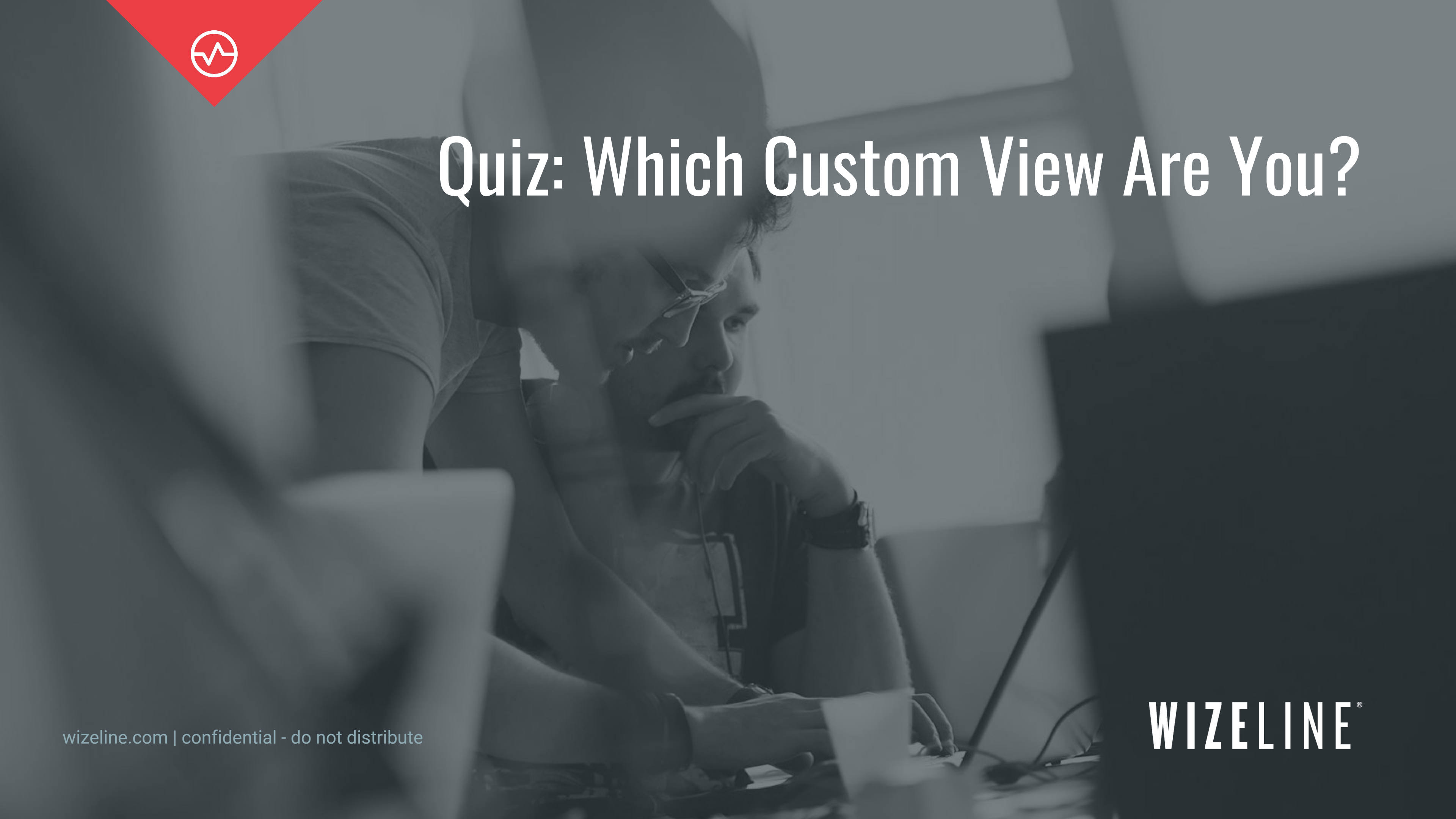


Quiz: Which Custom View Are You?

AGENDA

- When To Use Custom Views
- Extending An Existing View
  - Attributes
- Extending The View Class
  - Drawing
  - Measuring
- Compound ViewGroup, Custom ViewGroup, Flat Views

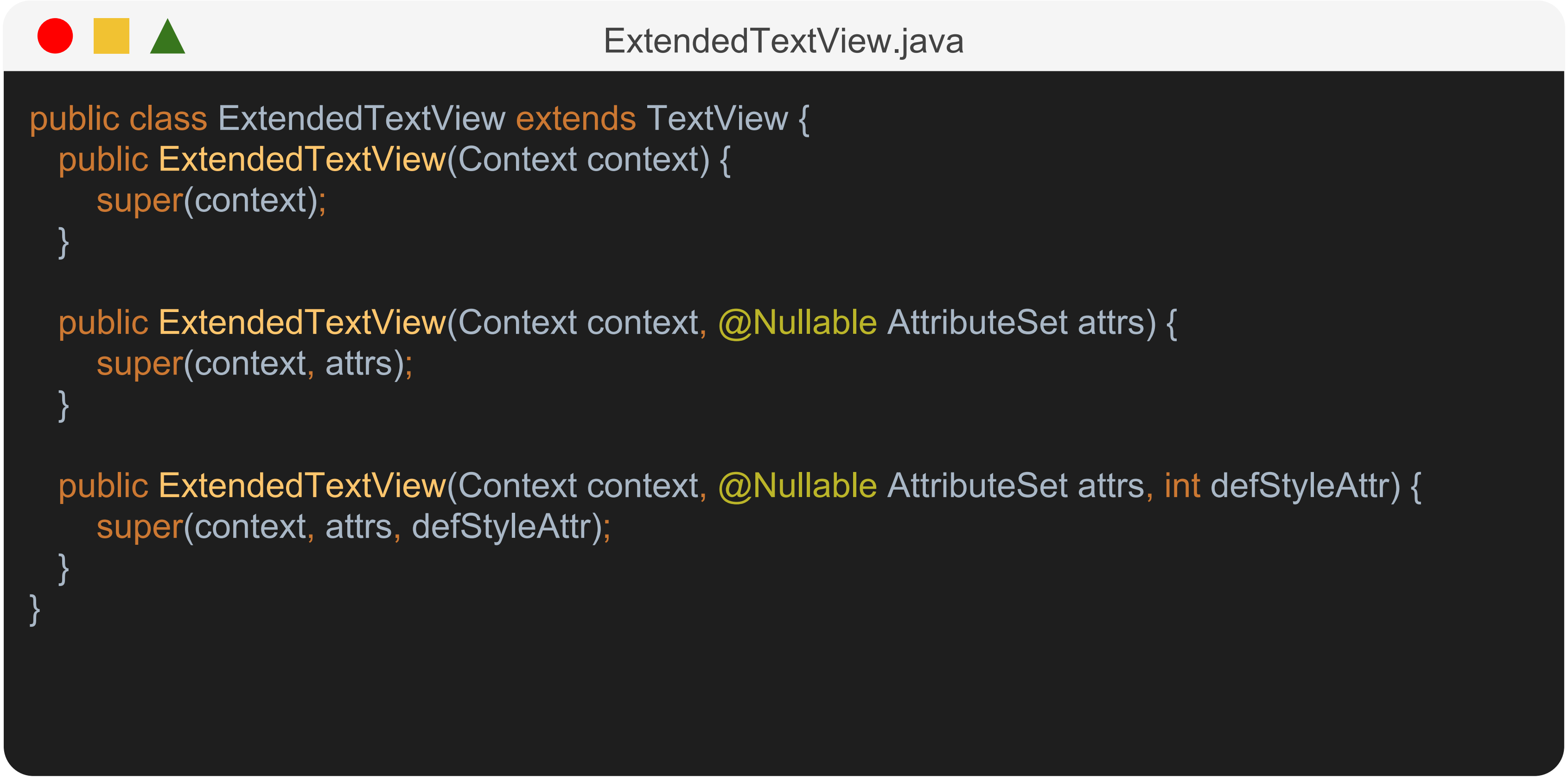
When You Thought Your Android App Couldn't Be Worst
Make Your App As Ugly As You Want
Android Custom Views
O RLY?
Andrew Rubin

SHOULD I USE A CUSTOM VIEW?

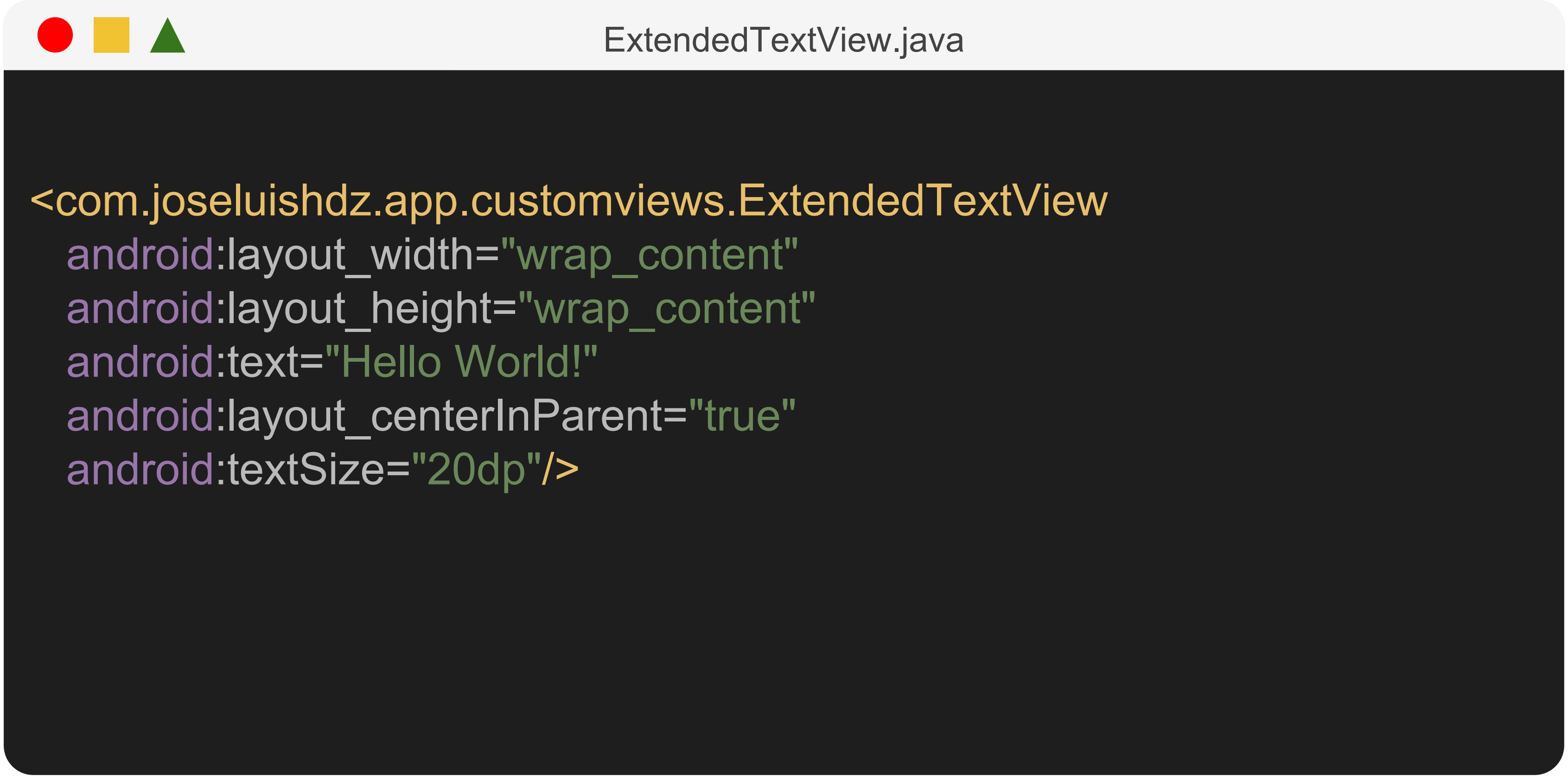
IF

- I need to add custom functionality to an existing view
- I can’t create a view combining or extending existing views
- I need to improve my UI performance

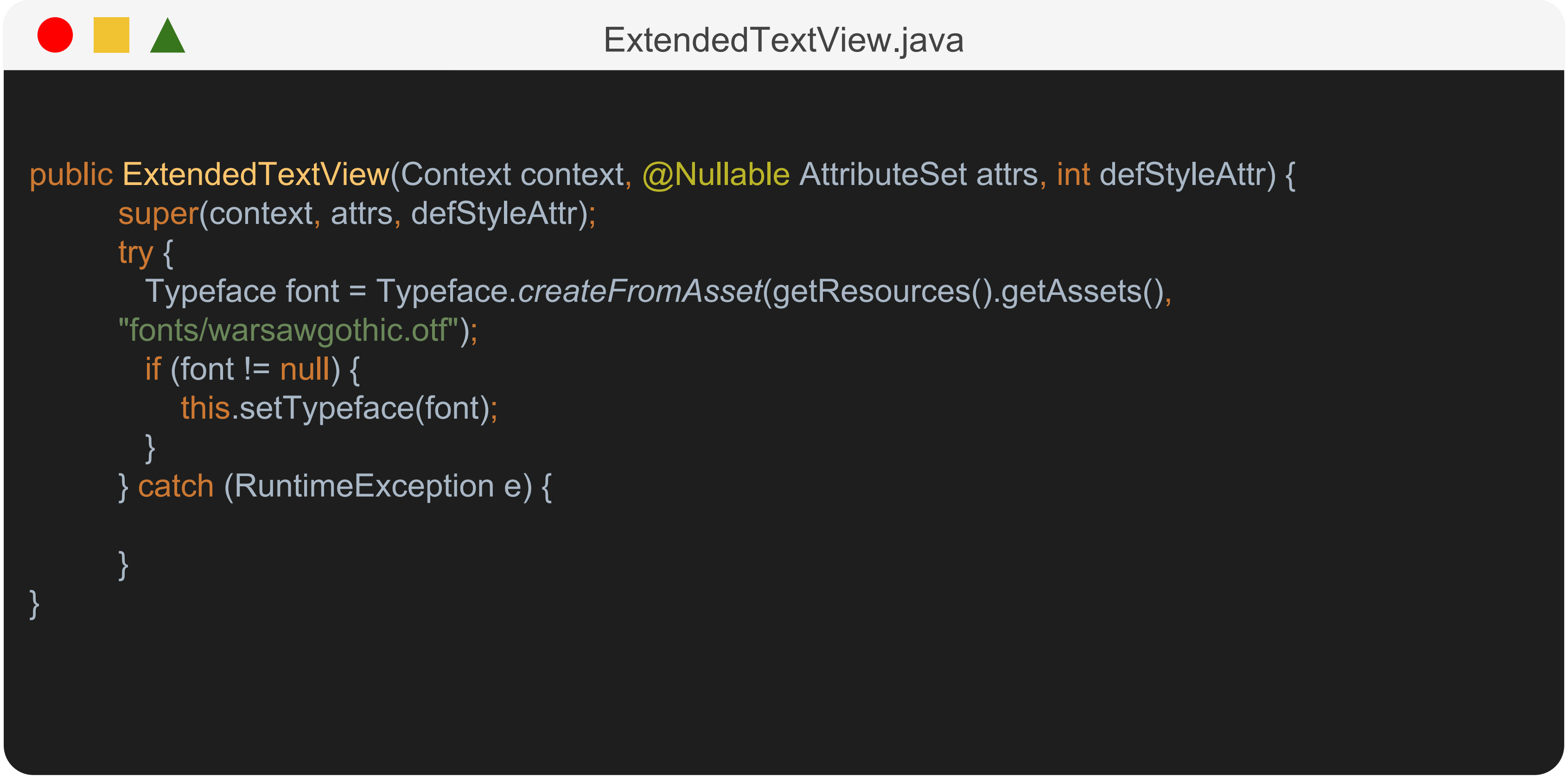
EXTENDING AN EXISTING VIEW



```java
public class ExtendedTextView extends TextView {
  public ExtendedTextView(Context context) {
    super(context);
  }

  public ExtendedTextView(Context context, @Nullable AttributeSet attrs) {
    super(context, attrs);
  }

  public ExtendedTextView(Context context, @Nullable AttributeSet attrs, int defStyleAttr) {
    super(context, attrs, defStyleAttr);
  }
}
```



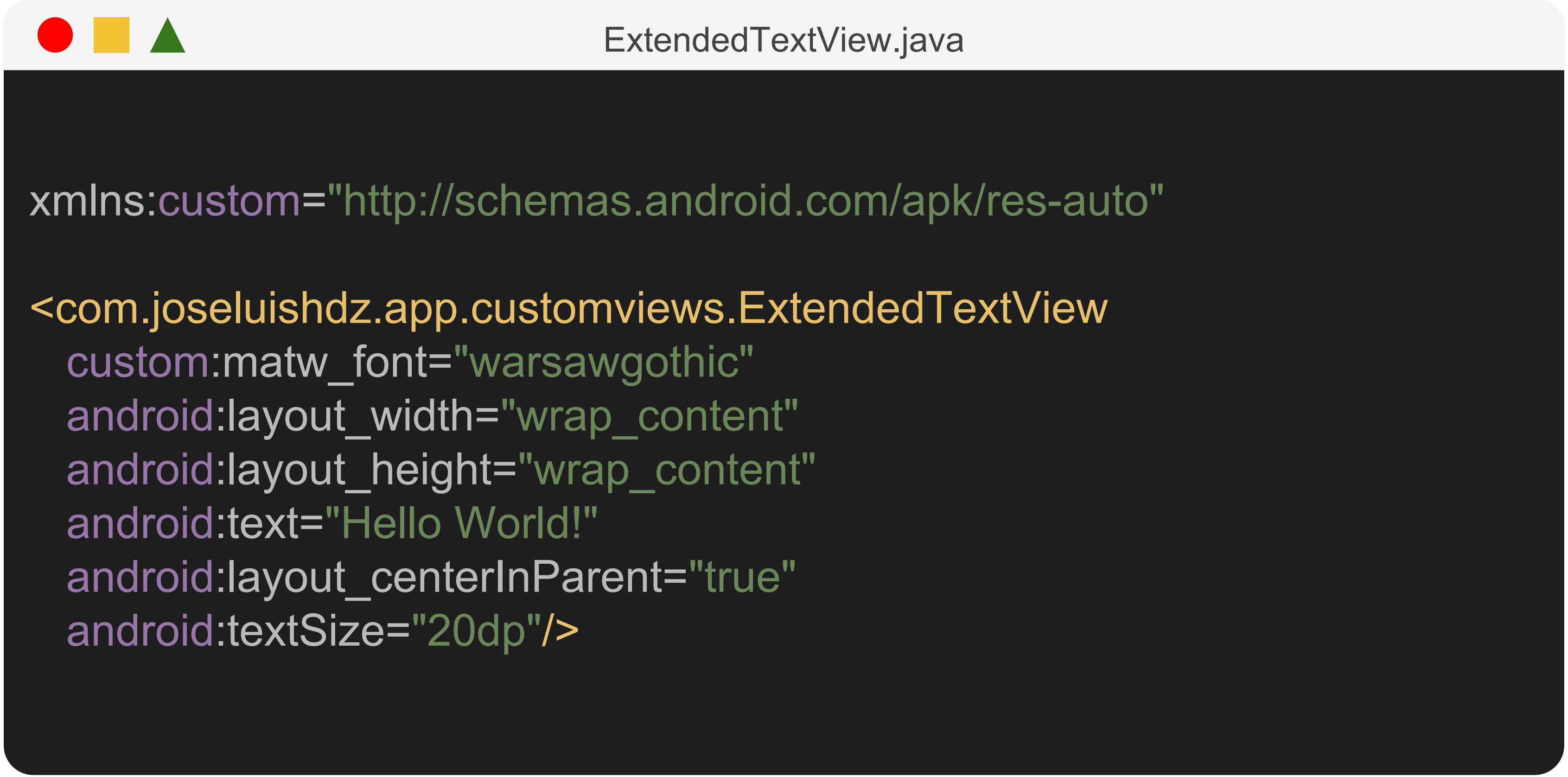
```
<com.joseluishdz.app.customviews.ExtendedTextView
   android:layout_width="wrap_content"
   android:layout_height="wrap_content"
   android:text="Hello World!"
   android:layout_centerInParent="true"
   android:textSize="20dp"/>
```



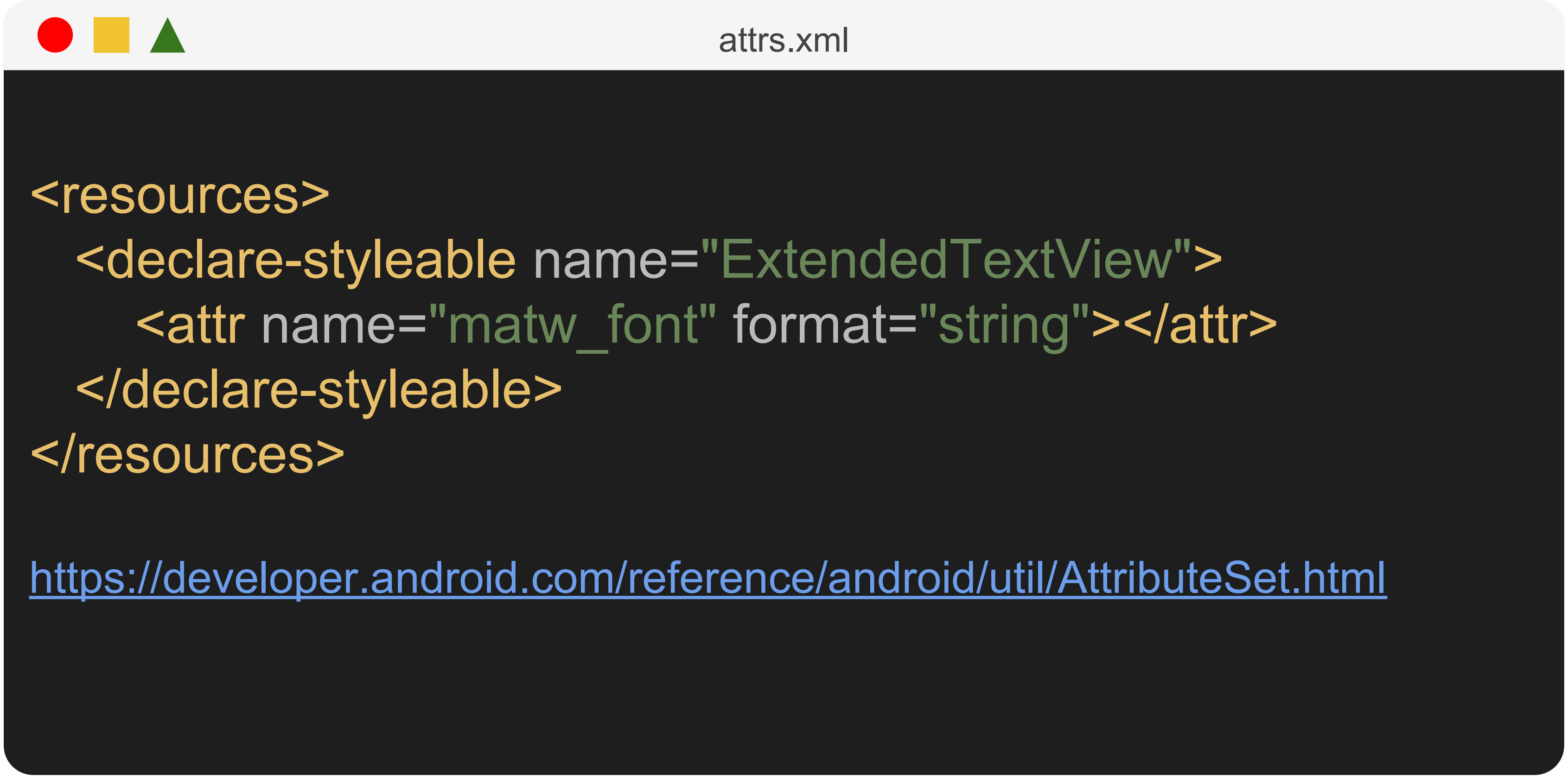
ExtendedTextView.java

```java
public ExtendedTextView(Context context, @Nullable AttributeSet attrs, int defStyleAttr) {
        super(context, attrs, defStyleAttr);
        try {
            Typeface font = Typeface.createFromAsset(getResources().getAssets(),
        "fonts/warsawgothic.otf");
            if (font != null) {
                this.setTypeface(font);
            }
        } catch (RuntimeException e) {

        }
}
```

MY AWESOME VIEW ATTRIBUTES

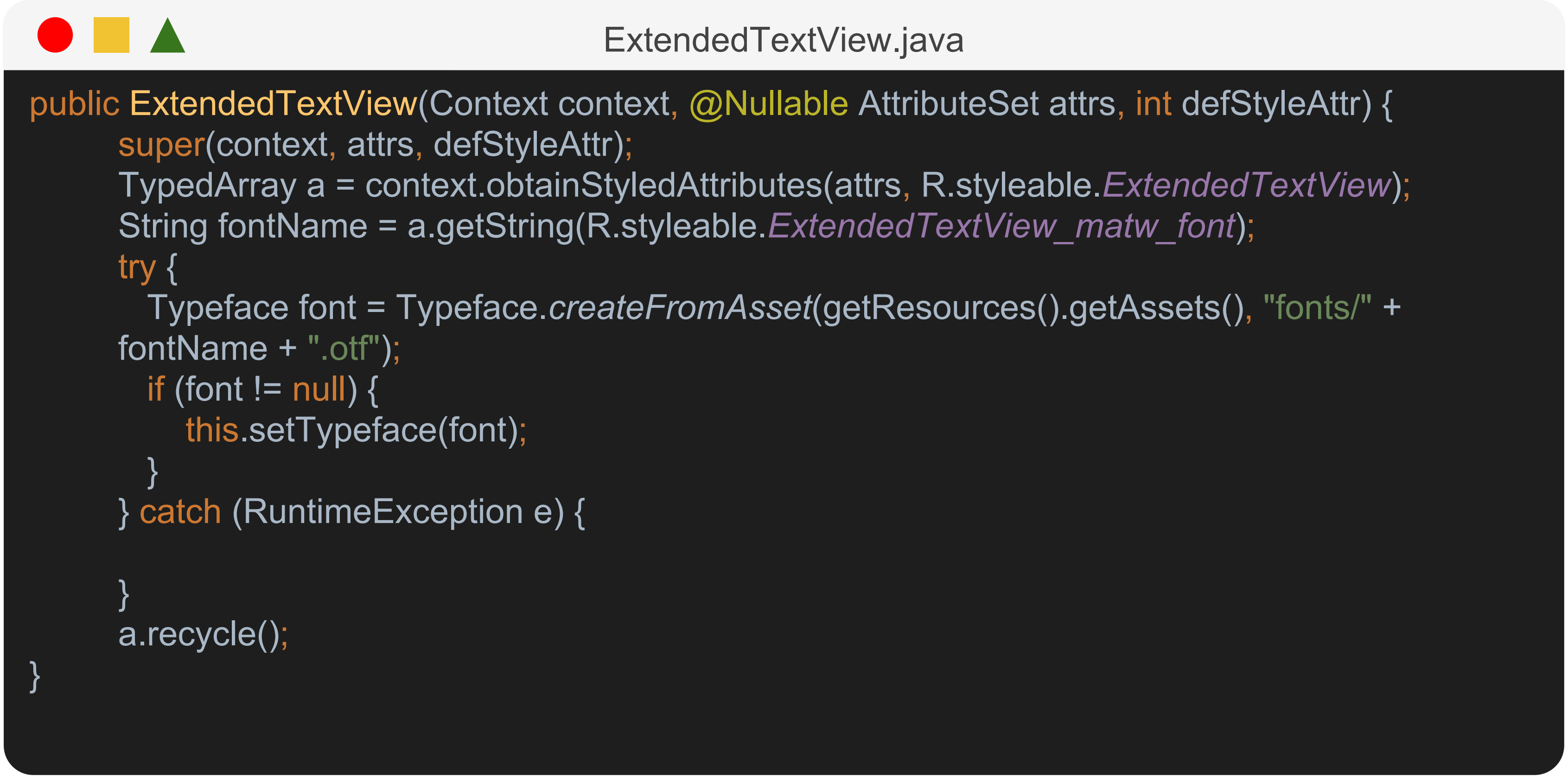


```
xmlns:custom="http://schemas.android.com/apk/res-auto"

<com.joseluishdz.app.customviews.ExtendedTextView
   custom:matw_font="warsawgothic"
   android:layout_width="wrap_content"
   android:layout_height="wrap_content"
   android:text="Hello World!"
   android:layout_centerInParent="true"
   android:textSize="20dp"/>
```



```
<resources>
   <declare-styleable name="ExtendedTextView">
       <attr name="matw_font" format="string"></attr>
   </declare-styleable>
</resources>
```

https://developer.android.com/reference/android/util/AttributeSet.html

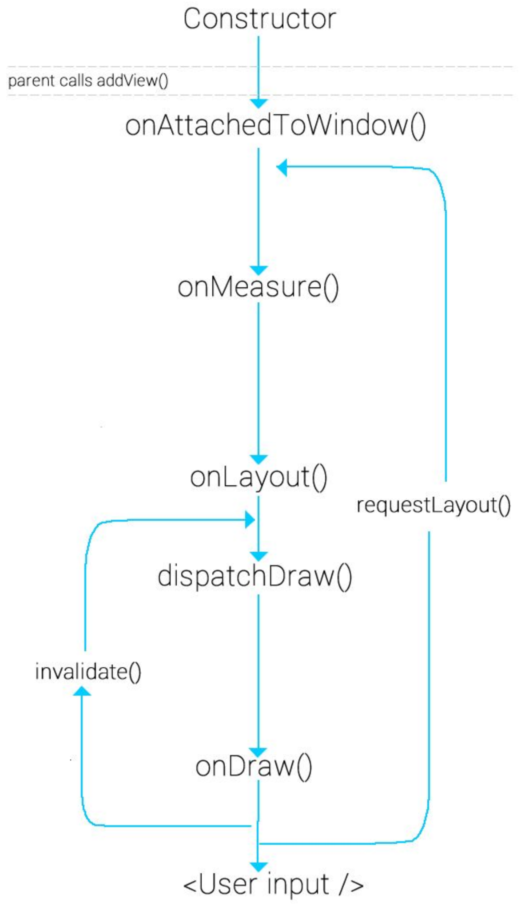


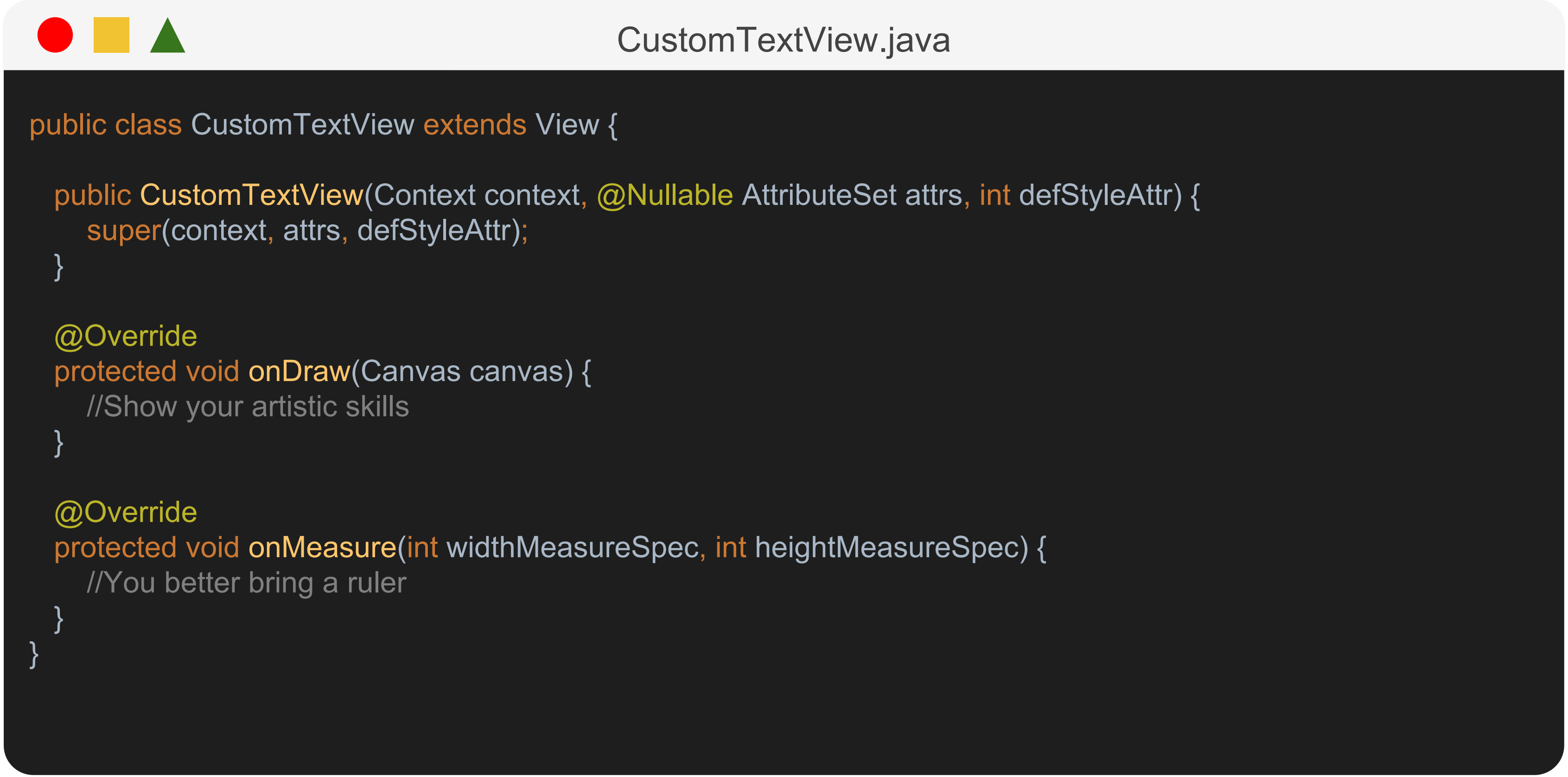
ExtendedTextView.java

```java
public ExtendedTextView(Context context, @Nullable AttributeSet attrs, int defStyleAttr) {
        super(context, attrs, defStyleAttr);
        TypedArray a = context.obtainStyledAttributes(attrs, R.styleable.ExtendedTextView);
        String fontName = a.getString(R.styleable.ExtendedTextView_matw_font);
        try {
           Typeface font = Typeface.createFromAsset(getResources().getAssets(), "fonts/" +
        fontName + ".otf");
           if (font != null) {
               this.setTypeface(font);
           }
        } catch (RuntimeException e) {

        }
        a.recycle();
}
```

DRAWING MY OWN UNIQUE AWESOME VIEW

VIEW LIFECYCLE





CustomTextView.java

```java
public class CustomTextView extends View {

    public CustomTextView(Context context, @Nullable AttributeSet attrs, int defStyleAttr) {
        super(context, attrs, defStyleAttr);
    }

    @Override
    protected void onDraw(Canvas canvas) {
        //Show your artistic skills
    }

    @Override
    protected void onMeasure(int widthMeasureSpec, int heightMeasureSpec) {
        //You better bring a ruler
    }
}
```

MY AWESOME VIEW DRAWING

onDraw method

Canvas Class

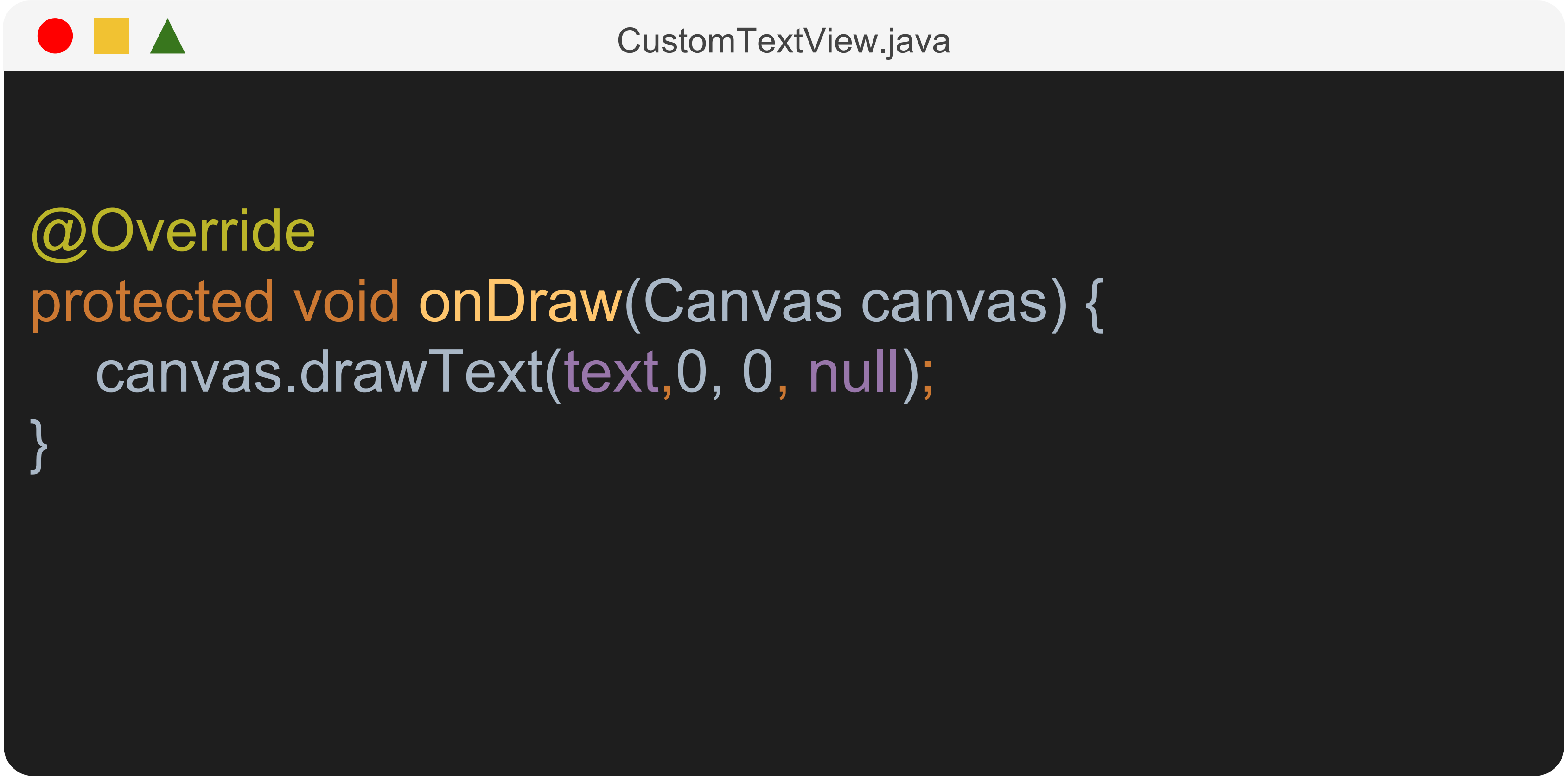
Paint Class

Canvas

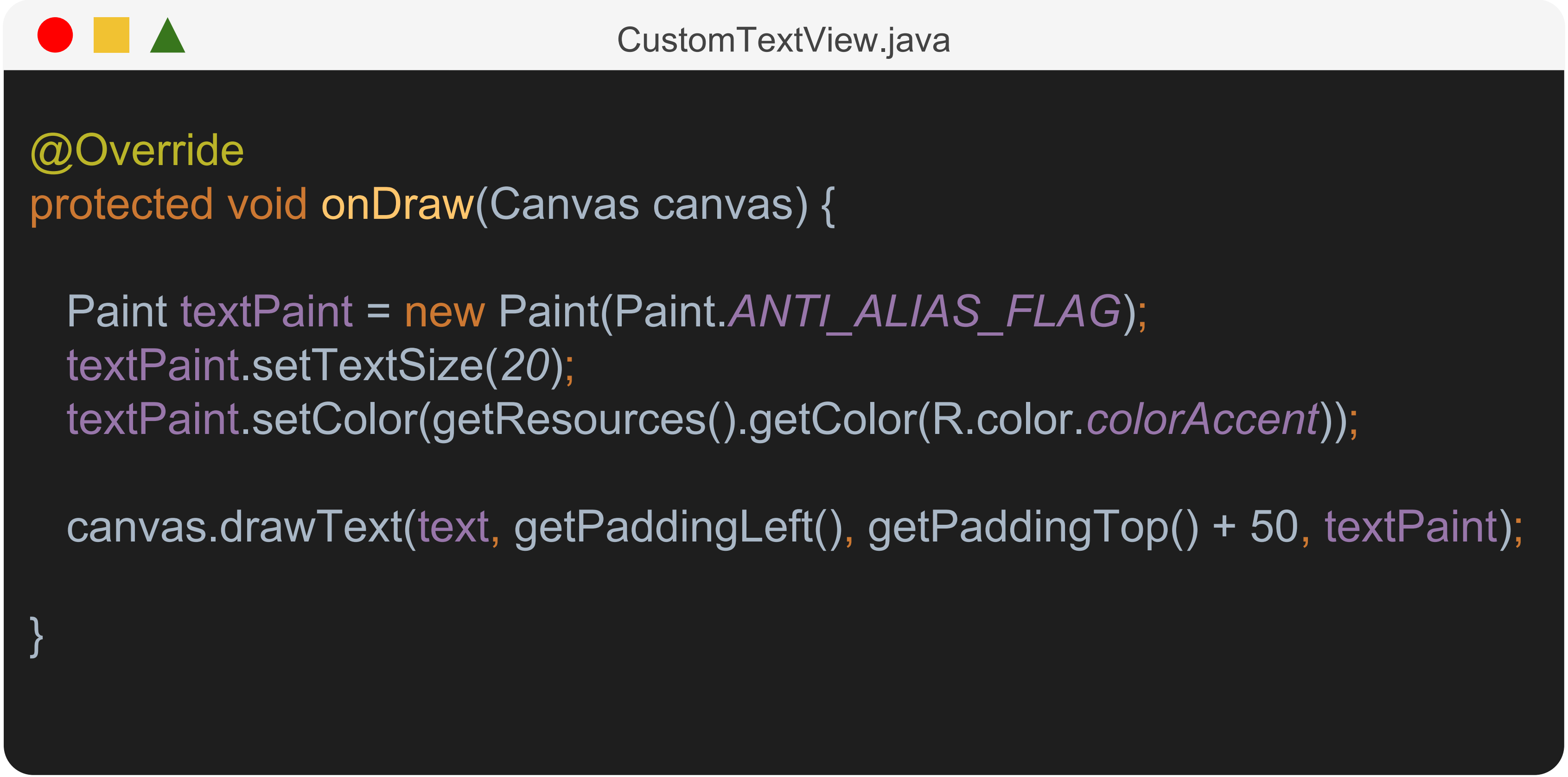
- drawText
- drawCircle
- drawBitmap
- drawLine
- ...

Paint

- setColor
- setTypeface
- setTextsize
- setLetterSpacing
- ...



```java
@Override
protected void onDraw(Canvas canvas) {
    canvas.drawText(text,0, 0, null);
}
```



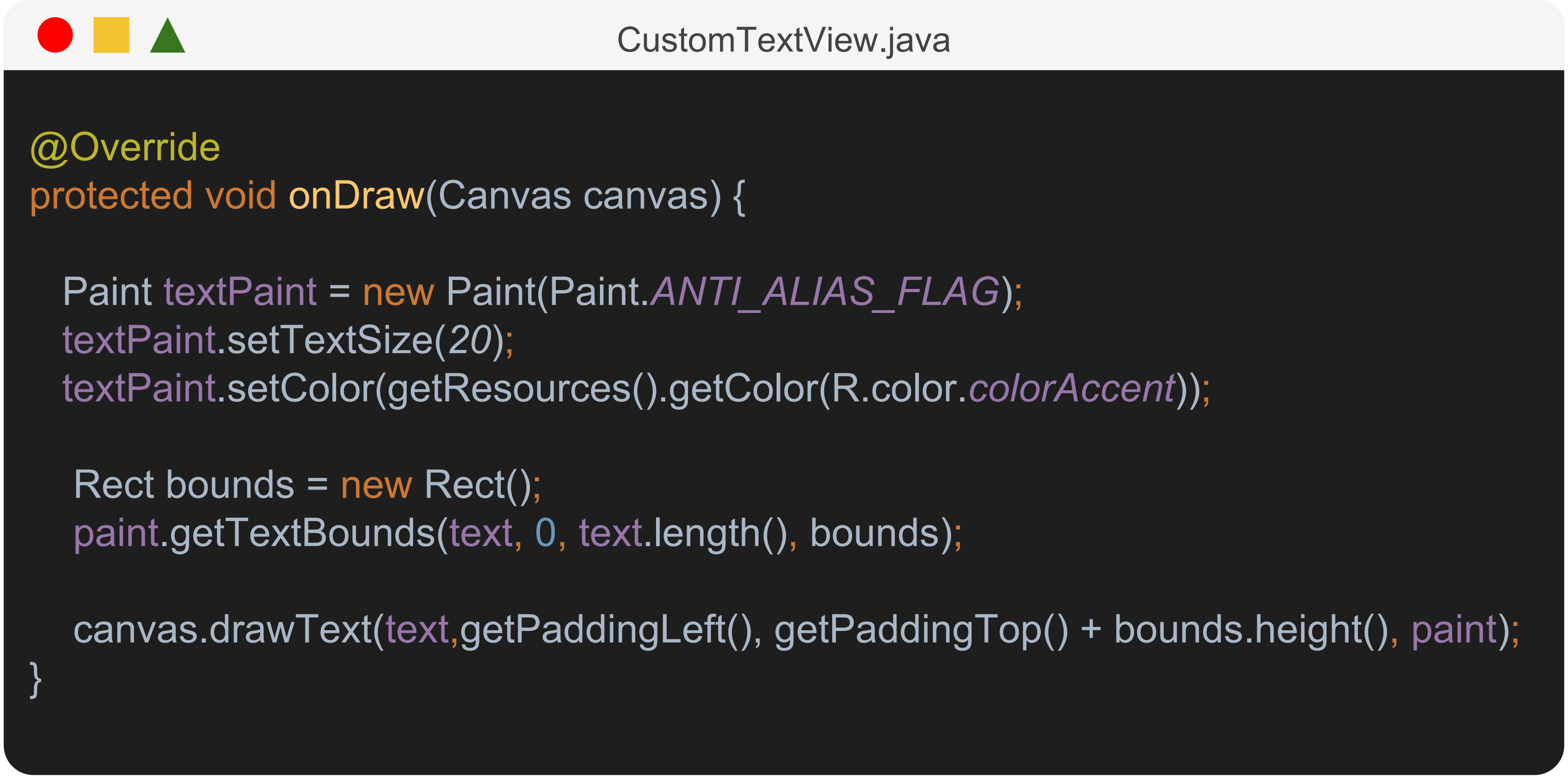
CustomTextView.java

```java
@Override
protected void onDraw(Canvas canvas) {

    Paint textPaint = new Paint(Paint.ANTI_ALIAS_FLAG);
    textPaint.setTextSize(20);
    textPaint.setColor(getResources().getColor(R.color.colorAccent));

    canvas.drawText(text, getPaddingLeft(), getPaddingTop() + 50, textPaint);

}
```

MY AWESOME VIEW
MEASURING

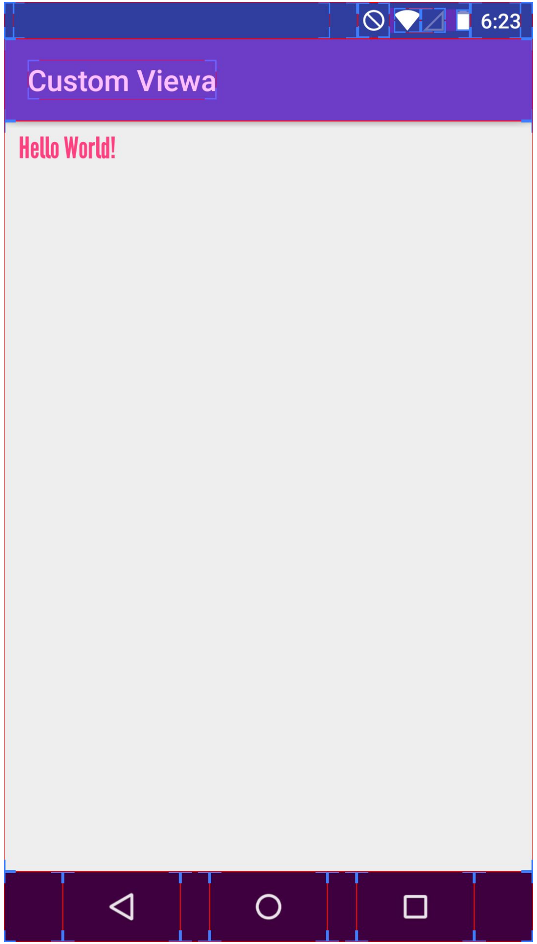
Measuring stuff

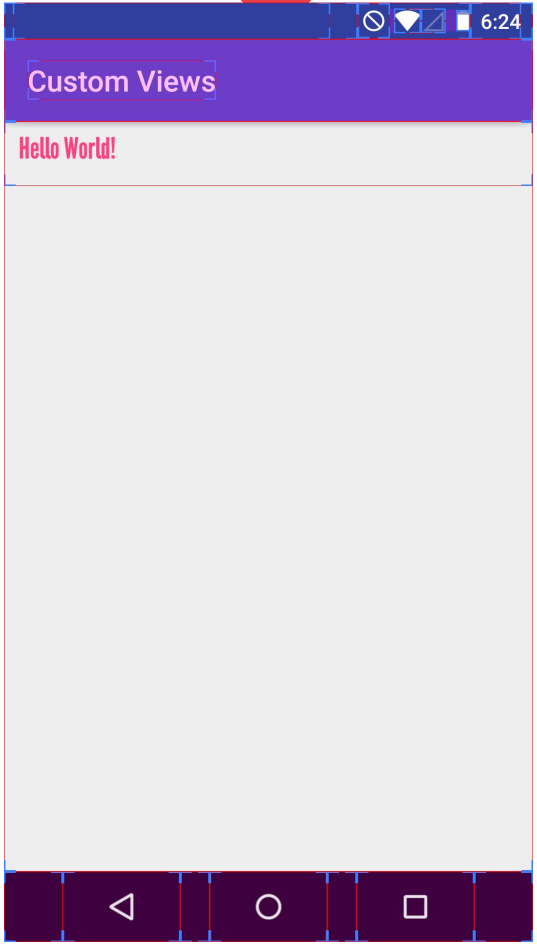
Rect Class

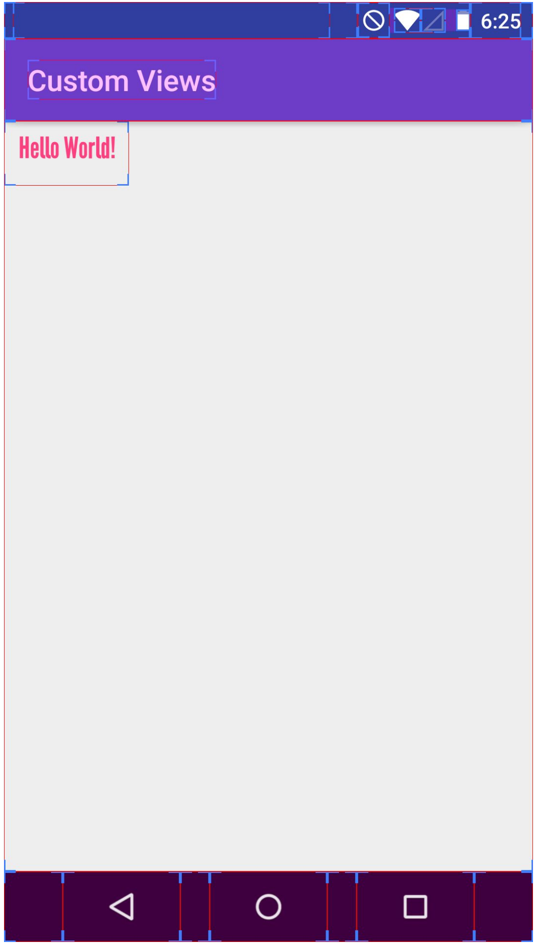


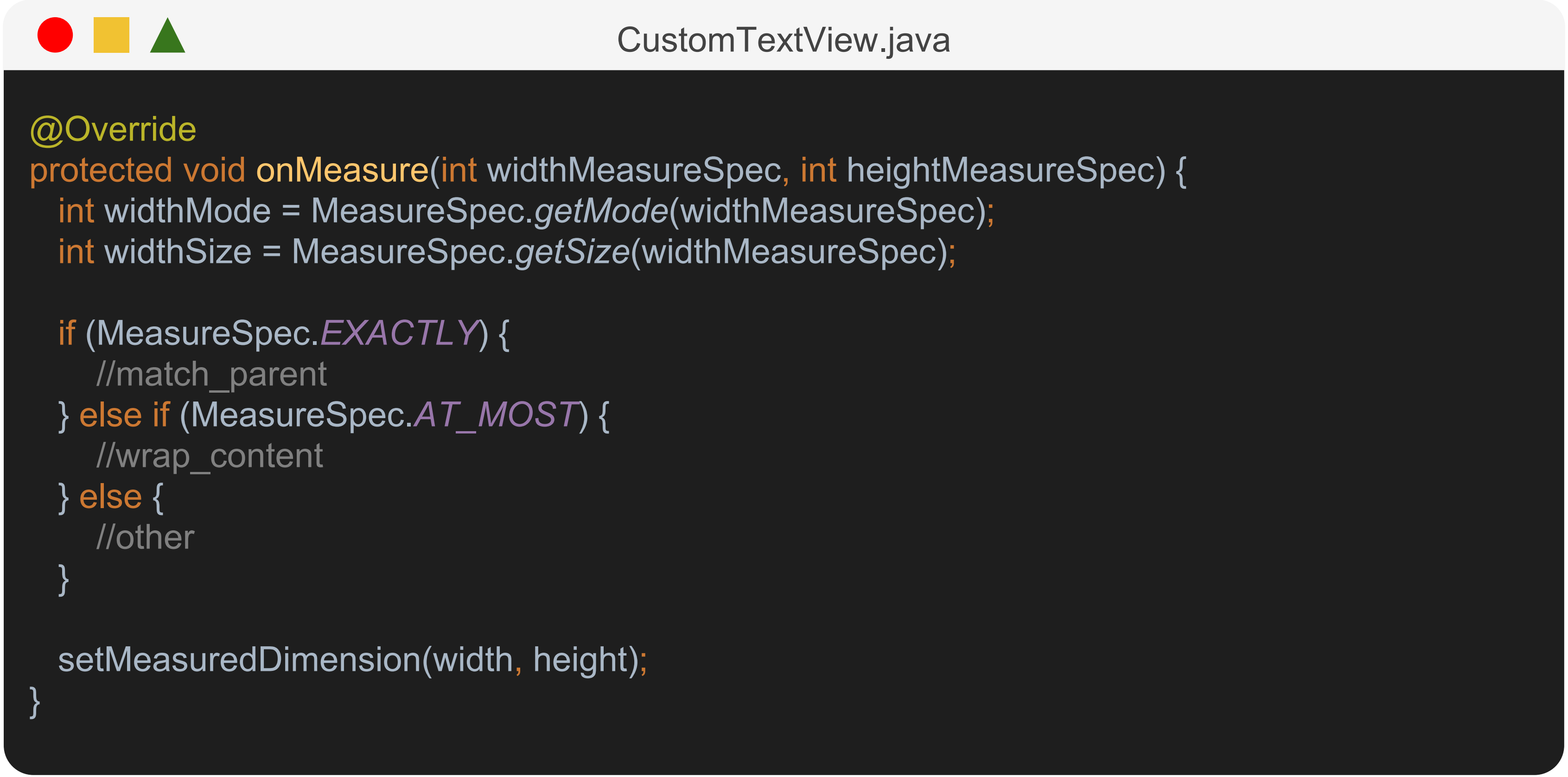
CustomTextView.java

```java
@Override
protected void onDraw(Canvas canvas) {

    Paint textPaint = new Paint(Paint.ANTI_ALIAS_FLAG);
    textPaint.setTextSize(20);
    textPaint.setColor(getResources().getColor(R.color.colorAccent));

     Rect bounds = new Rect();
     paint.getTextBounds(text, 0, text.length(), bounds);

     canvas.drawText(text,getPaddingLeft(), getPaddingTop() + bounds.height(), paint);
}
```


6:23
Custom Viewa
Hello World!


6:24
Custom Views
Hello World!


6:25
Custom Views
Hello World!



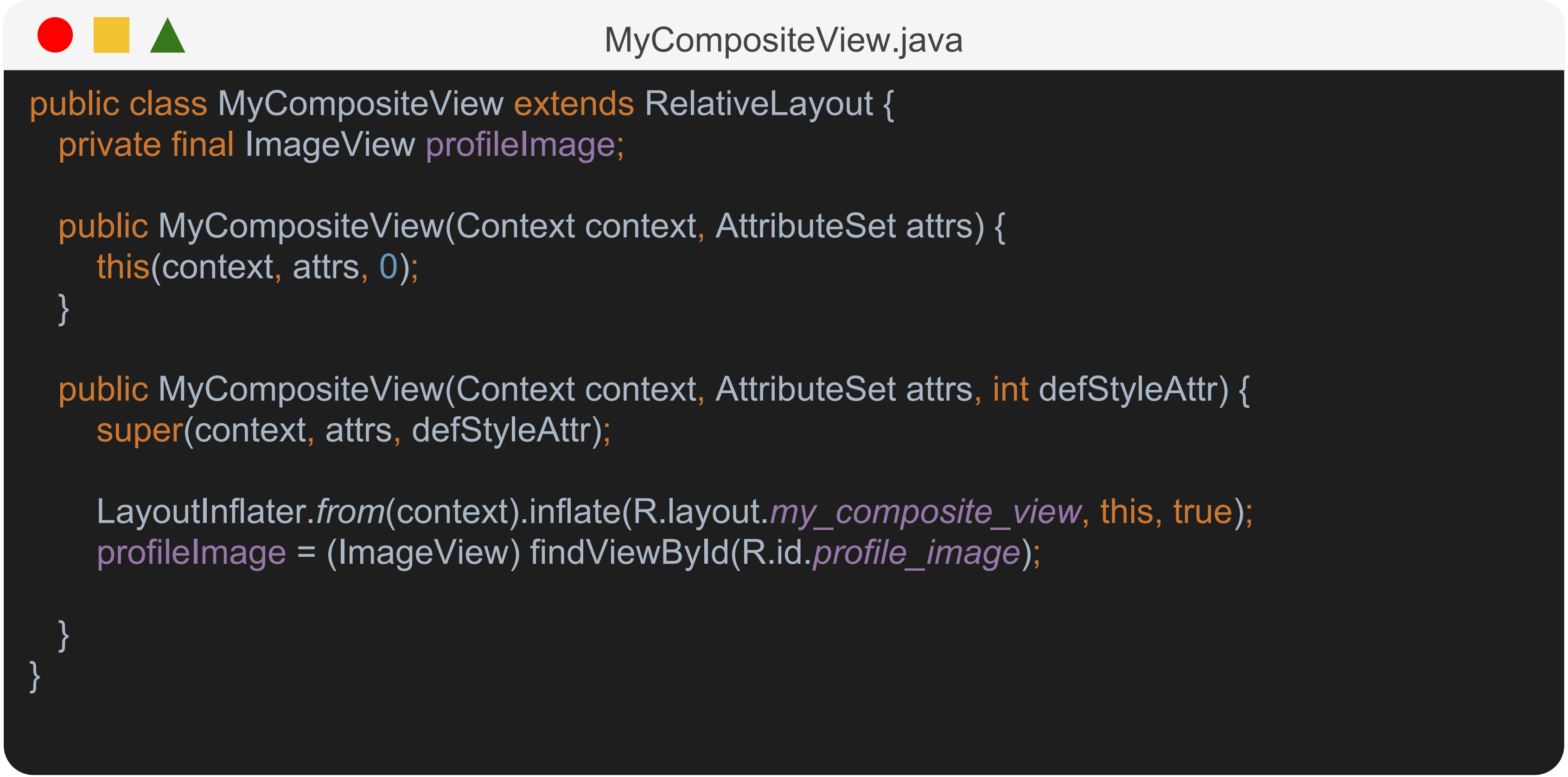
CustomTextView.java

```java
@Override
protected void onMeasure(int widthMeasureSpec, int heightMeasureSpec) {
    int widthMode = MeasureSpec.getMode(widthMeasureSpec);
    int widthSize = MeasureSpec.getSize(widthMeasureSpec);

    if (MeasureSpec.EXACTLY) {
        //match_parent
    } else if (MeasureSpec.AT_MOST) {
        //wrap_content
    } else {
        //other
    }

    setMeasuredDimension(width, height);
}
```

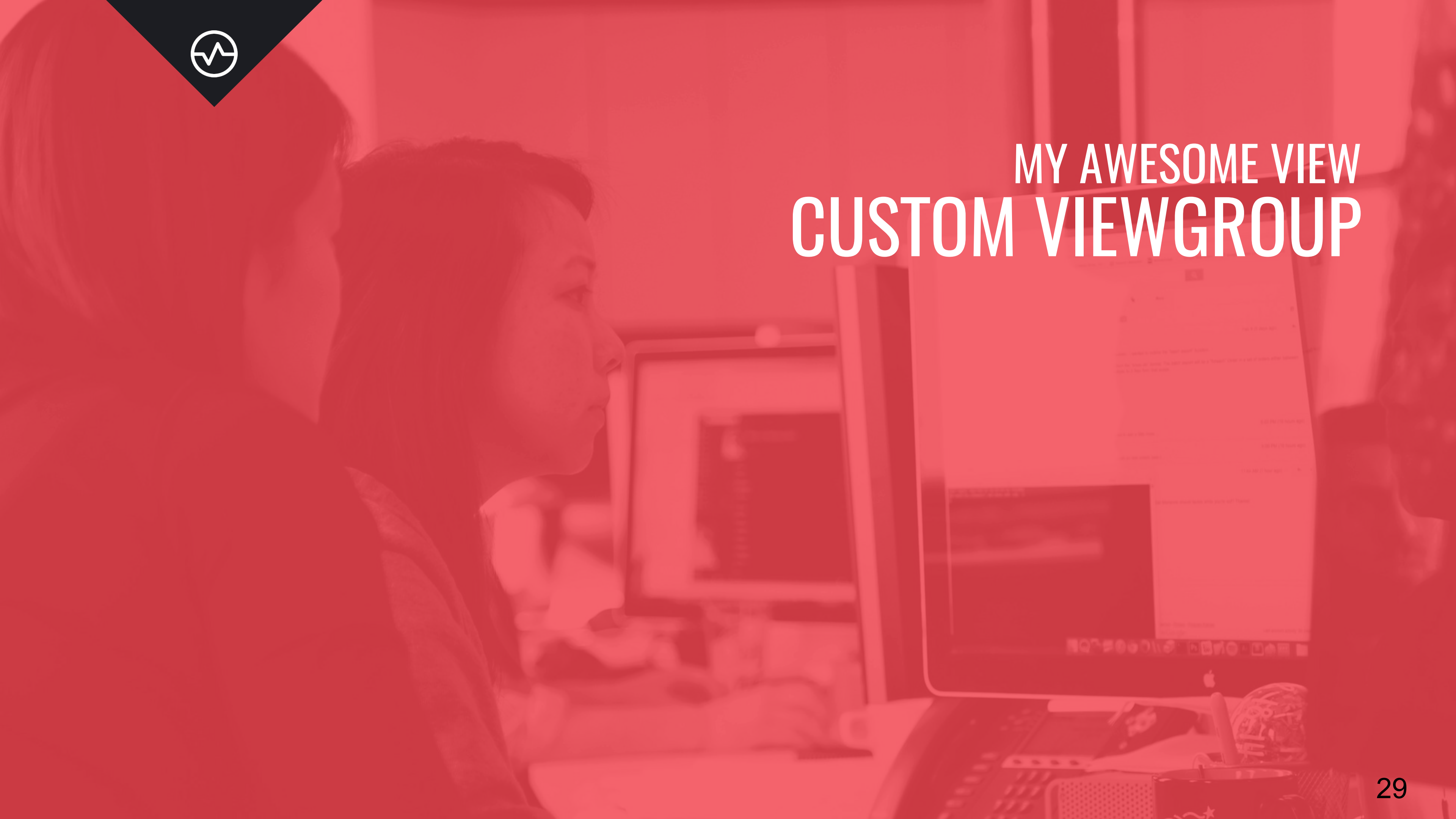
CUSTOM LAYOUTS

MY AWESOME VIEW

COMPOUND VIEWGROUP

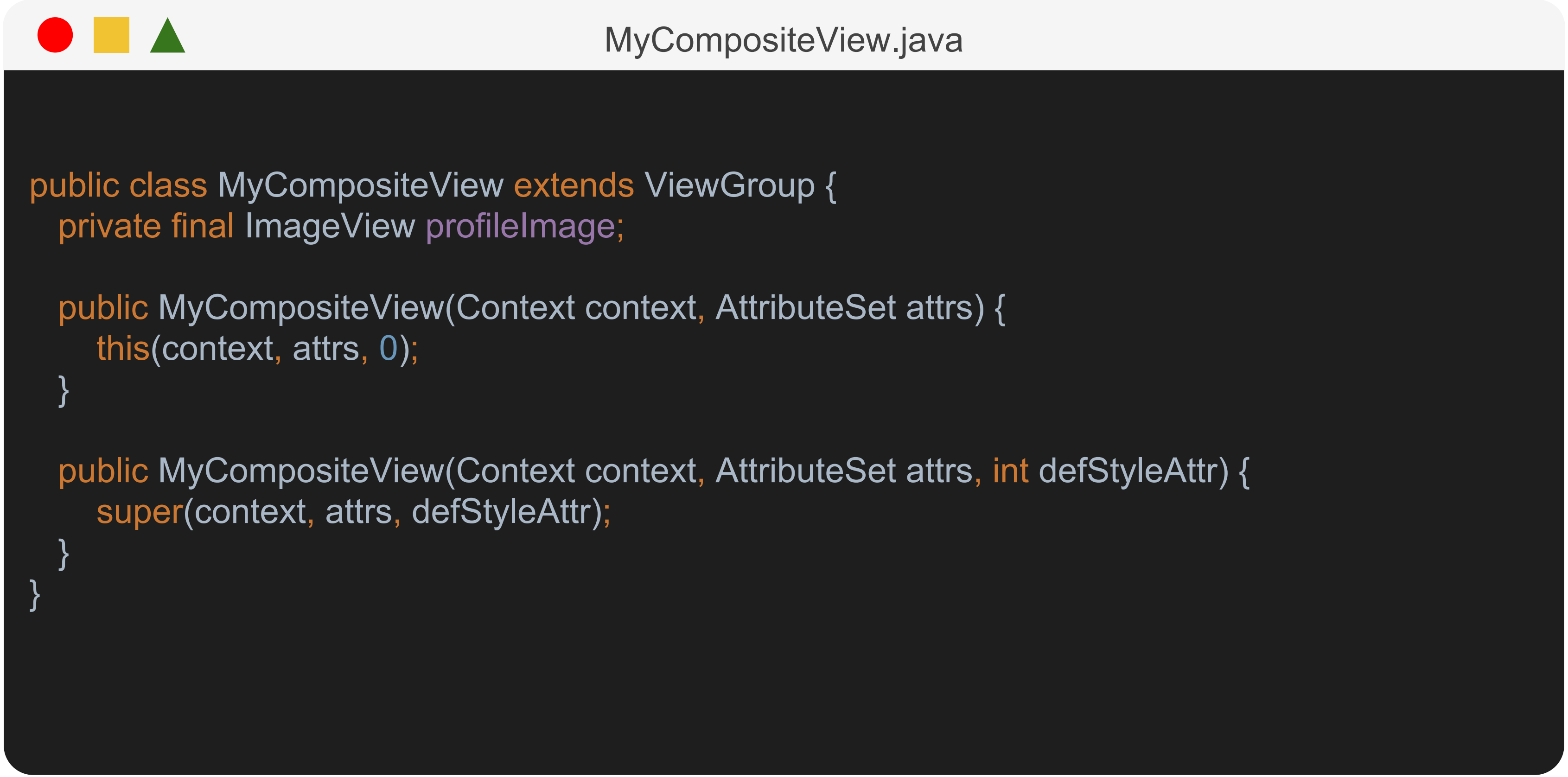


```
public class MyCompositeView extends RelativeLayout {
  private final ImageView profileImage;

  public MyCompositeView(Context context, AttributeSet attrs) {
    this(context, attrs, 0);
  }

  public MyCompositeView(Context context, AttributeSet attrs, int defStyleAttr) {
    super(context, attrs, defStyleAttr);

    LayoutInflater.from(context).inflate(R.layout.my_composite_view, this, true);
    profileImage = (ImageView) findViewById(R.id.profile_image);

  }
}
```



MY AWESOME VIEW

CUSTOM VIEWGROUP



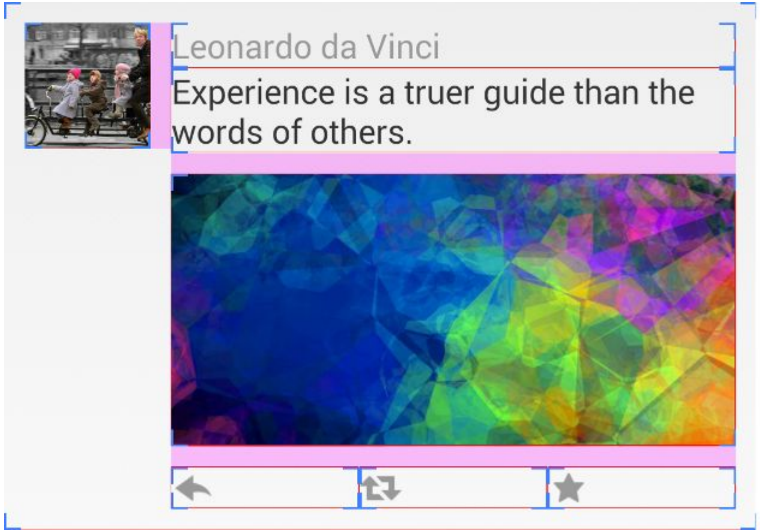
MyCompositeView.java

```java
public class MyCompositeView extends ViewGroup {
  private final ImageView profileImage;

  public MyCompositeView(Context context, AttributeSet attrs) {
     this(context, attrs, 0);
  }

  public MyCompositeView(Context context, AttributeSet attrs, int defStyleAttr) {
     super(context, attrs, defStyleAttr);
  }
}
```

MY AWESOME VIEW

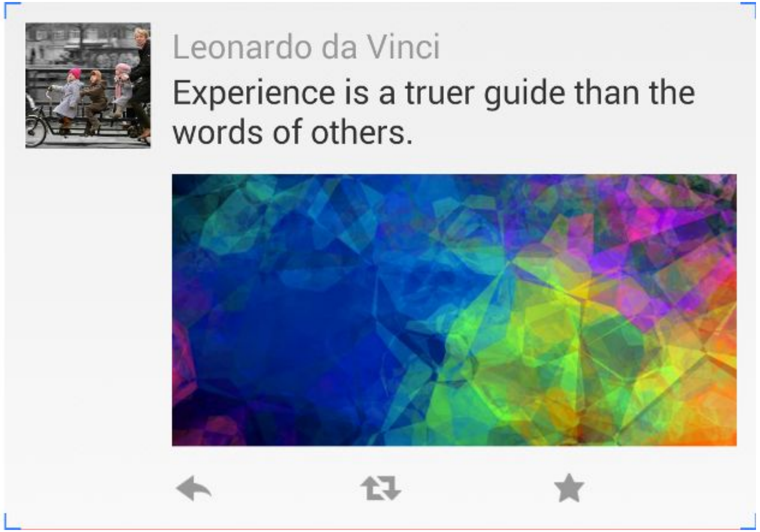
FLAT CUSTOM VIEW

FLAT VIEWS



Leonardo da Vinci

Experience is a truer guide than the words of others.



Leonardo da Vinci

Experience is a truer guide than the words of others.

THANK YOU

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