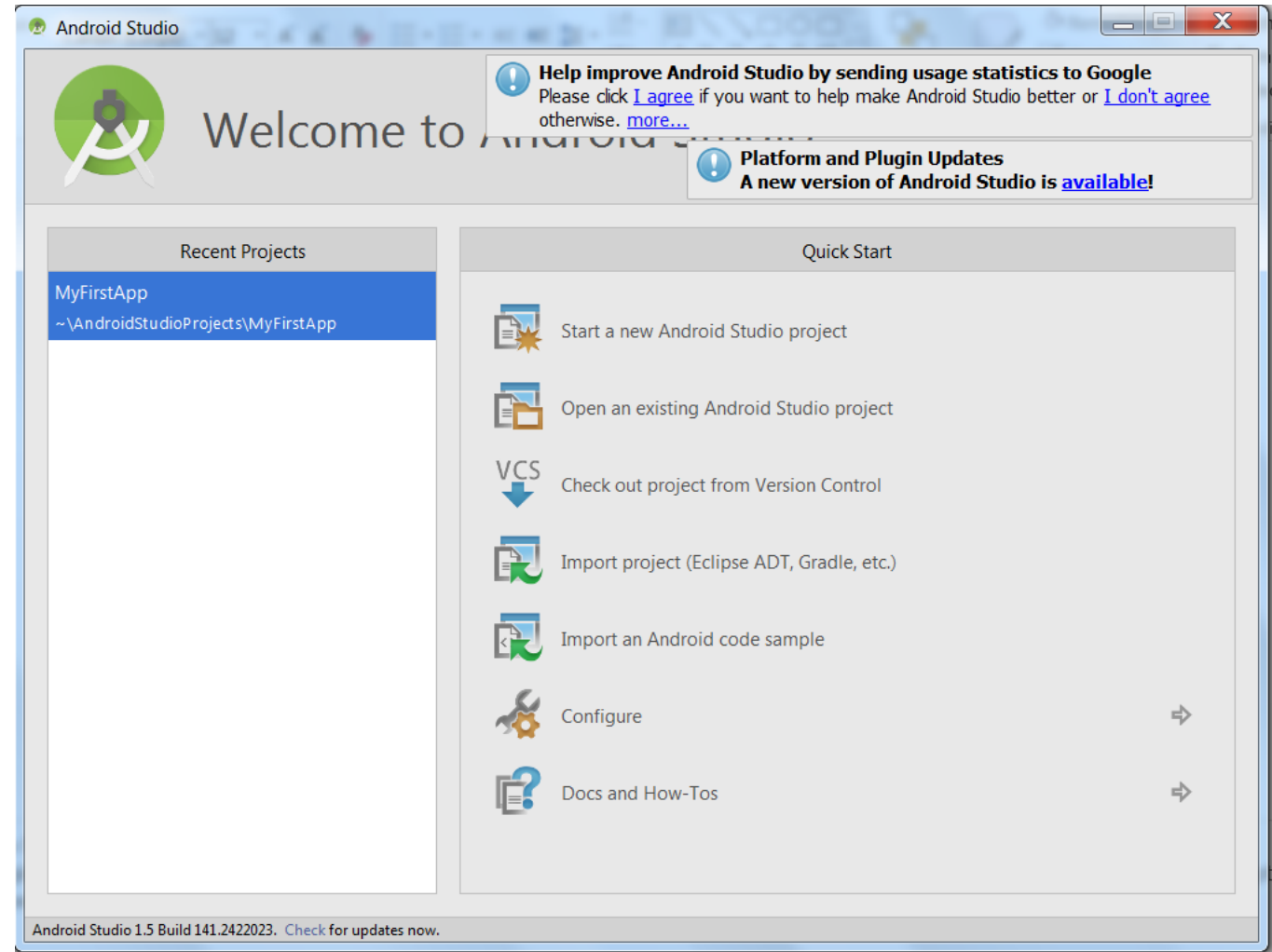
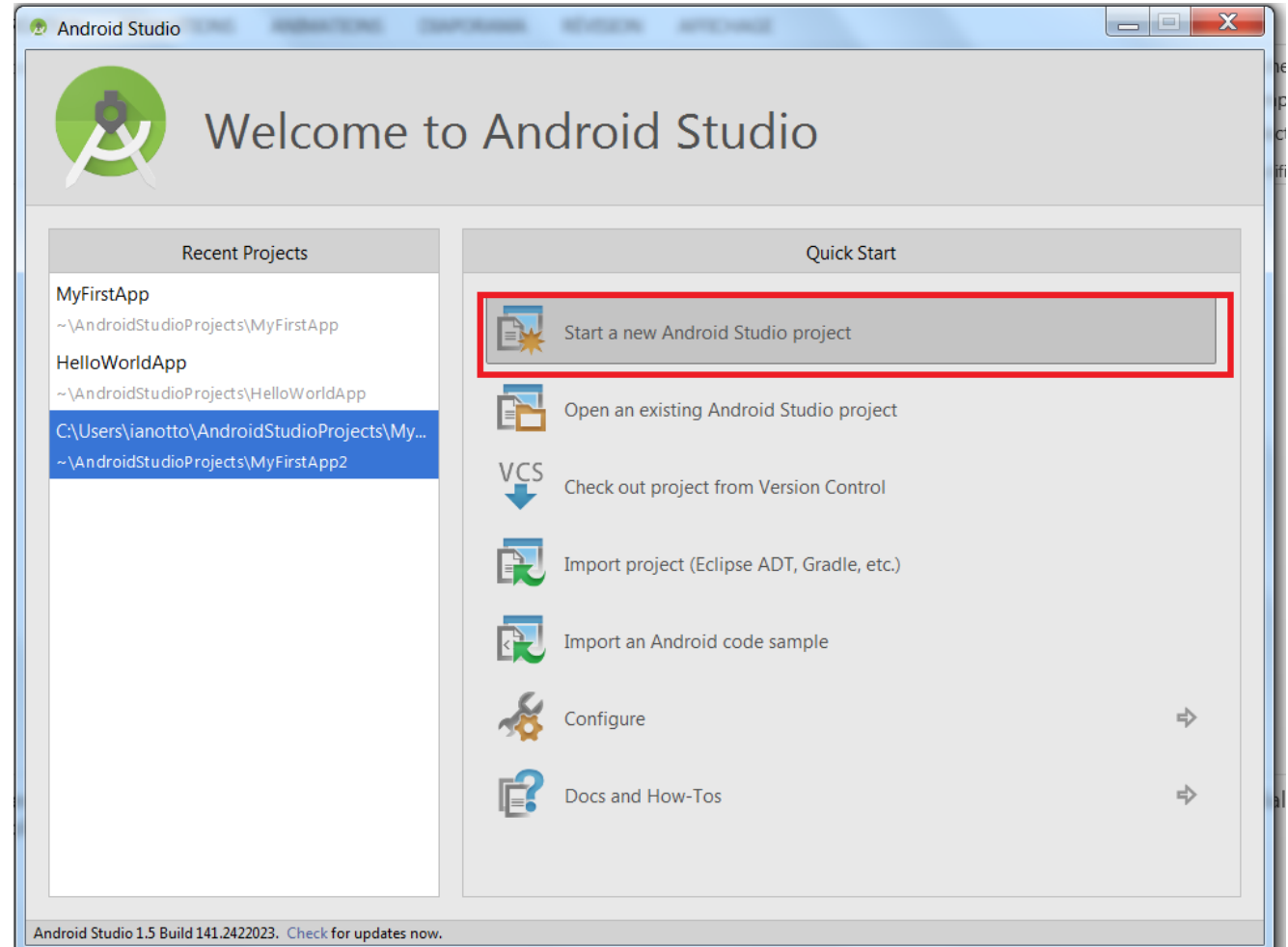


Creating the ConvertMilesToKm project and designing the user interface

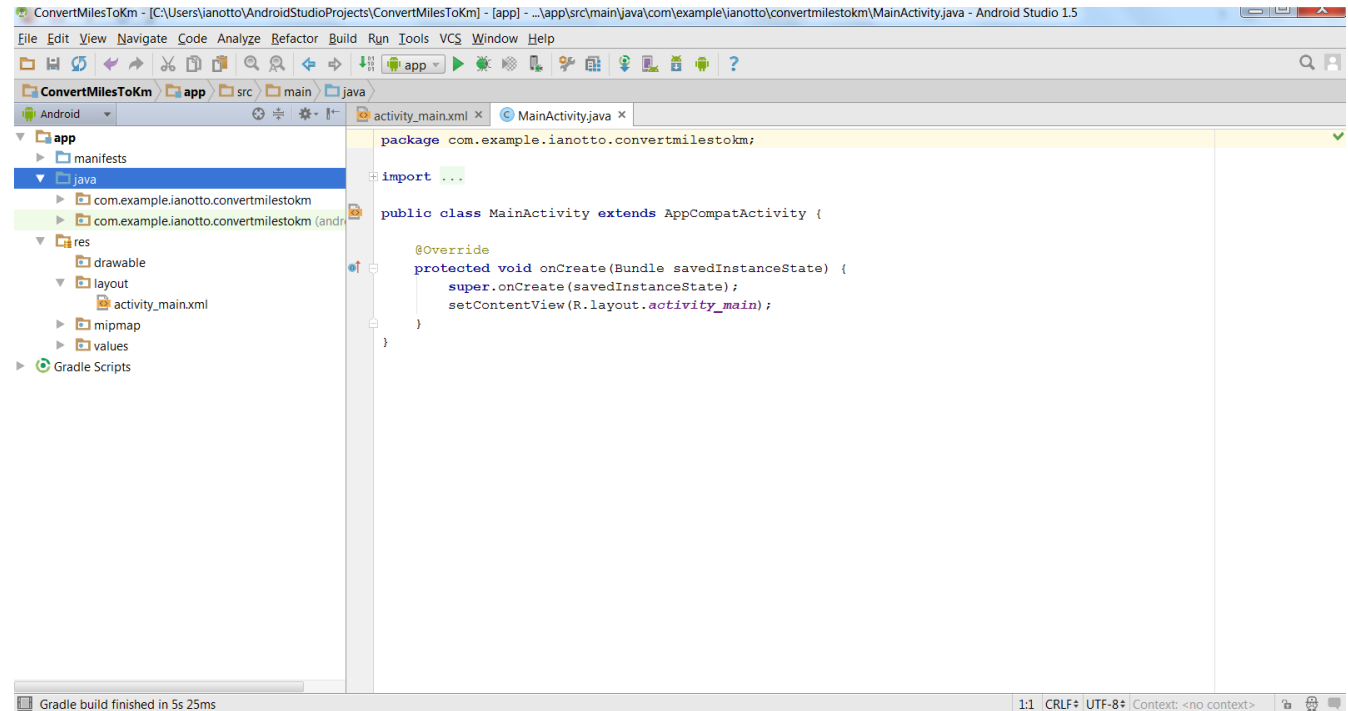
- Begin by launching Android Studio and, if necessary, close any currently open projects using the *File -> Close Project* menu option so that the Welcome screen appears.



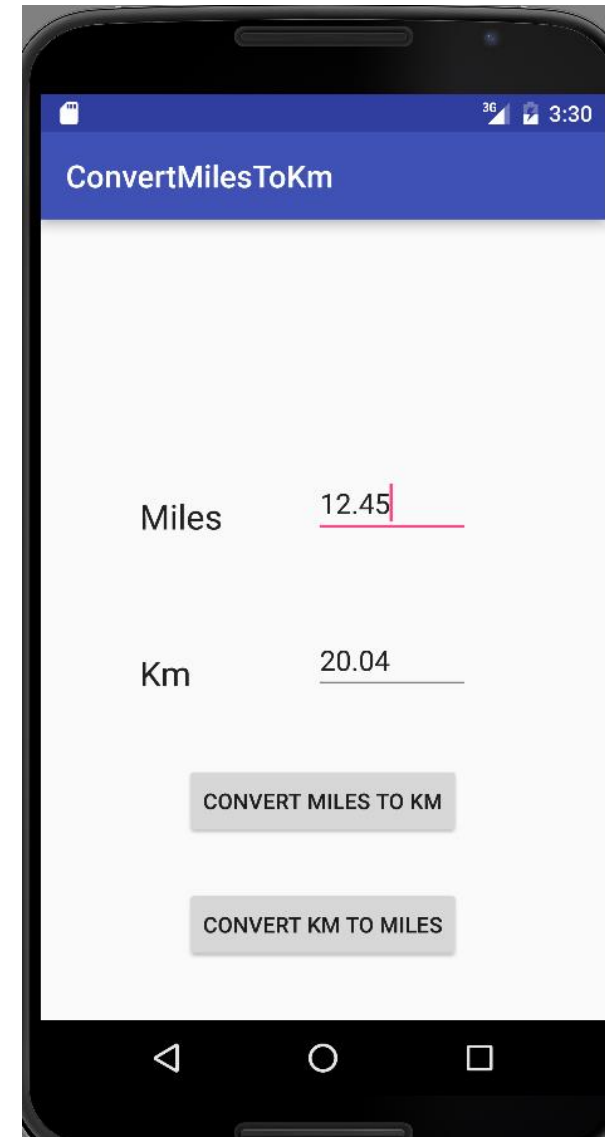
- Select the *Start a new Android Studio project* option from the welcome screen and, within the resulting new project dialog, enter *ConvertMilesToKm* into the application name field and *keep default values for the other fields* before clicking on the *Next* button.
- On the Target Android Device screen, enable the *Phone and Tablet* option and set the minimum SDK setting to API 16: Android 4.1 (Jelly Bean).
- Continue to proceed through the screens, requesting the creation of an empty activity named *MainActivity*, and corresponding layout named *main_activity*.



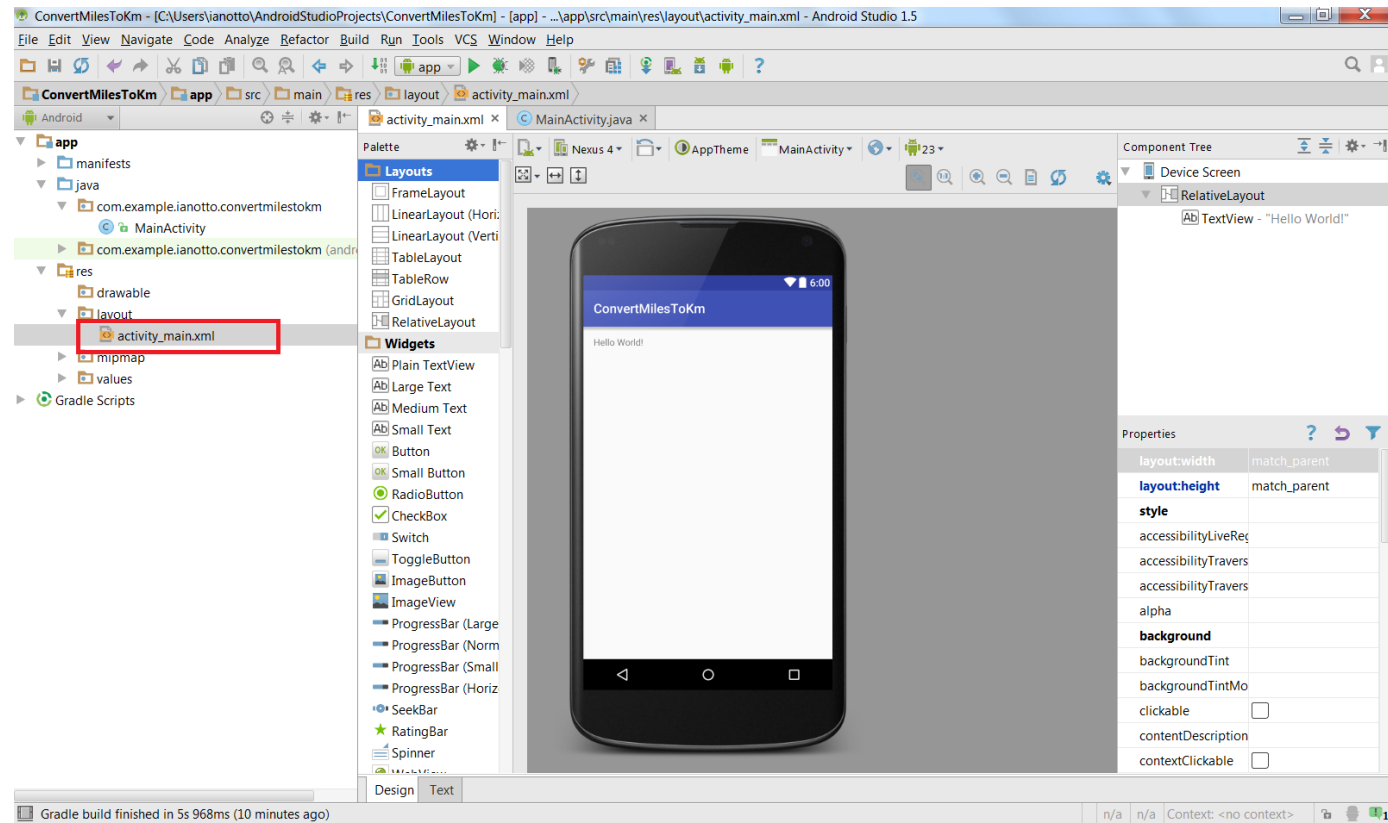
- Upon completion of the project creation process, the *ConvertMilesToKm* project should be listed on the left of the Android Studio main window as illustrated in the figure above.



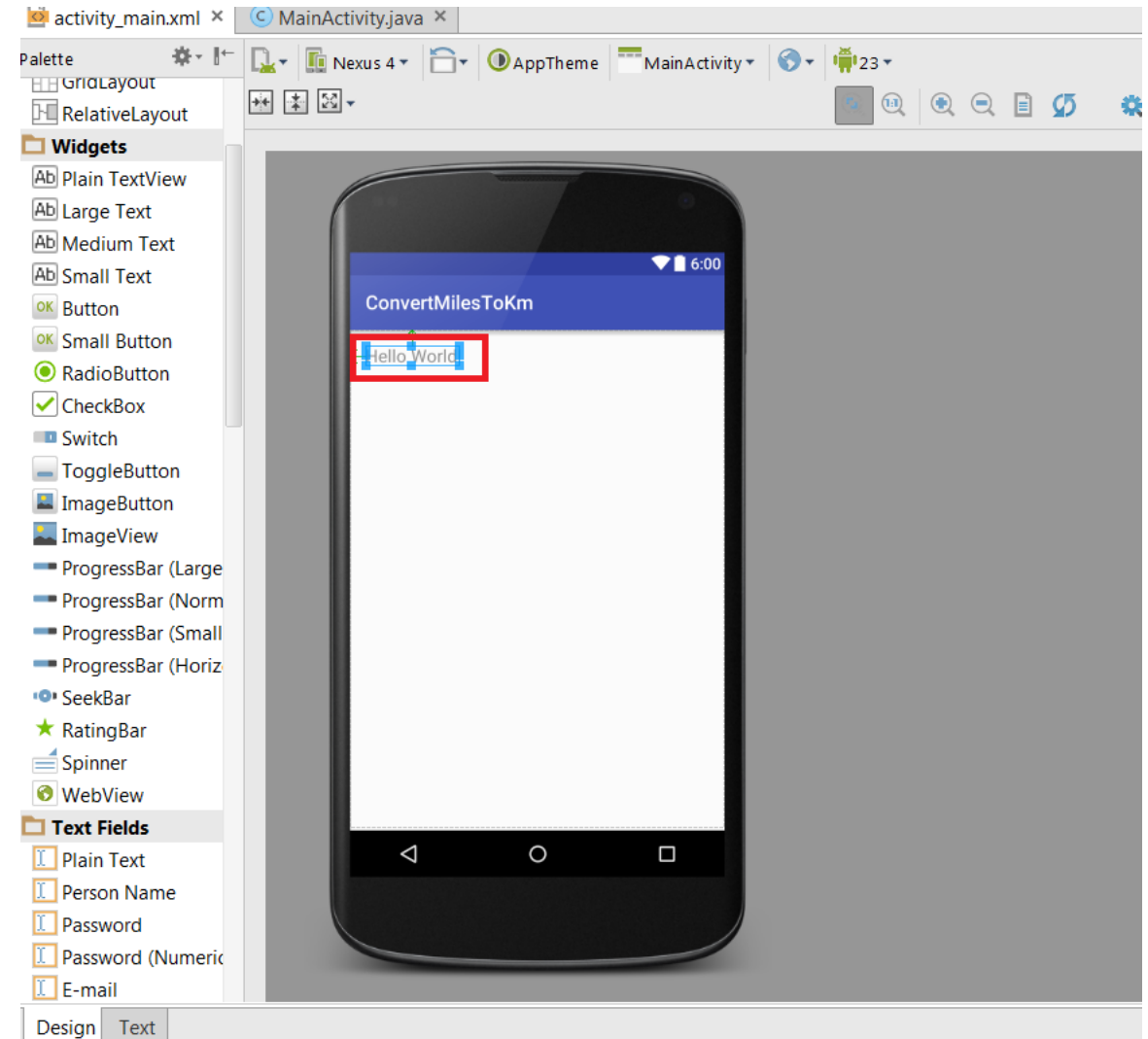
- In the following steps we will focus on the design of user interface.
- The user interface will contain two *Button* components, two *EditText* components and two *textView* components as we can see in the figure.
- In the field *Miles* we have to set the distance in miles and then click on the button “CONVERT MILES TO KM” to convert the distance into kilometers. The result of the conversion is displayed in the field *km*.
- The button “CONVERT KM TO MILES” allows to convert a kilometers value into miles value.



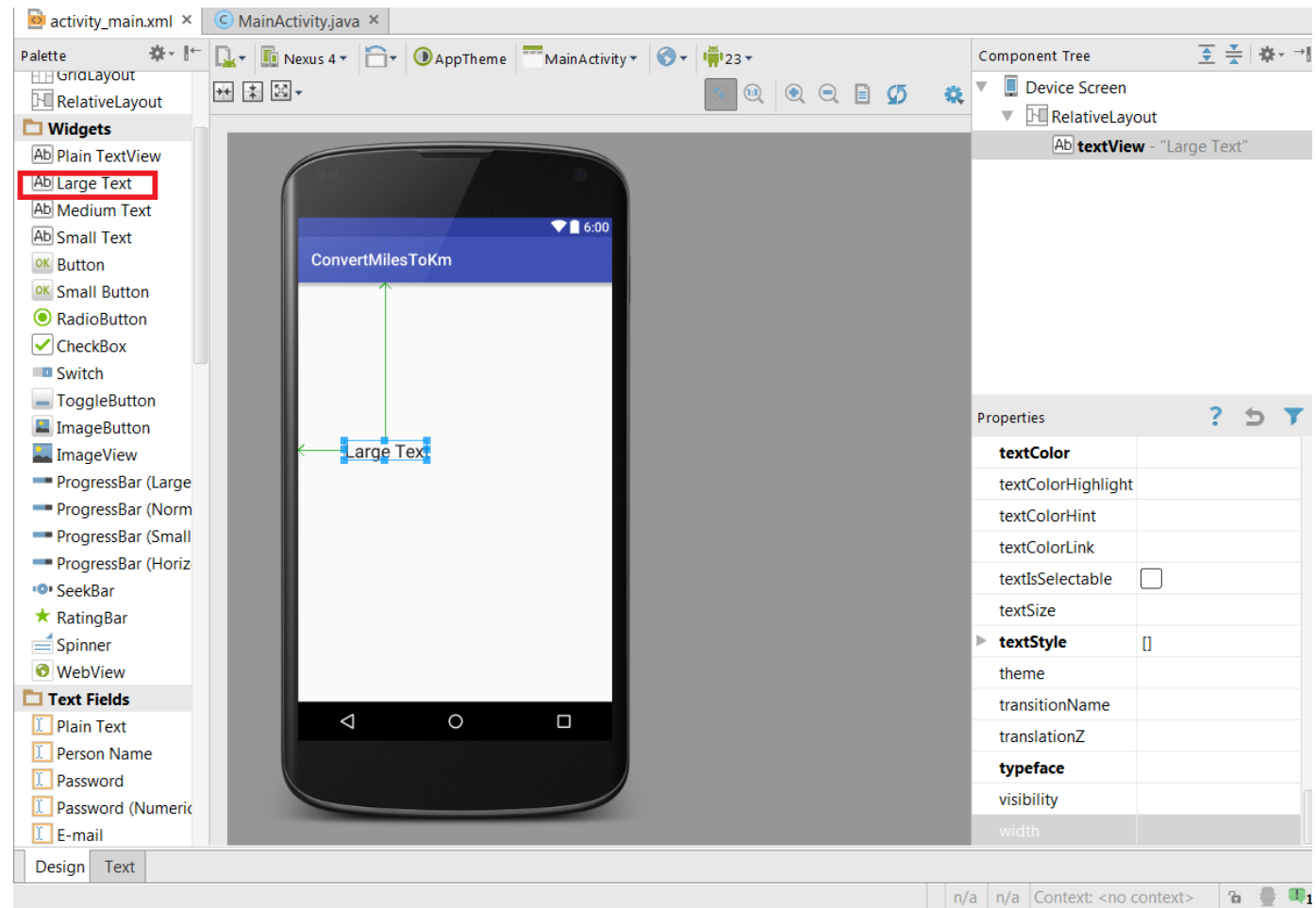
- The next action to take involves the design of the content area of the user interface for the activity.
- This is stored in a file named *activity_main.xml* which should already be loaded into the Designer tool. If it is not, navigate to it in the project tool window where it can be found in the *app -> res -> layout* folder.
- Once located, double clicking on the file will load it into the Android Studio Designer tool.



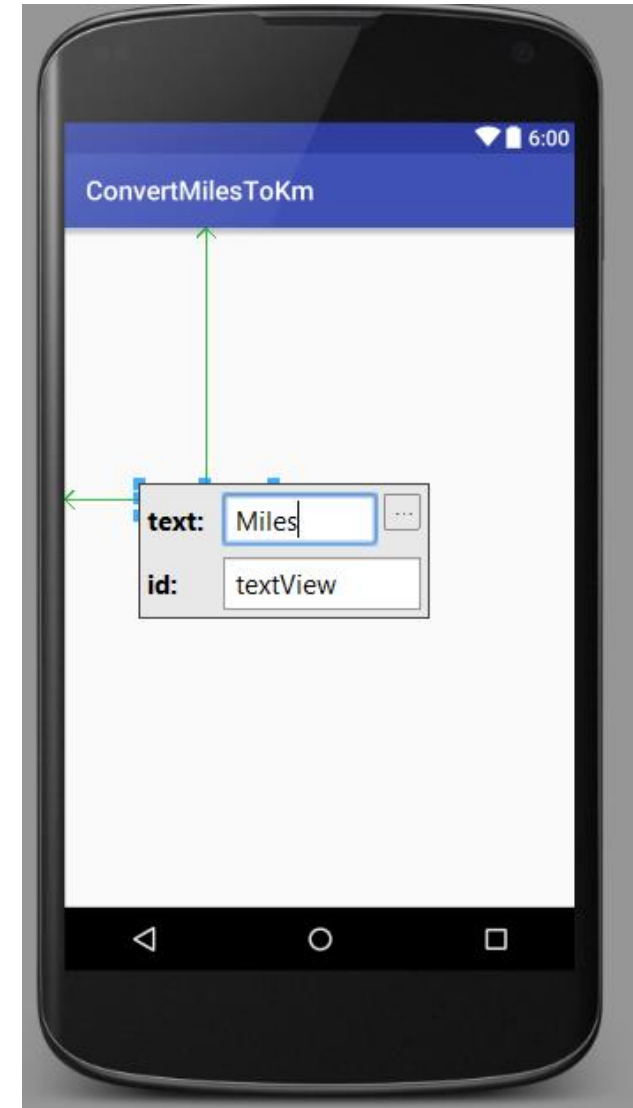
- By default the layout should contain a single component view in the form of the TextView displaying the “Hello World!” message.
- Select this component and remove it by pressing the keyboard delete key.



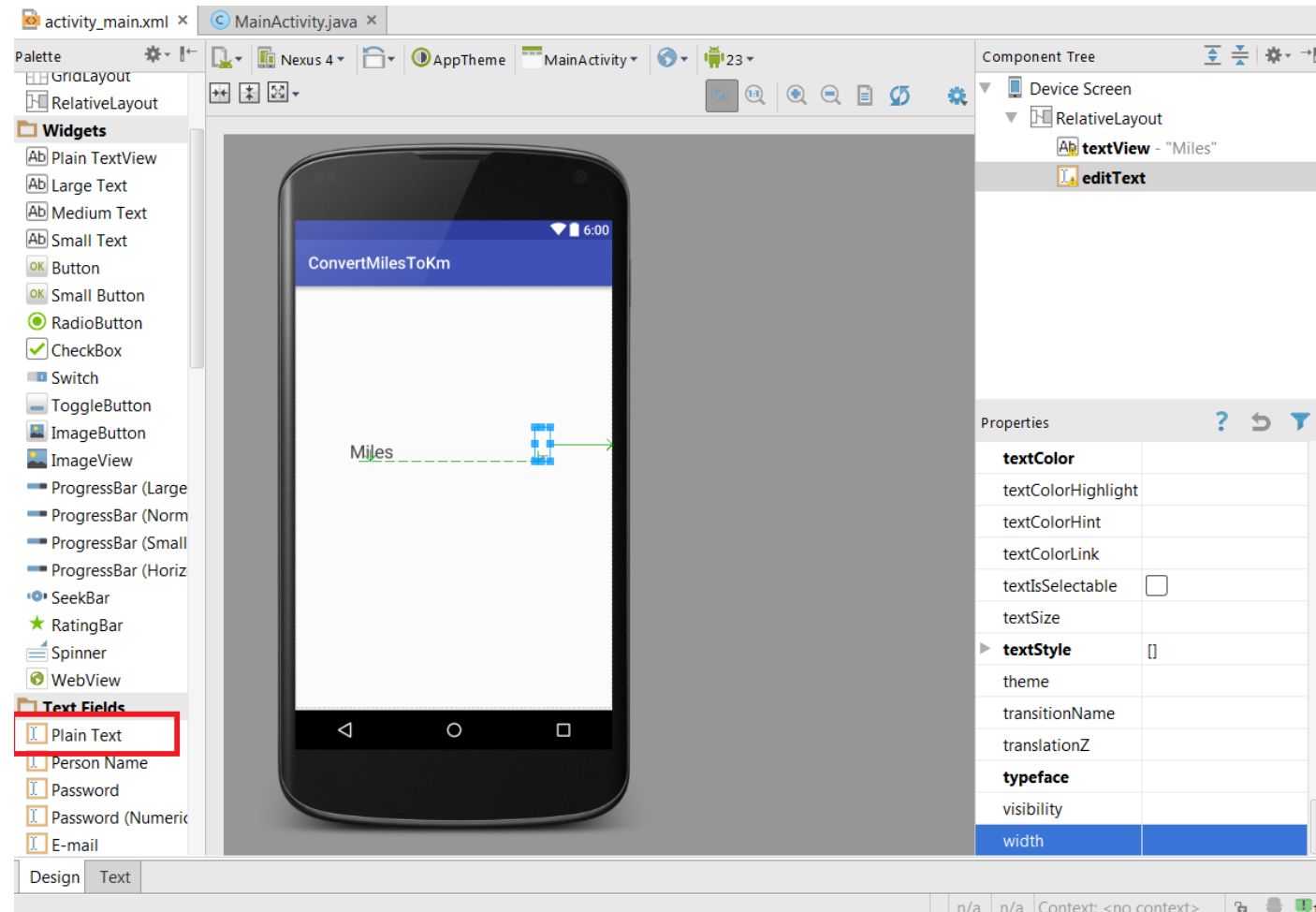
- From the Palette located on the left side of the Designer, locate the *Widgets* category and click and drag a *Large Text* component to the visual representation of the device screen.
- Move the component to the display so that the center guidelines appear and drop it into place so that the layout resembles the one in the figure above.



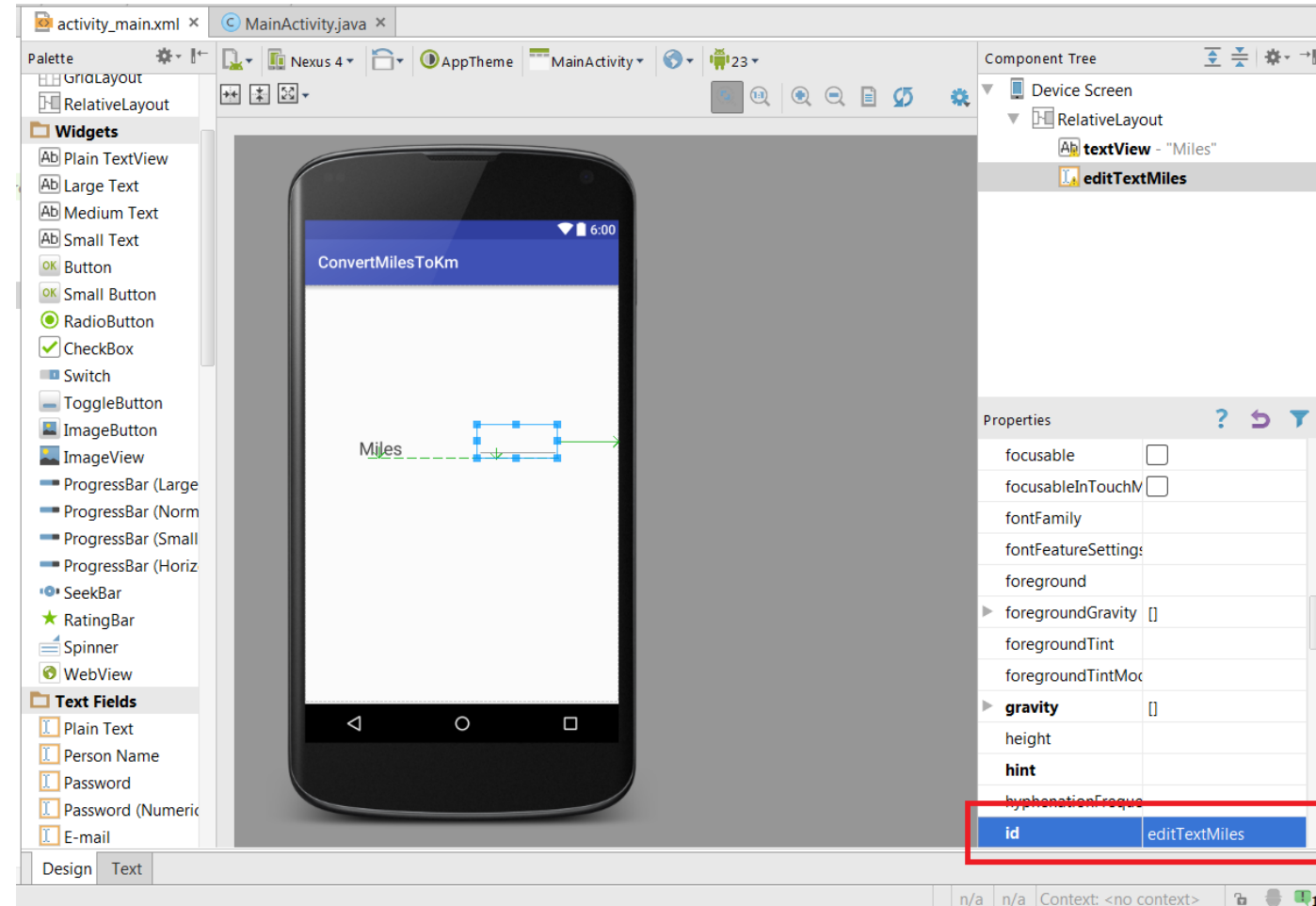
- The next step is to change the text that is currently displayed by the *TextView* component.
- Double click on the object in the design layout to display the text and id editing panel as illustrated in the figure above.
- Within the panel, change the text property from “Large Text” to “Miles”.



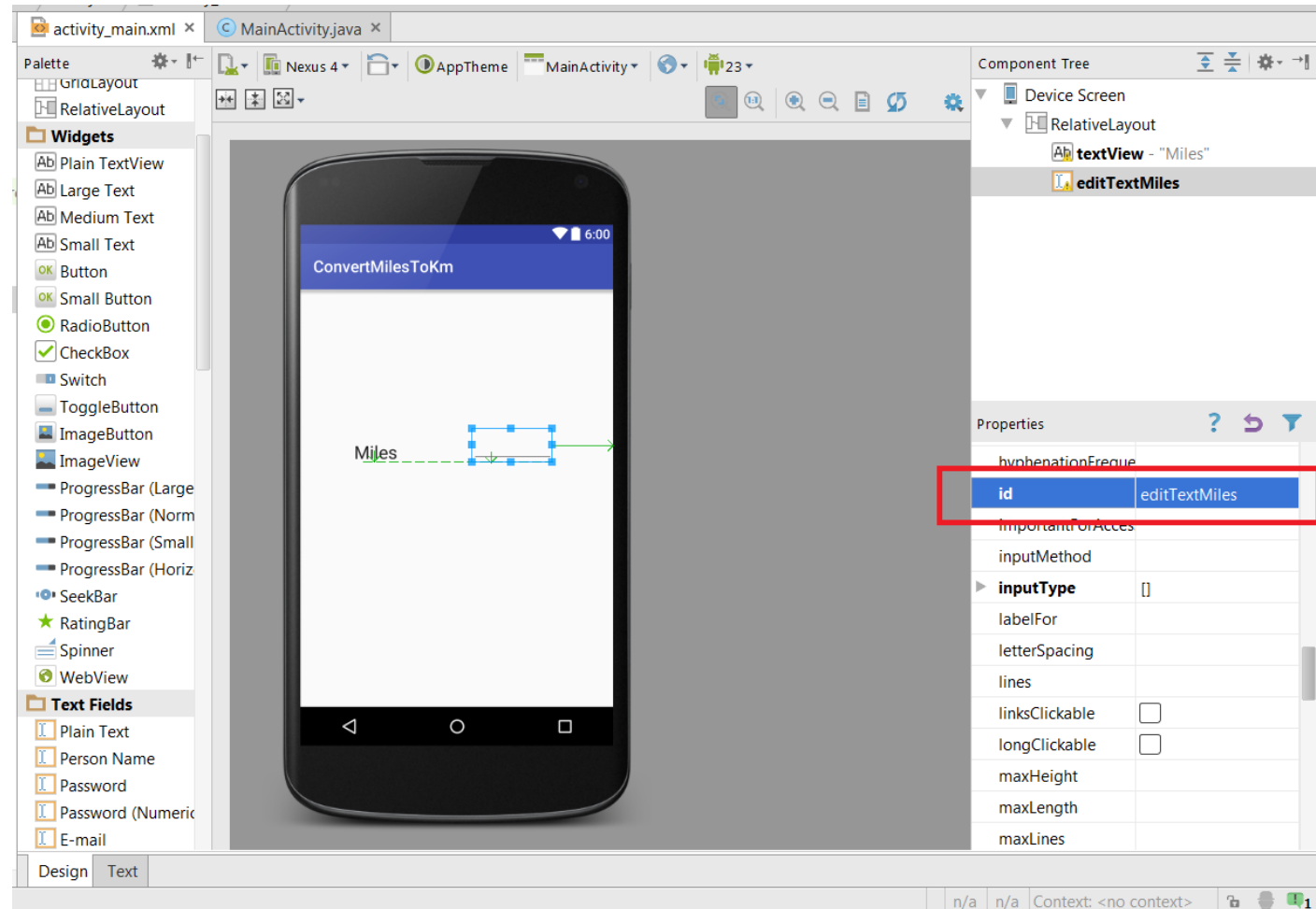
- From the Palette located on the left side of the Designer, locate the *Text Fields* category and click and drag a *Plain Text* component over to the visual representation of the device screen.
- Move the component to the right of the *Large Text* component named *Miles* and drop it into place so that the layout resembles that in the figure above.



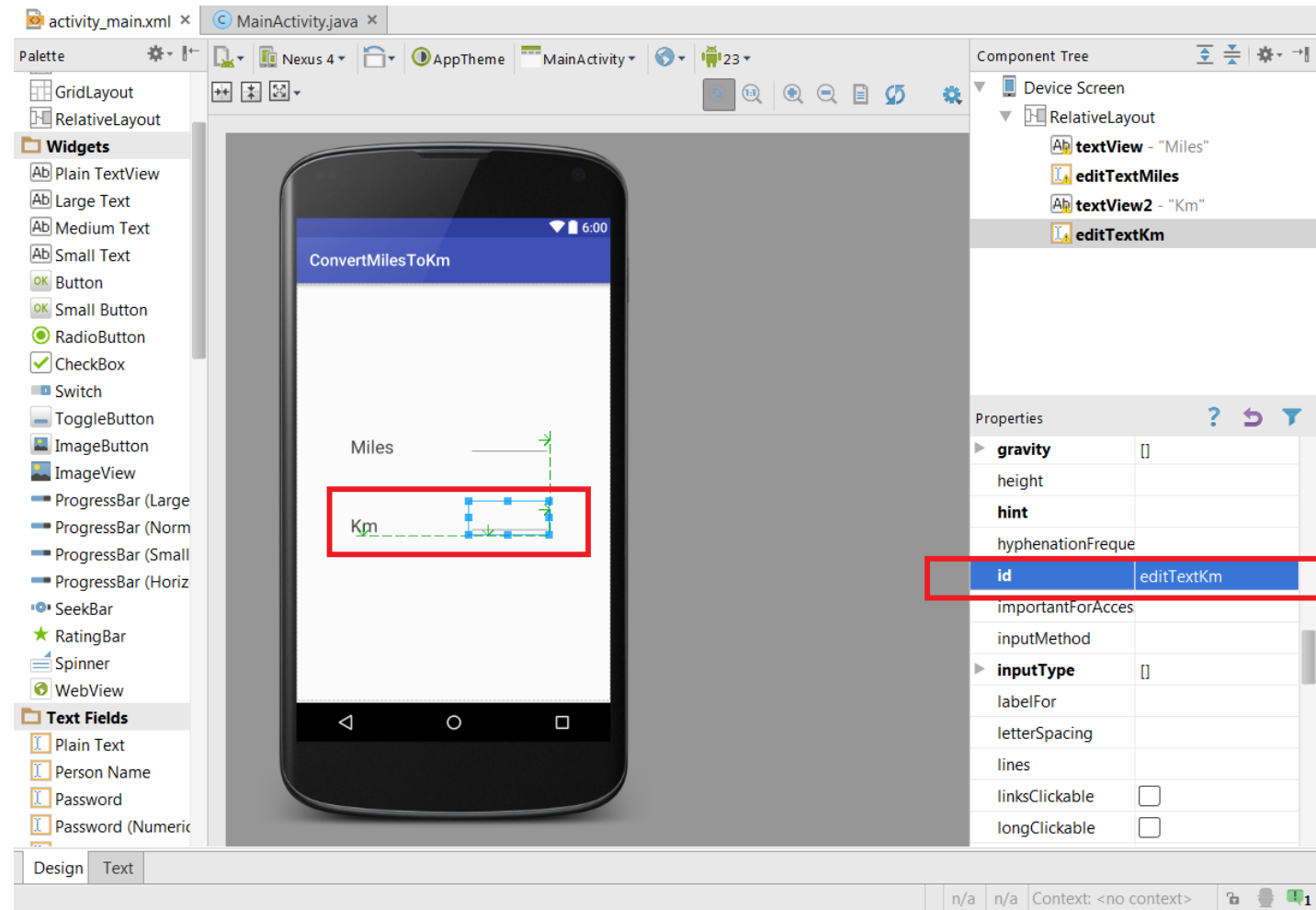
- The next step in the user interface design process is to increase the width of the *TextView* component.
- With the component selected in the layout, scroll down the list of attributes in the *Properties* panel until the *width* attribute comes into view and enter a value of 100dp as outlined in the figure above



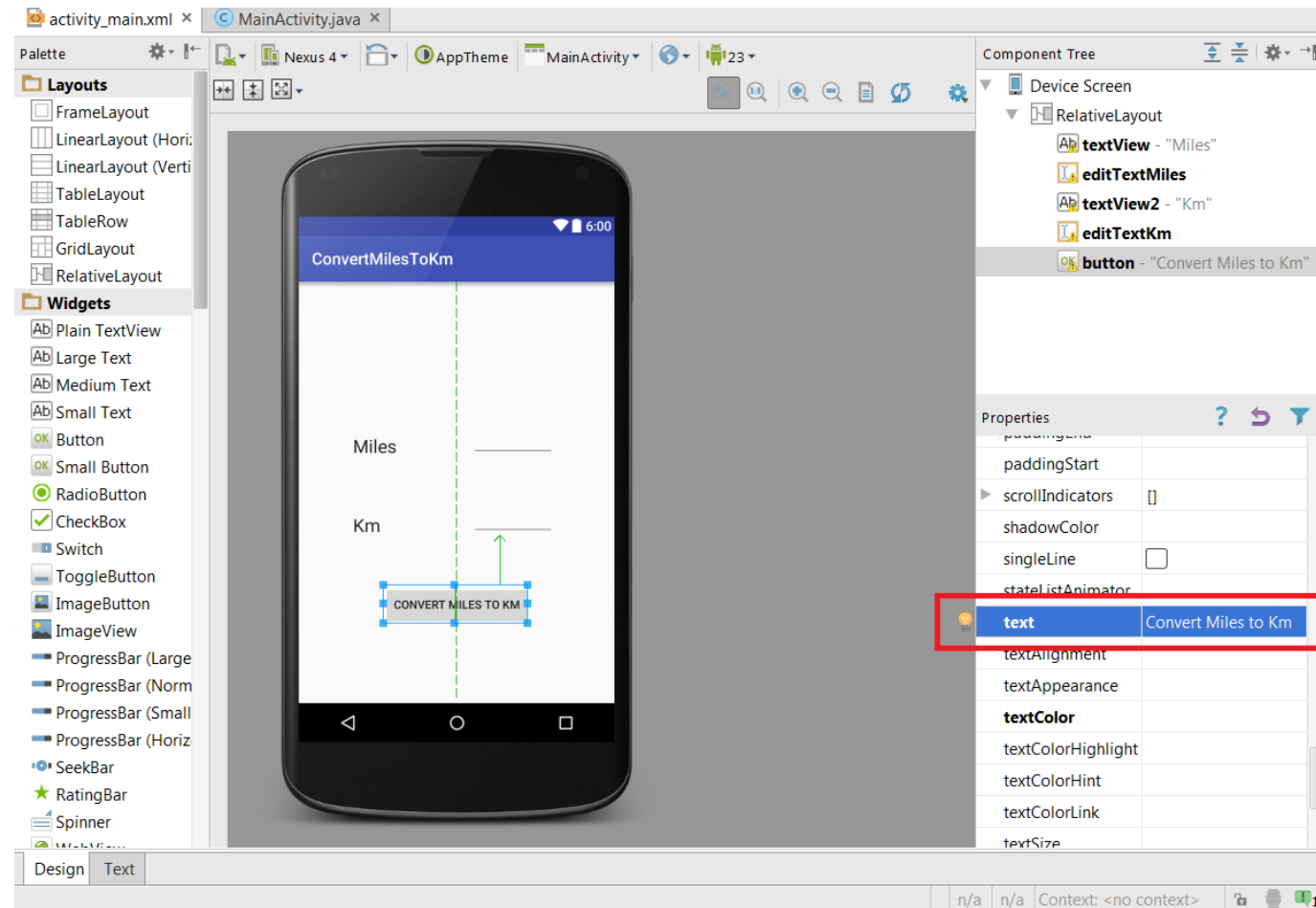
- The next step is to change the id of the *TextView* component.
- With the component selected in the layout, scroll down the list of attributes in the *Properties* panel until the *id* attribute comes into view and enter the value “*editTextMiles*” as outlined in the figure above.



- Place on the layout a *Large Text* component and a *Plain Text* component as it is shown above.
- Change the text of the *Large Text* component to Km. Change the width of the *Plain Text* to 100dp and change the *id* of the *Plain Text* to “*editTextKm*”.



- Next, place on the layout a button and double click on its view, and in the resulting panel, change the *text* property from “*New Button*” to “*Convert Miles to Km*”.
- Change also the *id* property from *button* to *buttonConvMilesToKm*.



- Next, place on the layout a button and double click on its view, and in the resulting panel, change the text property from “*New Button*” to “*Convert Km to Miles*”.
- Change also the *id* property from *button* to *buttonConvKmToMiles*.

