Thread {
    private ProgressBar progressBar;
    private TextView textView;
    int progress;

    public DisplayProgressBar(ProgressBar progressBar, TextView textView) {
        this.progressBar = progressBar;
        this.textView = textView;
        progress = 0;
    }
```

ProgressBar 예제 2

■ DisplayPrograssBar.JAVA

```java
@Override
public void run() {
    while (progress < 100) {
        progress++;
        textView.post(new Runnable() {
            @Override
            public void run() {
                progressBar.setProgress(progress);
                textView.setText(progress + " %");
            }
        });
        SystemClock.sleep(100);
    }
}
```

ProgressBar 예제 2

■ DownloadFile.JAVA

```java
public class DownloadFile extends AsyncTask<Void, Integer, Void> {
    private Context context;
    private ProgressDialog dialog;
    private int progress;

    public DownloadFile(Context context) {
        this.context = context;
        dialog = new ProgressDialog(context);
        progress = 0;
    }
}
```

ProgressBar 예제 2

■ DownloadFile.JAVA

```java
@Override
protected void onPreExecute() {
    dialog.setTitle("File Download");
    dialog.setMessage("File is downloading..Please Wait..");
    dialog.setCancelable(false);
    dialog.setMax(100);
    dialog.setProgress(0);
    dialog.setProgressStyle(ProgressDialog.STYLE_HORIZONTAL);
    dialog.setIndeterminate(false);
    dialog.show();
}

@Override
protected void onPostExecute(Void result) {
    dialog.dismiss();
}
```

ProgressBar 예제 2

■ DownloadFile.JAVA

```java
@Override
protected void onProgressUpdate(Integer… values) {
    dialog.setProgress(values[0]);
}

@Override
protected Void doInBackground(Void… arg0) {
    while (progress < 100) {
        progress++;
        publishProgress(progress);
        SystemClock.sleep(100);
    }
    return null;
}
}
```