Practical 3: Text and scrolling views

The TextView class is a subclass of the View class that displays text on the screen. You can control how the text appears with TextView attributes in the XML layout file. This practical shows how to work with multiple TextView elements, including one in which the user can scroll its contents vertically.

If you have more information than fits on the device's display, you can create a *scrolling view* so that the user can scroll vertically by swiping up or down, or horizontally by swiping right or left.

You would typically use a scrolling view for news stories, articles, or any lengthy text that doesn't completely fit on the display. You can also use a scrolling view to enable users to enter multiple lines of text, or to combine UI elements (such as a text field and a button) within a scrolling view.

The ScrollView class provides the layout for the scrolling view. ScrollView is a subclass of FrameLayout. Place only *one* view as a child within it—a child view contains the entire contents to scroll. This child view may itself be a ViewGroup (such as LinearLayout) containing UI elements.

Complex layouts may suffer performance issues with child views such as images. A good choice for a View within a ScrollView is a **LinearLayout** that is arranged in a vertical orientation, presenting items that the user can scroll through (such as TextView elements).

With a ScrollView, all of the UI elements are in memory and in the view hierarchy even if they aren't displayed on screen. This makes ScrollView ideal for scrolling pages of free-form text smoothly, because the text is already in memory. However, ScrollView can use up a lot of memory, which can affect the performance of the rest of your app. To display long lists of items that users can add to, delete from, or edit, consider using a RecyclerView, which is described in a separate lesson.

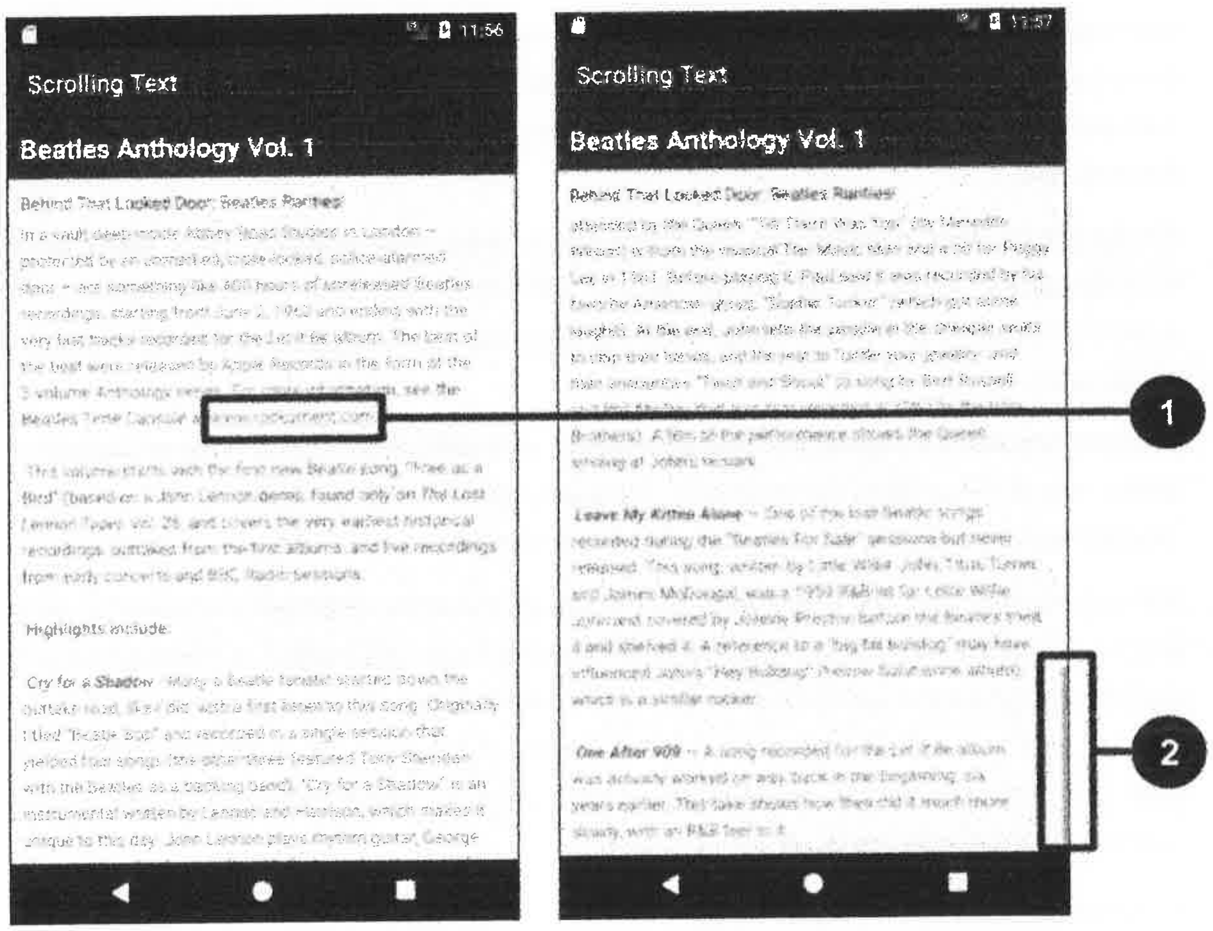
- Create the ScrollingText app.
- Change the ConstraintLayout ViewGroup to RelativeLayout.
- Add two TextView elements for the article heading and subheading.
- Use TextAppearance styles and colors for the article heading and subheading.
- Use HTML tags in the text string to control formatting.
- Use the lineSpacingExtra attribute to add line spacing for readability.
- Add a ScrollView to the layout to enable scrolling a TextView element.
- Add the autoLink attribute to enable URLs in the text to be active and clickable.

App overview

The **Scrolling Text app** demonstrates the ScrollView UI component. ScrollView is a ViewGroup that in this example contains a TextView.

It shows a lengthy page of text—in this case, a **music album review**—that the **user can scroll vertically** to read by **swiping up and down**.

A scroll bar appears in the right margin. The app shows how you can **use text formatted with minimal HTML tags for setting text to bold or italic**, and with **new-line characters to separate paragraphs**. You can also **include active web links in the text**.



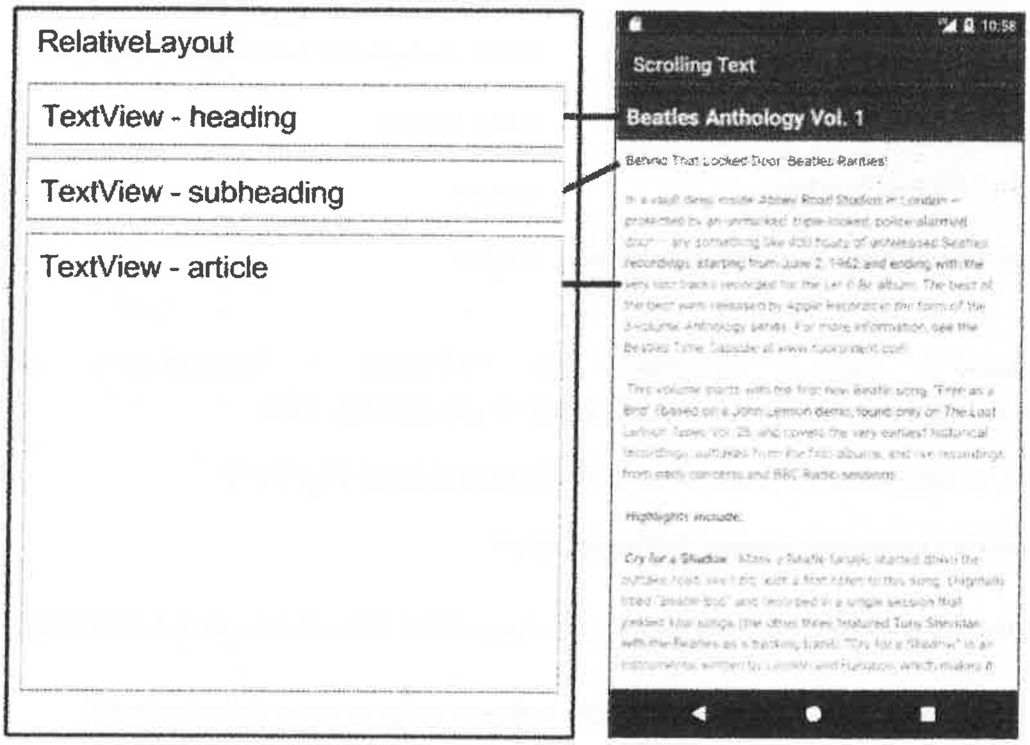
In the above figure, the following appear:

1. An active web link embedded in free-form text
2. The scroll bar that appears when scrolling the text

Task 1: Add and edit TextView elements

In this practical, you design and implement a project for the HelloToast app. A link to the solution code is provided at the end.

In this practical, you will create an Android project for the ScrollingText app, add TextView elements to the layout for an article title and subtitle, and change the existing "Hello World" TextView element to show a lengthy article. The figure below is a diagram of the layout.



You will make all these changes in the XML code and in the strings.xml file. You will edit the XML code for the layout in the Text pane, which you show by clicking the **Text** tab, rather than clicking the **Design** tab for the Design pane. Some changes to UI elements and attributes are easier to make directly in the Text pane using XML source code.

1.1 Create the project and TextView elements

In this task you will create the project and the TextView elements, and use TextView attributes for styling the text and background.

Tip: To learn more about these attributes, see the TextView reference.

1. In Android Studio create a new project with the following parameters:

Attribute	Value
Application Name	Scrolling Text
Company Name	android.example.com (or your own domain)
Phone and Tablet Minimum SDK	API15: Android 4.0.3 IceCreamSandwich
Template	Empty Activity
Generate Layout File checkbox	Selected
Backwards Compatibility (AppCompat) checkbox	Selected

2. In the **app** > **res** > **layout** folder in the **Project** > **Android** pane, open the **activity_main.xml** file, and click the **Text** tab to see the XML code.

   At the top, or *root*, of the View hierarchy is the ConstraintLayout ViewGroup:

   android.support.constraint.ConstraintLayout

3. **Change** this ViewGroup **to** **RelativeLayout**. The second line of code now looks something like this:

   <RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"

   RelativeLayout lets you **place UI elements relative to each other**, or relative to the parent RelativeLayout itself.

   The default "Hello World" TextView element created by the Empty Layout template still has constraint attributes (such as app:layout_constraintBottom_toBottomOf="parent"). Don't worry—you will remove them in a subsequent step.

4. **Delete** the following line of XML code, which is **related to ConstraintLayout:**

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

The block of XML code at the top now looks like this:

```
<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="com.example.android.scrollingtext.MainActivity">
```

5. **Add a TextView element** above the "Hello World" TextView by entering **<TextView**. A TextView block appears that ends with /> and shows the layout_width and layout_height attributes, which are required for the TextView.

6. **Enter the following attributes for the TextView.** As you enter each attribute and value, suggestions appear to complete the attribute name or value.

TextView **#1 attribute**	**Value**
android:layout_width	"match_parent"
android:layout_height	"wrap_content"
android:id	"@+id/article_heading"
android:background	"@color/colorPrimary"
android:textColor	"@android:color/white"
android:padding	"10dp"
android:textAppearance	"@android:style/TextAppearance.DeviceDefault.Large"
android:textStyle	"bold"
android:text	**"Article Title"**

7. **Extract the string resource** for the android:text attribute's hardcoded string "Article Title" in the TextView to create an entry for it in **strings.xml**.

   Place the cursor on the hardcoded string, press **Alt-Enter** (Option-Enter on the Mac), and select **Extract string resource**. Make sure that the **Create the resource in**

directories option is selected, and then **edit the resource name** for the string value to **article_title**.

String resources are described in detail in the String Resources.

8. **Extract the dimension resource** for the android:padding attribute's hardcoded string **"10dp"** in the TextView to create dimens.xml and add an entry to it.

   Place the cursor on the hardcoded string, press **Alt-Enter** (Option-Enter on the Mac), and select **Extract dimension resource**. Make sure that the **Create the resource in directories** option is selected, and then edit the Resource name to **padding_regular**.

9. **Add another TextView element** above the "Hello World" TextView and below the TextView you created in the previous steps. Add the following attributes to the TextView:

TextView **#2 Attribute**	**Value**
layout_width	"match_parent"
layout_height	"wrap_content"
android:id	"@+id/article_subheading"
android:layout_below	"@id/article_heading"
android:padding	"@dimen/padding_regular"
android:textAppearance	"@android:style/TextAppearance.DeviceDefault"
android:text	**"Article Subtitle"**

   Because you extracted the dimension resource for the "10dp" string to padding_regular in the previously created TextView, you can use "@dimen/padding_regular" for the android:padding attribute in this TextView.

10. **Extract the string resource** for the android:text attribute's hardcoded string "Article Subtitle" in the TextView to **article_subtitle**.

11. In the "Hello World" TextView element, **delete** the layout_constraint attributes:

```
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent"
```

12. **Add** the following TextView attributes **to the "Hello World" TextView element**, and change the android:text attribute:

TextView **Attribute**	**Value**
android:id	"@+id/article"
android:layout_below	"@id/article_subheading"
android:lineSpacingExtra	"5sp"
android:padding	"@dimen/padding_regular"
android:text	"Article text"

13. **Extract the string resource** for "Article text" to **article_text**, and extract the dimension resource for "5sp" to **line_spacing**.
14. **Reformat and align the code** by choosing **Code > Reformat Code**. It is a good practice to reformat and align your code so that it is **easier for you and others to understand**.

1.2 Add the text of the article

In a real app that accesses magazine or newspaper articles, the articles that appear would probably come from an online source through a content provider, or might be saved in advance in a database on the device.

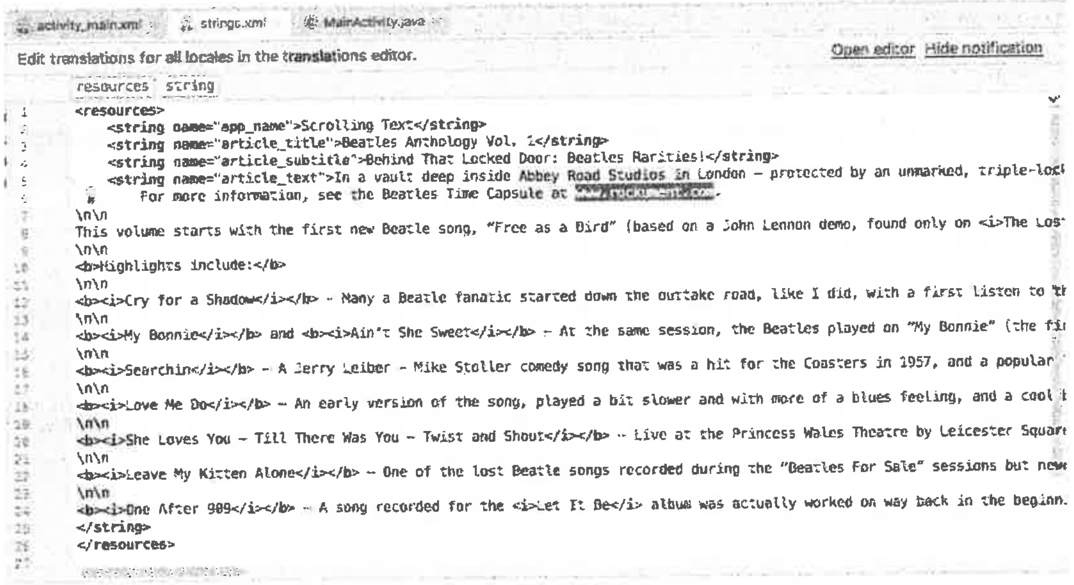
For this practical, you will **create the article as a single long string in the strings.xml resource**.

1. In the **app > res > values** folder, open **strings.xml**.
2. **Open any text file** with a **large amount of text**, or open the strings.xml file of the finished ScrollingText app.
3. **Enter the values** for the strings **article_title** and **article_subtitle** with either a made-up title and subtitle, or use the values in the strings.xml file of the finished ScrollingText app. Make the **string values single-line text without HTML tags or multiple lines**.
4. Enter or **copy and paste text** for the **article_text string**.

   You can use the text in your text file, or use the text provided for the article_text string in the strings.xml file of the finished ScrollingText app. The only requirement for this task is that the text must be long enough so that it doesn't fit on the screen.

Keep in mind the following (refer to the figure below for an example):

- As you enter or paste text in the strings.xml file, the text lines don't wrap around to the next line—they extend beyond the right margin. This is the correct behavior—each new line of text starting at the left margin represents an entire paragraph. If you want the text in strings.xml to be wrapped, you can press Return to enter hard line endings, or format the text first in a text editor with hard line endings.
- Enter **\n** to represent the **end of a line**, and another **\n** to represent **a blank line**. You need to add end-of-line characters to keep paragraphs from running into each other.
- If you have an apostrophe (') in your text, you must **escape it** by preceding it with a **backslash (\')**. If you have a **double-quote** in your text, you must also **escape it (\")**. You must also escape any other non-ASCII characters. See the Formatting and styling section of String resources for more details.
- Enter the HTML **<b>** and **</b>** tags around words that should be in **bold**.
- Enter the HTML **<i>** and **</i>** tags around words that should be in **italics**. If you use curled apostrophes within an italic phrase, replace them with straight apostrophes.
- You can **combine bold and italics** by combining the tags, as in **<b><i>**... words...**</i></b>**. Other HTML tags are ignored.
- Enclose The **entire text** within <string name="article_text"> </string> in the **strings.xml file.**
- **Include a web link** to test, such as **www.google.com**. (The example below uses www.rockument.com.) *Don't* use an HTML tag, because any HTML tags except the bold and italic tags are ignored and presented as text, which is not what you want.



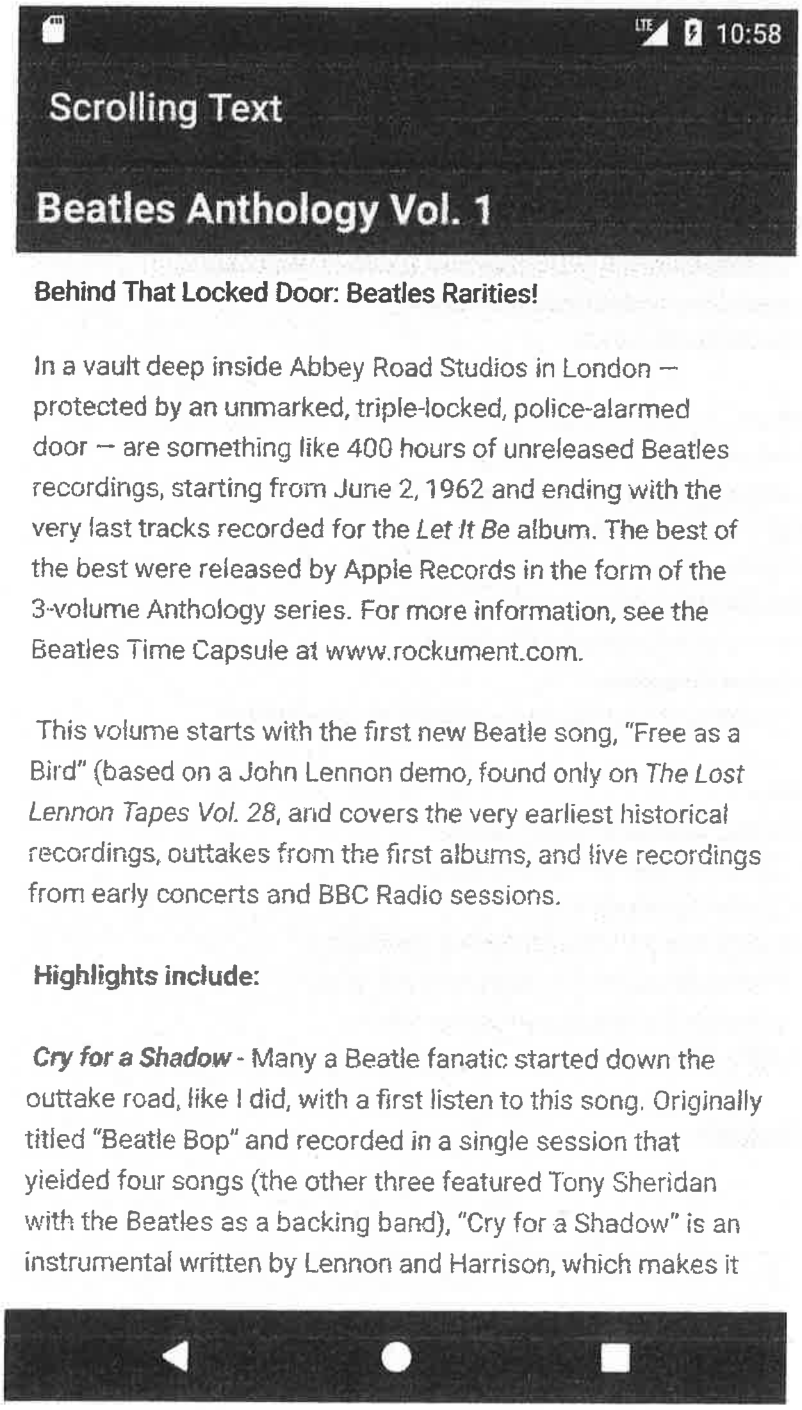
Edit translations for all locales in the translations editor.

```
<resources>
    <string name="app_name">Scrolling Text</string>
    <string name="article_title">Beatles Anthology Vol. 1</string>
    <string name="article_subtitle">Behind That Locked Door: Beatles Rarities!</string>
    <string name="article_text">In a vault deep inside Abbey Road Studios in London – protected by an unmarked, triple-loc
        For more information, see the Beatles Time Capsule at www.rockument.com.
\n\n
This volume starts with the first new Beatle song, "Free as a Bird" (based on a John Lennon demo, found only on <i>The Los
\n\n
<b>Highlights include:</b>
\n\n
<b><i>Cry for a Shadow</i></b> – Many a Beatle fanatic started down the outtake road, like I did, with a first listen to th
\n\n
<b><i>My Bonnie</i></b> and <b><i>Ain't She Sweet</i></b> – At the same session, the Beatles played on "My Bonnie" (the fi
\n\n
<b><i>Searchin</i></b> – A Jerry Leiber – Mike Stoller comedy song that was a hit for the Coasters in 1957, and a popular
\n\n
<b><i>Love Me Do</i></b> – An early version of the song, played a bit slower and with more of a blues feeling, and a cool
\n\n
<b><i>She Loves You – Till There Was You – Twist and Shout</i></b> – Live at the Princess Wales Theatre by Leicester Squar
\n\n
<b><i>Leave My Kitten Alone</i></b> – One of the lost Beatle songs recorded during the "Beatles For Sale" sessions but new
\n\n
<b><i>One After 909</i></b> – A song recorded for the <i>Let It Be</i> album was actually worked on way back in the beginn.
</string>
</resources>
```

1.3 Run the app

Run the app. The article appears, but the user **can't scroll the article** because you **haven't yet included a ScrollView** (which you will do in the next task).

Note also that **tapping a web link does not currently do anything**. You will also fix that in the next task.



Beatles Anthology Vol. 1

Behind That Locked Door: Beatles Rarities!

In a vault deep inside Abbey Road Studios in London — protected by an unmarked, triple-locked, police-alarmed door — are something like 400 hours of unreleased Beatles recordings, starting from June 2, 1962 and ending with the very last tracks recorded for the *Let It Be* album. The best of the best were released by Apple Records in the form of the 3-volume Anthology series. For more information, see the Beatles Time Capsule at www.rockument.com.

This volume starts with the first new Beatle song, "Free as a Bird" (based on a John Lennon demo, found only on *The Lost Lennon Tapes Vol. 28*, and covers the very earliest historical recordings, outtakes from the first albums, and live recordings from early concerts and BBC Radio sessions.

Highlights include:

Cry for a Shadow - Many a Beatle fanatic started down the outtake road, like I did, with a first listen to this song. Originally titled "Beatle Bop" and recorded in a single session that yielded four songs (the other three featured Tony Sheridan with the Beatles as a backing band), "Cry for a Shadow" is an instrumental written by Lennon and Harrison, which makes it

Task 1 **solution code**

The **activity_main.xml layout** file looks like the following:

```
<?xml version="1.0" encoding="utf-8"?>
<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="com.example.android.scrollingtext.MainActivity">

  <TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/article_heading"
    android:background="@color/colorPrimary"
    android:padding="@dimen/padding_regular"
    android:text="@string/article_title"
    android:textAppearance=
            "@android:style/TextAppearance.DeviceDefault.Large"
    android:textColor="@android:color/white"
    android:textStyle="bold" />

  <TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/article_subheading"
    android:layout_below="@id/article_heading"
    android:padding="@dimen/padding_regular"
    android:text="@string/article_subtitle"
    android:textAppearance=
            "@android:style/TextAppearance.DeviceDefault" />

  <TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/article"
    android:layout_below="@id/article_subheading"
    android:lineSpacingExtra="@dimen/line_spacing"
    android:padding="@dimen/padding_regular"
    android:text="@string/article_text" />

</RelativeLayout>
```

Task 2: Add a ScrollView and an active web link

In the previous task you created the ScrollingText app with TextView elements for an article title, subtitle, and lengthy article text. You also included a web link, but the link is not yet active. You will add the code to make it active.

Also, the TextView by itself can't enable users to scroll the article text to see all of it. You will add a new ViewGroup called ScrollView to the XML layout that will make the TextView scrollable.

2.1 Add the autoLink attribute for active web links

Add the android:**autoLink**="web" attribute to the article TextView. The XML code for this TextView now looks like this:

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/article"
    android:autoLink="web"
    android:layout_below="@id/article_subheading"
    android:lineSpacingExtra="@dimen/line_spacing"
    android:padding="@dimen/padding_regular"
    android:text="@string/article_text" />
```

2.2 Add a ScrollView to the layout

To make a View (such as a TextView) **scrollable**, **embed the View *inside* a ScrollView.**

1. **Add** a ScrollView between the **article_subheading TextView** and the **article TextView**. As you enter **<ScrollView**, Android Studio automatically adds </ScrollView> at the end, and presents the android:layout_width and android:layout_height attributes with suggestions.
2. Choose **wrap_content** from the suggestions for both attributes.

The code for the two TextView elements and the ScrollView now looks like this:

```
<TextView
  android:layout_width="match_parent"
  android:layout_height="wrap_content"
  android:id="@+id/article_subheading"
  android:layout_below="@id/article_heading"
  android:padding="@dimen/padding_regular"
  android:text="@string/article_subtitle"
  android:textAppearance="@android:style/TextAppearance.DeviceDefault"/>
```

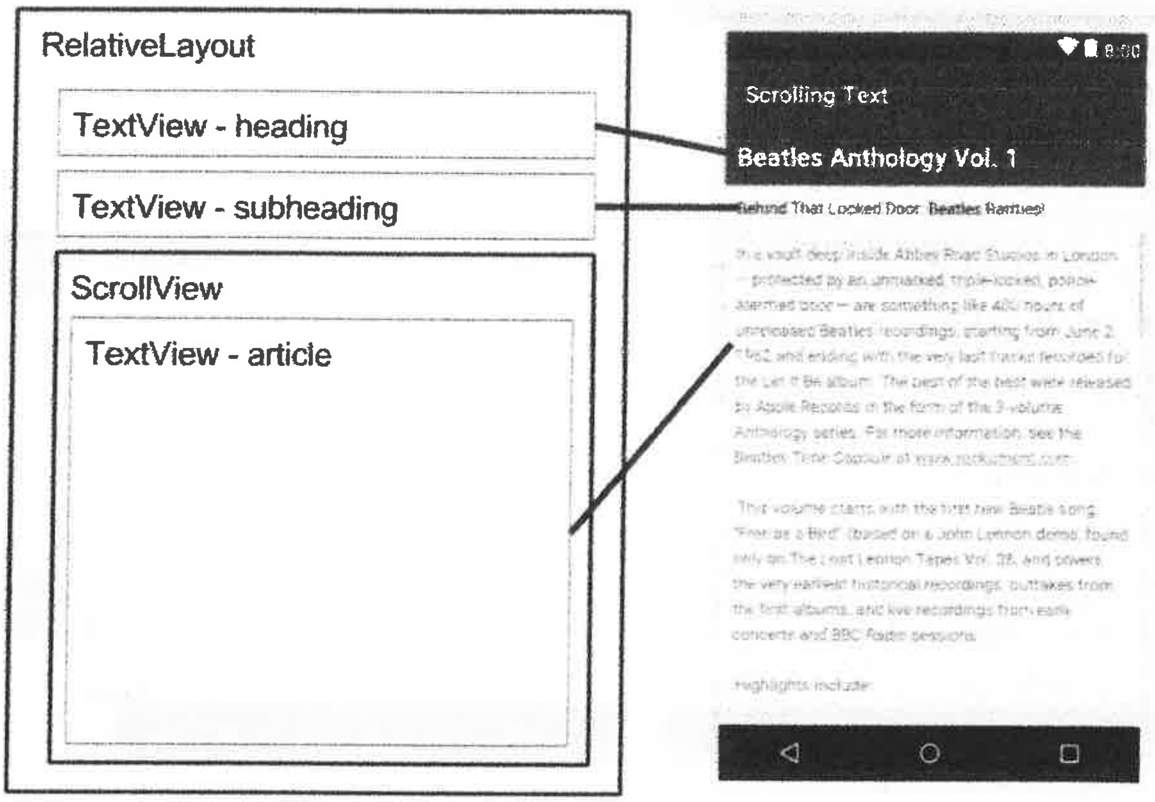
```
<ScrollView
  android:layout_width="wrap_content"
  android:layout_height="wrap_content"></ScrollView>

<TextView
     android:layout_width="wrap_content"
     android:layout_height="wrap_content"
     android:id="@+id/article"
     android:autoLink="web"
     android:layout_below="@id/article_subheading"
     android:lineSpacingExtra="@dimen/line_spacing"
     android:padding="@dimen/padding_regular"
     android:text="@string/article_text" />
```

3. **Move** the ending **</ScrollView> code *after* the article TextView** so that the article TextView attributes are entirely inside the ScrollView.
4. **Remove** the following attribute from the article TextView and add it to the ScrollView:

    android:layout_below="@id/article_subheading"

    With the above attribute, **the ScrollView element will appear below the article subheading. The article is inside the ScrollView element**.
5. Choose **Code > Reformat Code** to reformat the XML code so that the article TextView now appears indented inside the <ScrollView code.
6. Click the **Preview** tab on the right side of the layout editor to see a preview of the layout.

    The layout now looks like the right side of the following figure:



Beatles Anthology Vol. 1

Behind That Locked Door: Beatles Rarities!

In a vault deep inside Abbey Road Studios in London — protected by an unmarked, triple-locked, police-alarmed door — are something like 400 hours of unreleased Beatles recordings, starting from June 2, 1962 and ending with the very last track recorded for the Let It Be album. The best of the best were released by Apple Records in the form of the 3-volume Anthology series. For more information, see the Beatles Time Capsule at www.rockument.com.

This volume starts with the first new Beatle song, "Free as a Bird" (based on a John Lennon demo, found only on The Lost Lennon Tapes Vol. 28), and covers the very earliest historical recordings, outtakes from the first albums, and live recordings from early concerts and BBC Radio sessions.

Highlights include:

2.3 Run the app

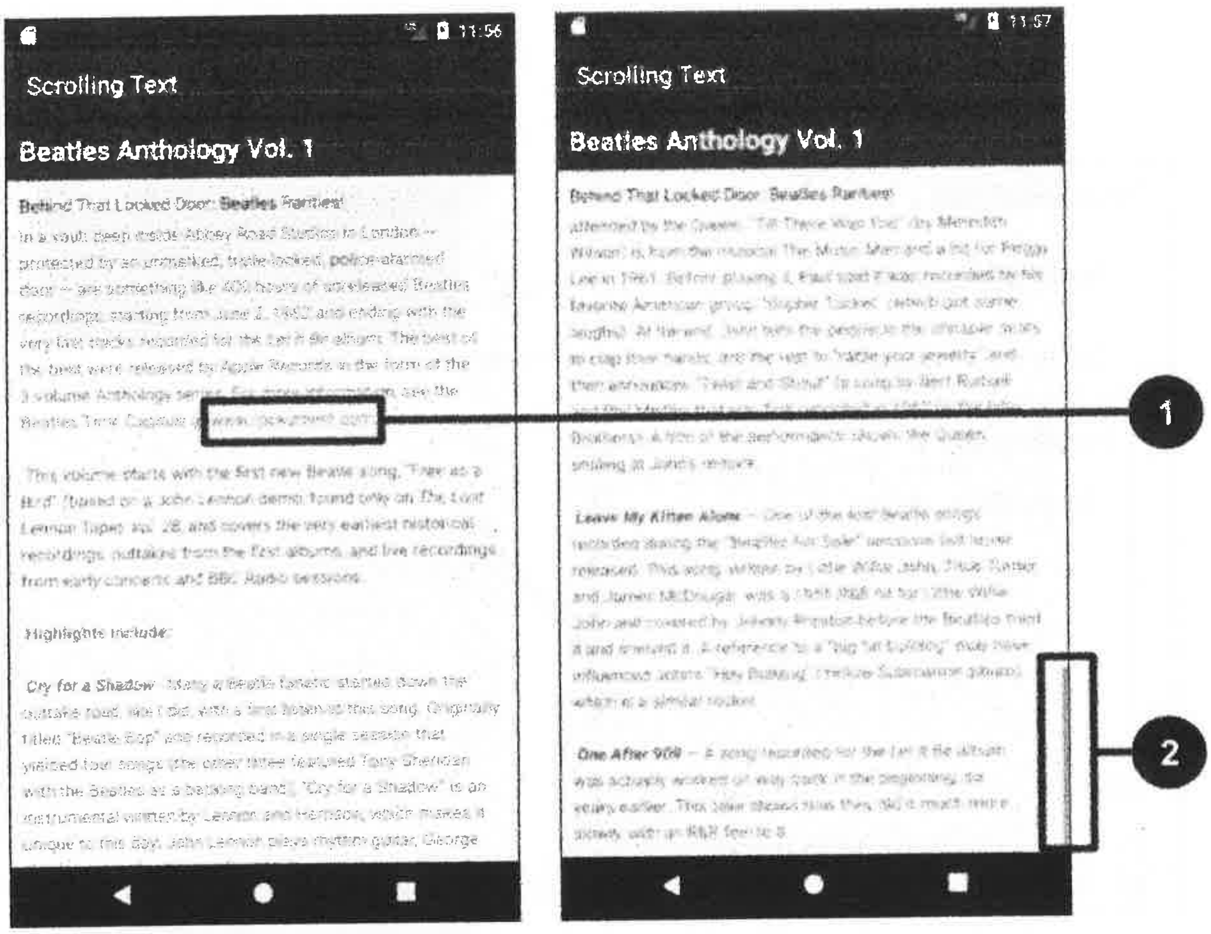
To examine how the text scrolls:

1. **Run** the app on a device or emulator.

   Swipe up and down to scroll the article. The scroll bar appears in the right margin as you scroll.

   Tap the web link to go to the web page. The android:autoLink attribute turns any recognizable URL in the TextView (such as www.rockument.com) into a web link.

2. Rotate your device or emulator while running the app. Notice how the scrolling view widens to use the full display and still scrolls properly.
3. Run the app on a tablet or tablet emulator. Notice how the scrolling view widens to use the full display and still scrolls properly.



In the above figure, the following appear:

1. An active web link embedded in free-form text
2. The scroll bar that appears when scrolling the text

Task 2 solution code

The XML code for the layout with the scroll view is as follows:

```
<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="com.example.android.scrollingtext.MainActivity">

  <TextView
    android:id="@+id/article_heading"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:background="@color/colorPrimary"
    android:padding="@dimen/padding_regular"
```

```
        android:text="@string/article_title"
        android:textAppearance=
                "@android:style/TextAppearance.DeviceDefault.Large"
        android:textColor="@android:color/white"
        android:textStyle="bold" />

    <TextView
        android:id="@+id/article_subheading"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/article_heading"
        android:padding="@dimen/padding_regular"
        android:text="@string/article_subtitle"
        android:textAppearance=
                "@android:style/TextAppearance.DeviceDefault" />

    <ScrollView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/article_subheading">

        <TextView
            android:id="@+id/article"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:autoLink="web"
            android:lineSpacingExtra="@dimen/line_spacing"
            android:padding="@dimen/padding_regular"
            android:text="@string/article_text" />

    </ScrollView>

</RelativeLayout>
```

Task 3: Scroll multiple elements

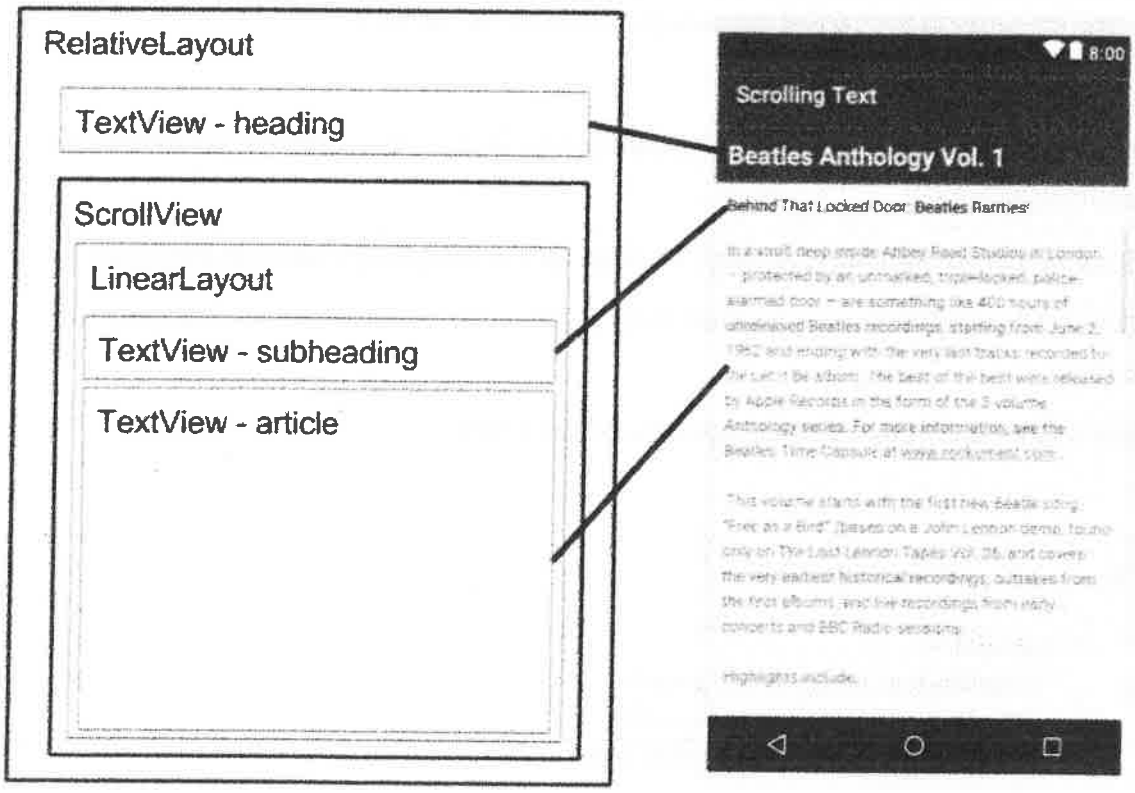
As noted before, **a ScrollView can contain only one child View** (such as the article TextView you created). However, that View can be another **ViewGroup** that **contains View elements**, such as **LinearLayout**.

You can ***nest*** **a ViewGroup such as LinearLayout *within* the ScrollView**, thereby **scrolling everything that is inside the LinearLayout.**

For example, if you want the **subheading of the article to scroll along with the article**,

- **add a LinearLayout** within the ScrollView, and
- **move the subheading and article** into the LinearLayout.

The **LinearLayout becomes the single child View in the ScrollView** as shown in the figure below, and the user can **scroll the entire LinearLayout**: the subheading and the article.



Beatles Anthology Vol. 1

Behind That Locked Door: **Beatles Rarities!**

In a vault deep inside Abbey Road Studios in London — protected by an unmarked, triple-locked, police-alarmed door — are something like 400 hours of unreleased Beatles recordings, starting from June 2, 1962 and ending with the very last tracks recorded for the Let It Be album. The best of the best were released by Apple Records in the form of the 3-volume Anthology series. For more information, see the Beatles Time Capsule at www.rockument.com.

This volume starts with the first new Beatle song, "Free as a Bird" (based on a John Lennon demo, found only on The Lost Lennon Tapes Vol. 28), and covers the very earliest historical recordings, outtakes from the first albums, and live recordings from early concerts and BBC Radio sessions.

Highlights include:

3.1 Add a LinearLayout to the ScrollView

1. Open the **activity_main.xml** file of the ScrollingText app project, and select the **Text** tab to edit the XML code (if it is not already selected).
2. **Add** a LinearLayout above the article TextView within the ScrollView. As you enter **<LinearLayout**, Android Studio automatically adds </LinearLayout> to the end, and presents the android:layout_width and android:layout_height attributes with suggestions.

   Choose **match_parent** and **wrap_content** from the suggestions for its width and height, respectively. The code at the beginning of the ScrollView now looks like this:

```
<ScrollView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/article_subheading">

    <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content"></LinearLayout>

    <TextView
      android:id="@+id/article"
```

   You use match_parent to match the width of the parent ViewGroup. You use wrap_content to resize the LinearLayout so it is just big enough to enclose its contents.

3. **Move** the **ending </LinearLayout> code** *after* the article TextView but *before* the closing </ScrollView>.

   The LinearLayout now includes the article TextView, and is completely inside the ScrollView.
4. **Add** the android:**orientation="vertical"** attribute to the LinearLayout to set its orientation to vertical.
5. Choose **Code > Reformat Code** to indent the code correctly.

   The LinearLayout now looks like this:

```
<ScrollView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/article_subheading">
```

```
        <LinearLayout
          android:layout_width="match_parent"
          android:layout_height="wrap_content"
          android:orientation="vertical">

          <TextView
            android:id="@+id/article"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:autoLink="web"
            android:lineSpacingExtra="@dimen/line_spacing"
            android:padding="@dimen/padding_regular"
            android:text="@string/article_text" />

        </LinearLayout>

    </ScrollView>
```

3.2 Move UI elements within the LinearLayout

The LinearLayout now has only one UI element—the article TextView. You want to **include** the **article_subheading** TextView in the LinearLayout so that **both will scroll**.

1. To **move the article_subheading TextView**, select the code, choose **Edit > Cut**, click above the article TextView inside the LinearLayout, and choose **Edit > Paste**.
2. **Remove** the android:**layout_below="@id/article_heading"** attribute from the article_subheading TextView.

   Because this TextView is now within the LinearLayout, this attribute would conflict with the LinearLayout attributes.
3. **Change** the ScrollView layout attribute from

   android:layout_below="@id/article_subheading" to android:layout_below="@**id/article_heading**".

   Now that the subheading is part of the LinearLayout, the ScrollView must be placed below the heading, not the subheading.

The XML code for the ScrollView is now gas follows:

```
<ScrollView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/article_heading">

    <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:orientation="vertical">

      <TextView
        android:id="@+id/article_subheading"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="@dimen/padding_regular"
        android:text="@string/article_subtitle"
        android:textAppearance=
           "@android:style/TextAppearance.DeviceDefault" />

      <TextView
        android:id="@+id/article"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:autoLink="web"
        android:lineSpacingExtra="@dimen/line_spacing"
        android:padding="@dimen/padding_regular"
        android:text="@string/article_text" />

    </LinearLayout>

</ScrollView>
```

4. Run the app.

   Swipe up and down to scroll the article, and notice that the subheading now scrolls along with the article while the heading stays in place.