

# Building Layout

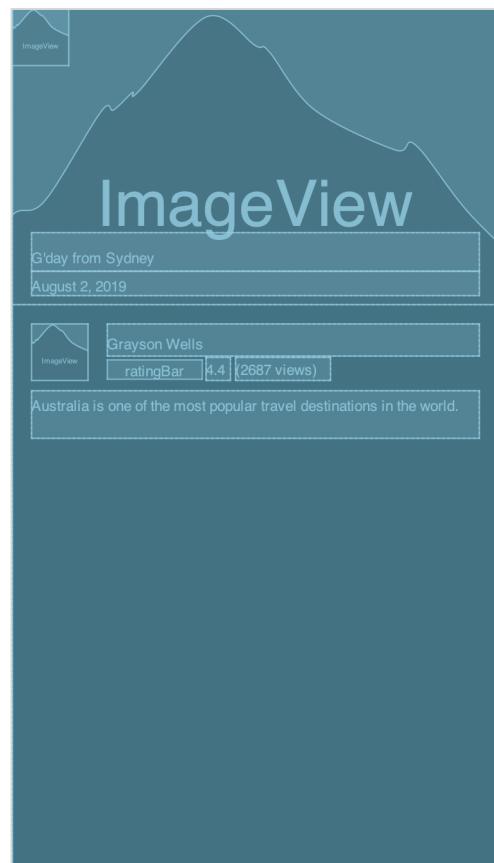
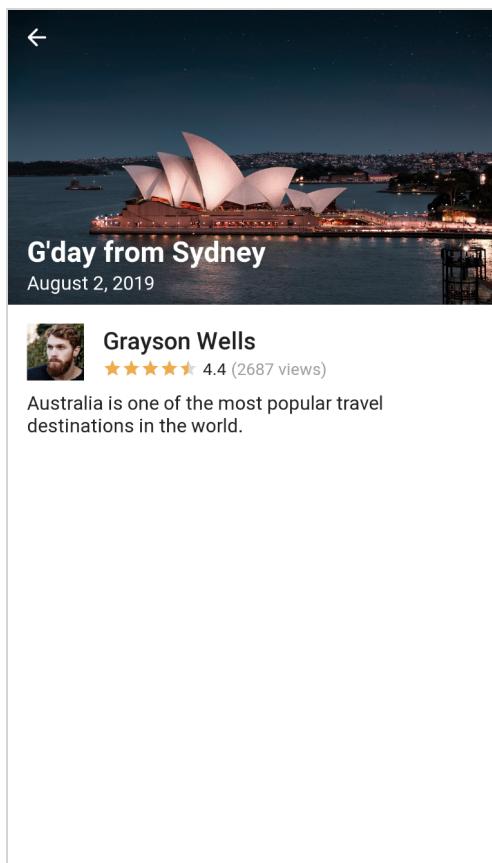
This lesson will cover how to create a layout for blog details screen which consist of image, text and author information.

## WE'LL COVER THE FOLLOWING ^

- Final result preview
- Drawables
- Root layout
- Main image
- Remaining views

## Final result preview #

To make it easier to understand what we want to achieve, here is a preview of the layout which we are going to build.



## Drawables #

For the blog details screen, we need some images. There are several folders in Android where images can be added; we are going to use `app/src/main/res/drawable` folder. Let's add two images:

- `sydney_image.jpg`



- `avatar.jpg`



Now, these images will be packed into the application, and we will be able to use them.

## Root layout #

Let's create a new `activity_blog_details.xml` layout file inside `app/src/main/res/layout` folder. As a root layout, we are going to use `ConstraintLayout`:

```
<androidx.constraintlayout.widget.ConstraintLayout
    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">
</androidx.constraintlayout.widget.ConstraintLayout>
```

activity\_blog\_details.xml

All the other views are going to be placed inside this layout.

## Main image #

At the very top of our layout, we have a picture of Sydney Opera. Let's declare `ImageView` with following attributes:

- `layout_height="250dp"` attribute to take `250dp` in height
- `src="@drawable/sydney_image"` attribute to set image resource, in our case `sydney_image` from `drawable` folder
- `id="@+id/imageMain"` attribute for unique id
- `layout_constraint*` attribute to constraint view to the left, top and right of the parent
- `layout_width="0dp"` attribute specifies that view width should be 0, but because we constraint it to the left and right of the parent, that combination is equivalent to `layout_width="match_parent"`

```
<ImageView
    android:id="@+id/imageMain"
    android:layout_width="0dp"
    android:layout_height="250dp"
    android:src="@drawable/sydney_image"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

activity\_blog\_details.xml

Here is a preview of the layout

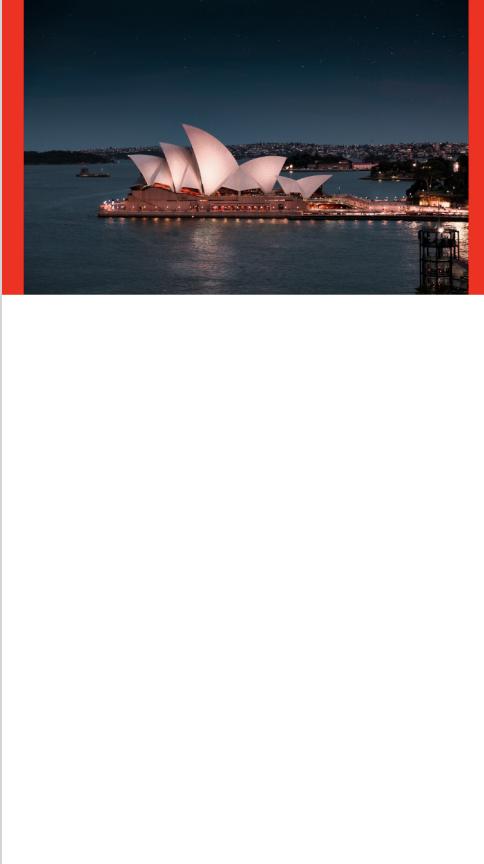
Here is a preview of the layout.



The problem is that our image is not scaled appropriately. In order to make it easier to see the issue, let's add `background` attribute with red color.

```
<ImageView  
    android:id="@+id/imageMain"  
    android:layout_width="0dp"  
    android:layout_height="250dp"  
    android:src="@drawable/sydney_image"  
    android:background="#ff0000"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent" />
```

activity\_blog\_details.xml

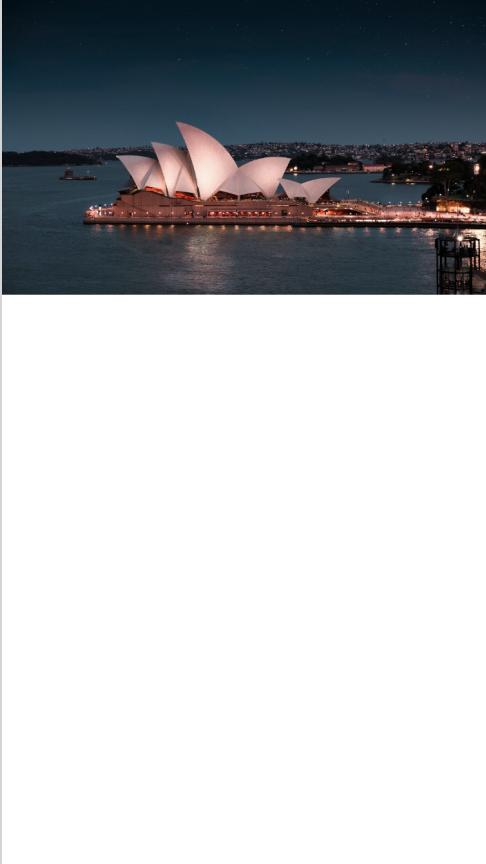


As we can see, the image doesn't take the full width of the layout; this is because by default `ImageView` makes the image appear in the center. To change this behavior, we can use `scaleType` attribute with `centerCrop` value to center the image, scale-up and crop the remaining area.

```
<ImageView
    android:id="@+id/imageMain"
    android:layout_width="0dp"
    android:layout_height="250dp"
    android:scaleType="centerCrop"
    android:src="@drawable/sydney_image"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

activity\_blog\_details.xml

Here is a preview of the layout.



## Remaining views #

Now let's add the remaining views.

First we will add a `TextView` to display a date. Some new attributes are:

- `style="@style/TextAppearance.MaterialComponents.Body1"` attribute is used to apply a custom text style from material design
- `textColor="@android:color/white"` attribute is used to set a text color, note that color value comes from `android` namespace
- `shadowDx`, `shadowDy`, `shadowRadius` attributes are used to set a text shadow position and radius

The other attributes constrain the view to the bottom left corner of the image, along with some margins.

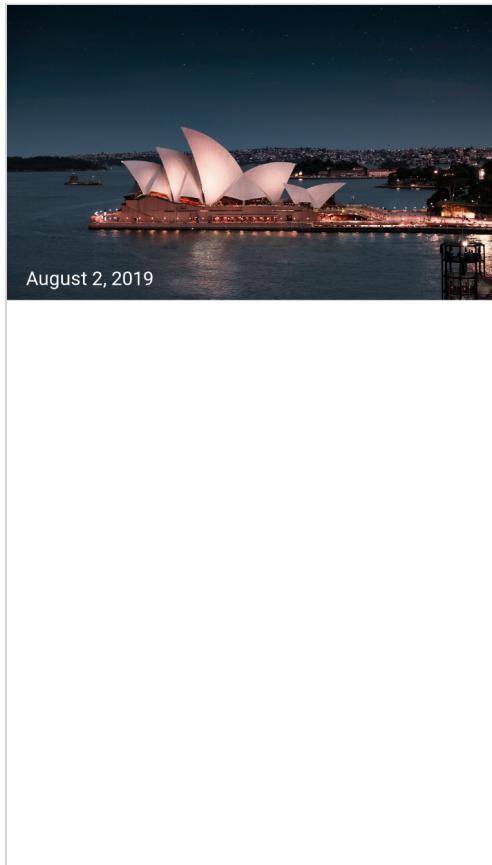
```
<TextView  
    android:id="@+id/textDate"  
    style="@style/TextAppearance.MaterialComponents.Body1"  
    android:layout_width="0dp"  
    android:layout_height="wrap_content"  
    android:layout_marginStart="16dp"  
    android:layout_marginEnd="16dp"  
    android:layout_marginBottom="8dp"/>  
    android:gravity="center"/>
```

```
        android:shadowDx="1"
        android:shadowDy="1"
        android:shadowRadius="2"

        android:text="August 2, 2019"
        android:textColor="@android:color/white"
        app:layout_constraintBottom_toBottomOf="@+id/imageMain"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent" />
```

activity\_blog\_details.xml

Here is a preview of the layout.



Next, let's add a `TextView` to display a title above the date. Most of the attributes should be already familiar, except the `textStyle` which is used to make the text **bold** or *italic*.

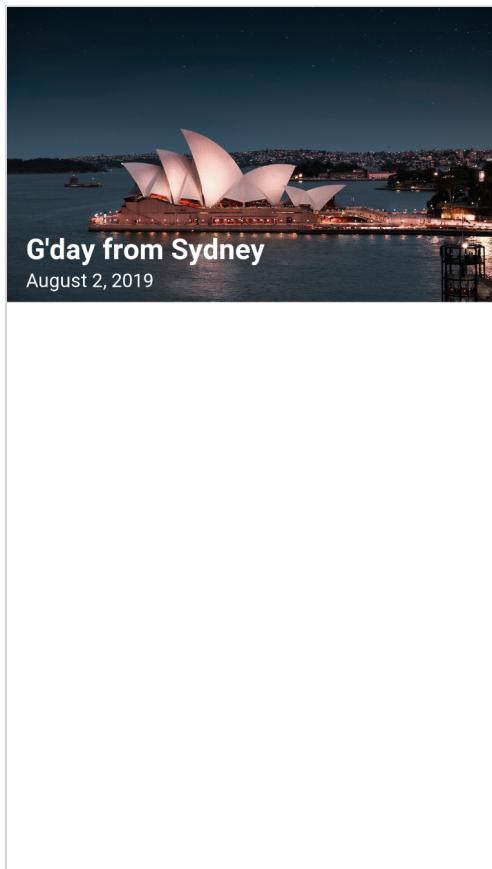
```
<TextView
    android:id="@+id/textTitle"
    style="@style/TextAppearance.MaterialComponents.Headline5"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginLeft="16dp"
    android:layout_marginRight="16dp"
    android:shadowColor="@android:color/black"
    android:shadowDx="1"
    android:shadowDy="1"
    android:shadowRadius="2"
    android:text="G'day from Sydney"
    android:textColor="@android:color/white"
    android:typeface="normal" />
```

```
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/textDate"

    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent" />
```

activity\_blog\_details.xml

Here is a preview of the layout.



Now let's add the remaining author and description sections. The author section consists of an image view with a bunch of text views next to it. The interesting part is rendering the rating bar with stars.

To show the stars, we are going to use `RatingBar` view with the following attributes:

- `style="?android:attr/ratingBarStyleSmall"` attribute is used to set a view style, in our case we want small stars
- `isIndicator="true"` attribute is used to indicate that this `RatingBar` is not interactable
- `numStars="5"` attribute is used to set the max number of stars, in our case 5 (float)
- `rating="4.4"` attribute is used to set the current number of stars, in our case 4.4 (float)

## case 4.4 (float)

- `stepSize="0.1"` attribute is used to set a minimal incremental value, in our case 0.1 (float)

```
<ImageView
```

```
    android:id="@+id/imageAvatar"
    android:layout_width="48dp"
    android:layout_height="48dp"
    android:layout_marginStart="16dp"
    android:layout_marginTop="16dp"
    android:scaleType="centerCrop"
    android:src="@drawable/avatar"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/imageMain" />
```

```
<TextView
```

```
    android:id="@+id/textAuthor"
    style="@style/TextAppearance.MaterialComponents.Headline6"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginEnd="16dp"
    android:text="Grayson Wells"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toEndOf="@+id/imageAvatar"
    app:layout_constraintTop_toTopOf="@+id/imageAvatar" />
```

```
<RatingBar
```

```
    android:id="@+id/ratingBar"
    style="?android:attr/ratingBarStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:isIndicator="true"
    android:numStars="5"
    android:rating="4.4"
    android:stepSize="0.1"
    app:layout_constraintBottom_toBottomOf="@+id/imageAvatar"
    app:layout_constraintStart_toEndOf="@+id/imageAvatar"
    app:layout_constraintTop_toBottomOf="@+id/textAuthor" />
```

```
<TextView
```

```
    android:id="@+id/textRating"
    style="@style/TextAppearance.MaterialComponents.Body2"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="4dp"
    android:text="4.4"
    app:layout_constraintBottom_toBottomOf="@+id/ratingBar"
    app:layout_constraintStart_toEndOf="@+id/ratingBar"
    app:layout_constraintTop_toTopOf="@+id/ratingBar" />
```

```
<TextView
```

```
    android:id="@+id/textViews"
    style="@style/TextAppearance.MaterialComponents.Body2"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="4dp"
    android:text="4.4"
    app:layout_constraintBottom_toBottomOf="@+id/ratingBar"
    app:layout_constraintStart_toEndOf="@+id/ratingBar"
    app:layout_constraintTop_toTopOf="@+id/ratingBar" />
```

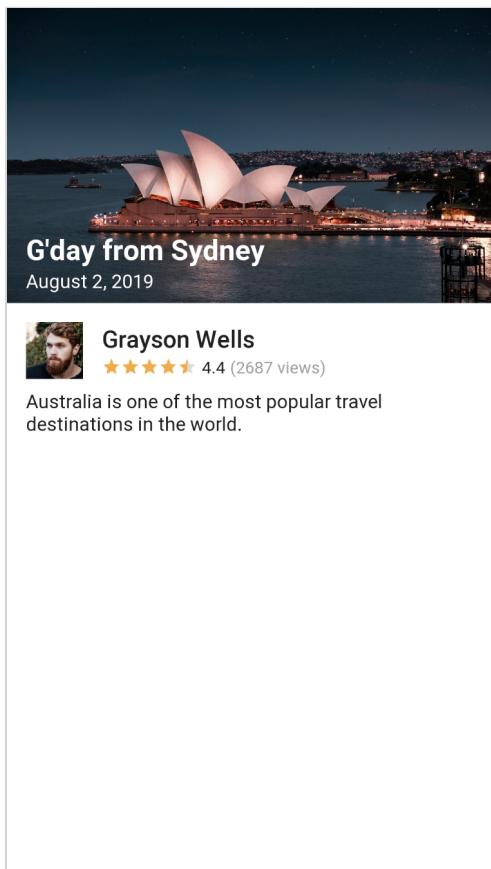
```
        android:layout_marginStart="4dp"
        android:text="(2687 views)"
        android:textColor="@color/grey500"

        app:layout_constraintBottom_toBottomOf="@+id/ratingBar"
        app:layout_constraintStart_toEndOf="@+id/textRating"
        app:layout_constraintTop_toTopOf="@+id/ratingBar" />

<TextView
    android:id="@+id/textDescription"
    style="@style/TextAppearance.MaterialComponents.Body1"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="8dp"
    android:layout_marginRight="16dp"
    android:text="Australia is one of the most popular travel destinations in the world."
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/imageAvatar" />
```

activity\_blog\_details.xml

Here is a preview of the layout.



The last step would be to add an `ImageView` with the back icon. Instead of using a raster image, we are going to use a vector. Android doesn't support rendering of existing vector formats, instead, it has its own [Android Vector](#) format.

The good news is that Android Studio can convert from [SVG](#) format to [Android](#)

## Vector format.

When we download an SVG icon from [material design](#) site and [import it into Android Studio](#), it's going to create `ic_arrow_white_24px.xml` file in the following format:

```
<vector xmlns:android="http://schemas.android.com/apk/res/android"  
        android:width="24dp"  
        android:height="24dp"  
        android:viewportWidth="24"  
        android:viewportHeight="24">  
    <path  
        android:fillColor="#FFFFFF"  
        android:pathData="M19,11H7.83l4.88,-4.88c0.39,-0.39 0.39,-1.03 0,-1.42 -0.39,-0.39 -1.03,0.39 -1.42,0.39c-0.39,0.39 -0.39,1.03 0,1.42 0.39,0.39 0.39,4.88c0.39,4.88 0.39,11 0,11z M19,11H7.83l4.88,-4.88c0.39,-0.39 0.39,-1.03 0,-1.42 -0.39,-0.39 -1.03,0.39 -1.42,0.39c-0.39,0.39 -0.39,1.03 0,1.42 0.39,0.39 0.39,4.88c0.39,4.88 0.39,11 0,11z"/>
```

ic\_arrow\_white\_24px.xml

The file basically contains a set of attributes with parameters and path data that Android uses to render this vector.

Now, let's declare `ImageView` and specify the source to the vector drawable `ic_arrow_white_24px`. Take into account that instead of using `android:src` attribute, we use `app:srcCompat` which is a backward-compatible version of `android:src` attribute to support vector images.

```
<ImageView  
        android:id="@+id/imageBack"  
        android:layout_width="48dp"  
        android:layout_height="48dp"  
        android:scaleType="centerInside"  
        app:layout_constraintStart_toStartOf="parent"  
        app:layout_constraintTop_toTopOf="parent"  
        app:srcCompat="@drawable/ic_arrow_white_24px" />
```

activity\_blog\_details.xml

The whole source code of the `activity_blog_details.xml` layout is pretty big, but we are going to tackle this problem in later chapters.

```
<?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"  
        android:layout_width="match_parent"  
        android:layout_height="match_parent">
```

```
<ImageView
    android:id="@+id/imageMain"
    android:layout_width="0dp"

    android:layout_height="250dp"
    android:scaleType="centerCrop"
    android:src="@drawable/sydney_image"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<TextView
    android:id="@+id/textTitle"
    style="@style/TextAppearance.MaterialComponents.Headline5"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginLeft="16dp"
    android:layout_marginRight="16dp"
    android:shadowColor="@android:color/black"
    android:shadowDx="1"
    android:shadowDy="1"
    android:shadowRadius="2"
    android:text="G'day from Sydney"
    android:textColor="@android:color/white"
    android:textStyle="bold"
    app:layout_constraintBottom_toTopOf="@+id/textDate"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent" />

<TextView
    android:id="@+id/textDate"
    style="@style/TextAppearance.MaterialComponents.Body1"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginEnd="16dp"
    android:layout_marginBottom="8dp"
    android:shadowDx="1"
    android:shadowDy="1"
    android:shadowRadius="2"
    android:text="August 2, 2019"
    android:textColor="@android:color/white"
    app:layout_constraintBottom_toBottomOf="@+id/imageMain"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent" />

<RatingBar
    android:id="@+id/ratingBar"
    style="?android:attr/ratingBarStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:isIndicator="true"
    android:numStars="5"
    android:rating="4.4"
    android:stepSize="0.1"
    app:layout_constraintBottom_toBottomOf="@+id/imageAvatar"
    app:layout_constraintStart_toEndOf="@+id/imageAvatar"
    app:layout_constraintTop_toBottomOf="@+id/textAuthor" />

<TextView
    android:id="@+id/textRating"
    style="@style/TextAppearance.MaterialComponents.Body2"
```

```
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="4dp"
        android:text="4.4"
        app:layout_constraintBottom_toBottomOf="@+id/ratingBar"
        app:layout_constraintStart_toEndOf="@+id/ratingBar"
        app:layout_constraintTop_toTopOf="@+id/ratingBar" />

<TextView
    android:id="@+id/textViews"
    style="@style/TextAppearance.MaterialComponents.Body2"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="4dp"
    android:text="(2687 views)"
    android:textColor="@color/grey500"
    app:layout_constraintBottom_toBottomOf="@+id/ratingBar"
    app:layout_constraintStart_toEndOf="@+id/textRating"
    app:layout_constraintTop_toTopOf="@+id/ratingBar" />

<ImageView
    android:id="@+id/imageBack"
    android:layout_width="48dp"
    android:layout_height="48dp"
    android:scaleType="centerInside"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:srcCompat="@drawable/ic_arrow_white_24px" />

<ImageView
    android:id="@+id/imageAvatar"
    android:layout_width="48dp"
    android:layout_height="48dp"
    android:layout_marginStart="16dp"
    android:layout_marginTop="16dp"
    android:scaleType="centerCrop"
    android:src="@drawable/avatar"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/imageMain" />

<TextView
    android:id="@+id/textDescription"
    style="@style/TextAppearance.MaterialComponents.Body1"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="8dp"
    android:layout_marginRight="16dp"
    android:text="Australia is one of the most popular travel destinations in the world."
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/imageAvatar" />

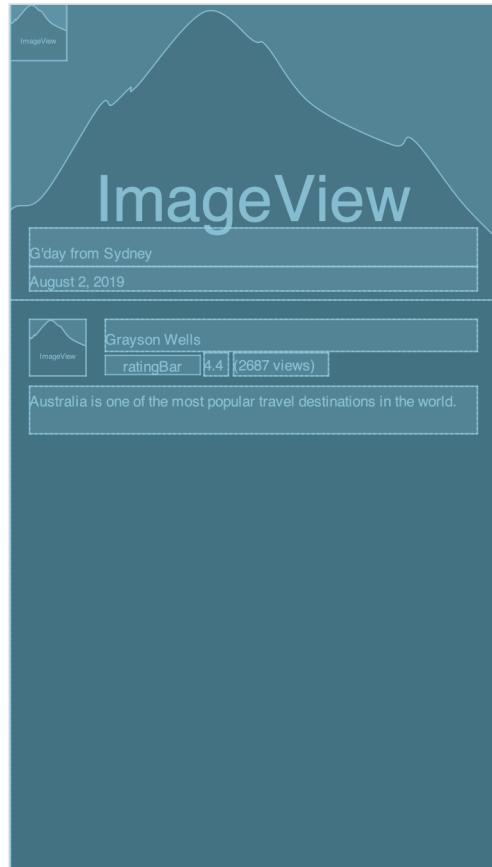
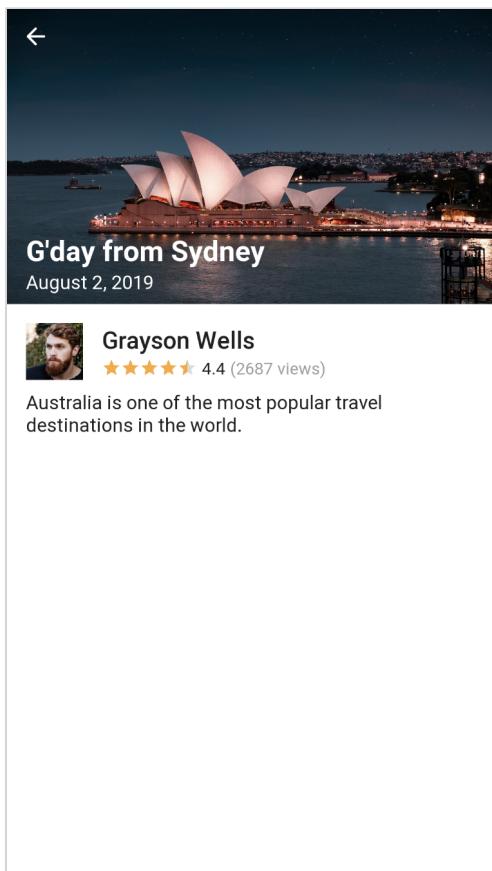
<TextView
    android:id="@+id/textAuthor"
    style="@style/TextAppearance.MaterialComponents.Headline6"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginEnd="16dp"
    android:text="Grayson Wells"
    app:layout_constraintEnd_toEndOf="parent" />
```

```
        app:layout_constraintStart_toEndOf="@+id/imageAvatar"
        app:layout_constraintTop_toTopOf="@+id/imageAvatar" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

### activity\_blog\_details.xml

Here is a preview of the layout.



In the next lesson, we will cover how to set all the data from code and write the logic for the image with the back icon.