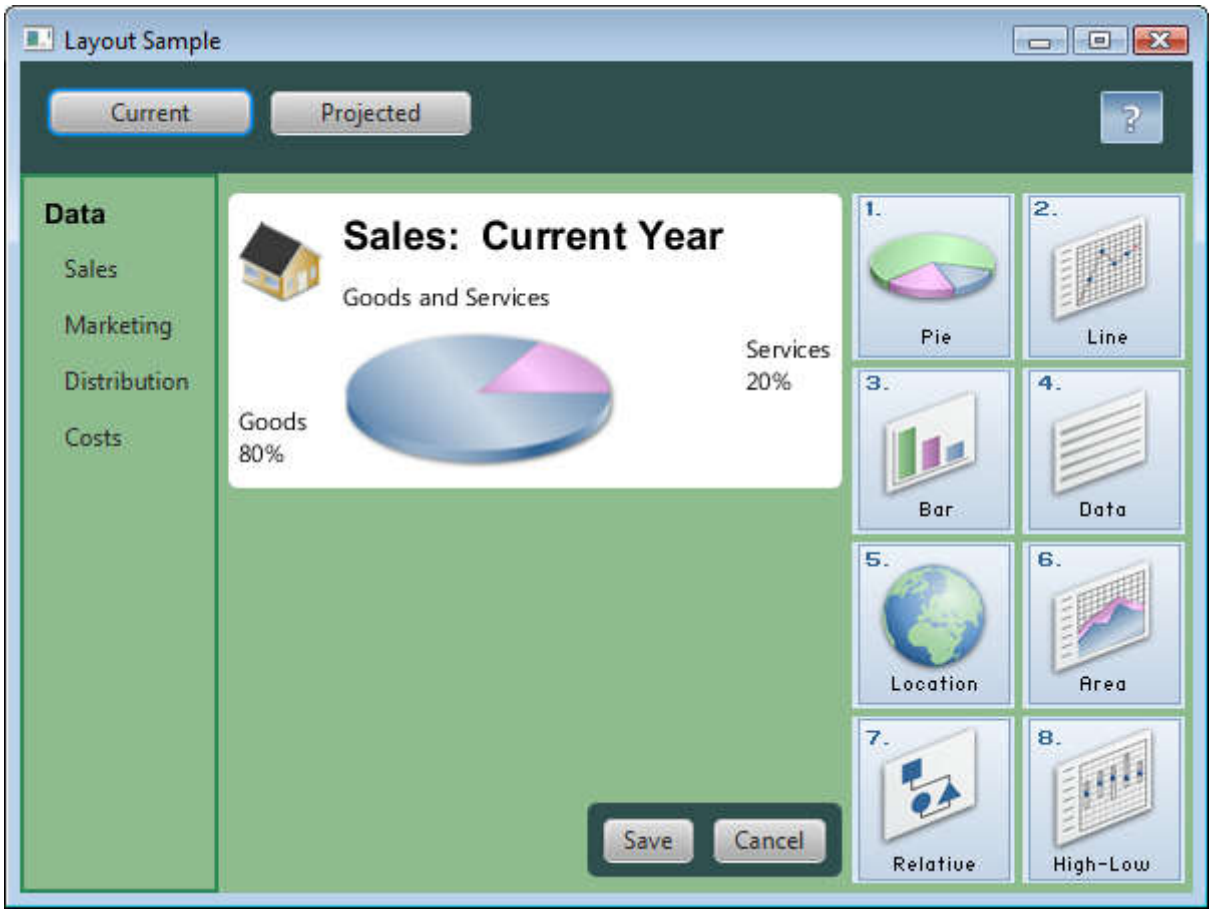
3 Styling Layout Panes with CSS

This topic describes how use CSS to style the layout panes that are available with the JavaFX SDK.

Layout panes use properties such as padding, spacing, and alignment to manage elements of how the panes appear. Cascading style sheets (CSS) enable you to define a set of properties and assign them to multiple layout panes to provide a standard look to your JavaFX application. You can also use CSS to customize individual layout panes.

This topic uses the sample from Using Built-in Layout Panes to provide examples of styling the different layout panes with CSS. Figure 3-1 shows the new look that is created.

Figure 3-1 Layout Sample with Custom Styling



Description of "Figure 3-1 Layout Sample with Custom Styling"

The LayoutSampleCSS.java file contains the source code for building this user interface. The `LayoutSampleCSS.zip` file contains the NetBeans IDE project for the sample application.

Creating Style Definitions

Unlike controls such as the button and check box, which have the respective style classes `.button` and `.check-box`, no style classes are predefined for the layout panes. To style your layout panes, you must create a style sheet and define the style classes that you want.

Then in the code for your application, assign the appropriate style class to layout panes as you create them.

For example, if you want all of your `HBox` panes to have the same background color, padding, and spacing properties, create a style named `.hbox` as shown in Example 3-1.

Example 3-1 Sample Style for an HBox Pane

```
.hbox {
    -fx-background-color: #2f4f4f;
    -fx-padding: 15;
    -fx-spacing: 10;
}
```

Use this style for each `HBox` pane that you create by assigning the style class to the pane. Example 3-2 shows the style assigned to two panes.

Example 3-2 Assigning the Style to HBox Panes

```
HBox hbox = new HBox();
hbox.getStyleClass().add("hbox");

HBox hb = new HBox();
hb.getStyleClass().add("hbox");
```

Style Properties for Layout Panes

You can use CSS to set the background, border, and padding properties for all types of layout panes. Some types of layout panes have additional properties that can be set. For example, you can set the spacing and alignment properties for `HBox` and `VBox` panes, and you can set the orientation, preferred number of rows, preferred number of columns, and other properties for tile panes. Images can be used for the background and border of a pane.

See the JavaFX CSS Reference Guide for a list of the properties that are available for each type of layout pane. Properties listed for the `Region` class can be used by all layout panes, which are descendents of the `Region` class.

Assigning a Style Sheet to the Scene

After you have your style sheet prepared, you must add the style sheet to the scene for your application. All nodes then have access to the styles defined in the style sheet. Example 3-3 shows how to add the style sheet for the Layout Sample. In this sample, the style sheet is in the same directory as the class file for the application.

Example 3-3 Adding a Style Sheet

```
Scene scene = new Scene(border);
scene.getStylesheets().add("layoutsamplecss/layoutstyles.css");
```

Styling the Layout Sample

The Layout Sample has examples of the built-in layout panes that are provided by the JavaFX layout package. Styling this sample provides examples of how CSS can be used with the different layout panes.

The style sheet layoutstyles.css contains the styles used for Figure 3-1.

Defining a Style for Shared Properties

All layout panes have a set of basic properties that can be managed with CSS. These include properties for the background, border, padding, and shape of the pane. If you have several panes that share common styling for these properties, you can define a single style class and assign that class to each of the panes.

In the customized Layout Sample, several of the layout panes use the same background color. The `.pane` style class shown in Example 3-4 is used to set this color.

Example 3-4 .pane Style Class

```
.pane {
    -fx-background-color: #8fbc8f;
}
```

If setting the background color is all that is needed for a pane, then only the `.pane` style needs to be assigned. If additional styling is desired, more than one style can be assigned to a pane. Example 3-5 shows just the `.pane` style added to an anchor pane and the `.pane` and `.grid` styles added to a grid pane.

Example 3-5 Assigning the .pane Style to a Layout Pane

```
AnchorPane anchorpane = new AnchorPane();
anchorpane.getStyleClass().add("pane");

GridPane grid = new GridPane();
grid.getStyleClass().addAll("pane","grid");
```

Styling the Border Pane

Border panes do not have any additional properties beyond the basic set mentioned in Defining a Style for Shared Properties. In the Layout Sample, the border pane is not styled. However, to style a border pane, define a style class and assign it to the pane in the same way that is done for other panes.

Styling the HBox Panes

In addition to the basic set of properties for all layout panes, `HBox` panes have properties for alignment, spacing, and fill height.

The Layout Sample shown in Figure 3-1 contains two `HBox` panes. The first `HBox`pane is at the top and contains the Current and Projected buttons. The second `HBox` pane is near the bottom and contains the Save and Cancel buttons.

For the customized Layout Sample, both `HBox` panes have the same background color and spacing. These properties are set in the style definition shown in Example 3-1.

The second `HBox`, which contains the Save and Cancel buttons, also has rounded corners and less padding as shown in Figure 3-2.

Figure 3-2 Styled HBox Pane

Description of "Figure 3-2 Styled HBox Pane"

To use the defined styling for `HBox` panes, the `.hbox` style is assigned to the pane. To override the padding and set the additional property for rounding the corners, the style definition shown in Example 3-6 is used and an ID is set for the second `HBox` pane.

Example 3-6 Custom HBox Style

```
#hbox-custom {
    -fx-background-radius: 5.0;
    -fx-padding: 8;
}
```

Example 3-7 shows how the styles are assigned to the second `HBox` pane.

Example 3-7 Assigning the Custom HBox Style to a Pane

```
HBox hb = new HBox();
hb.getStyleClass().add("hbox");
hb.setId("hbox-custom");
```

Styling the VBox Pane

In addition to the basic set of properties for all layout panes, `VBox` panes have properties for alignment, spacing, and fill width.

The `VBox` pane in the left region of Figure 3-1 uses the background from the `.pane` style class. The border, padding, and spacing are set in the `.vbox` style class shown in Example 3-8.

Example 3-8 .vbox Style Class

```
.vbox {
    -fx-border-color: #2e8b57;
    -fx-border-width: 2px;
    -fx-padding: 10;
    -fx-spacing: 8;
}
```

Example 3-9 shows how the styles are assigned to the `VBox` pane.

Example 3-9 Assigning Styles to the VBox Pane

```
VBox vbox = new VBox();
vbox.getStyleClass().addAll("pane", "vbox");
```

Styling the Stack Pane

In addition to the basic set of properties for all layout panes, stack panes have a property for alignment. In the Layout Sample, the stack pane is not styled. However, to style a stack pane, define a style class and assign it to the pane in the same way that is done for other panes.

Styling the Grid Pane

In addition to the basic set of properties for all layout panes, grid panes have properties for spacing between the rows and columns, alignment of the grid, and visibility of the grid lines.

The grid in the center region of Figure 3-1 has rounded corners and a white background that is slightly smaller than the grid itself. The `.grid` style class shown in Example 3-10 provides this styling and sets the properties for padding and for spacing between the rows and columns.

Example 3-10 .grid Style Class

```
.grid {
    -fx-background-color: white;
    -fx-background-radius: 5.0;
    -fx-background-insets: 0.0 5.0 0.0 5.0;
    -fx-padding: 10;
    -fx-hgap: 10;
    -fx-vgap: 10;
}
```

Example 3-11 shows how the style is assigned to the grid.

Example 3-11 Assigning a Style to the Grid

```
GridPane grid = new GridPane();
grid.getStyleClass().add("grid");
```

Note that the grid does not have the background color that is used by other layout panes in the sample. However, the anchor pane that contains the grid uses the background color. To prevent the grid from having the background color of its parent, you must to set the background for the grid to the desired color.

Styling the Flow Pane or Tile Pane

In addition to the basic set of properties for all layout panes, flow panes have properties for alignment, orientation, and spacing between the rows and columns. Tile panes have properties for alignment, orientation, spacing between the rows and columns, preferred number of rows and columns, and preferred width and height.

In the Layout Sample, either a flow pane or a tile pane can be used for the right region of Figure 3-1. The properties set in the style class are common to both types of panes, so the same style class is used in the sample. The `.flow-tile`style class shown in Example 3-12 sets the properties for padding and for spacing between the rows and columns.

Example 3-12 .flow-tile Style Class

```
.flow-tile {
    -fx-padding: 10.0 3.0 5.0 0.0;
    -fx-hgap: 4;
    -fx-vgap: 4;
}
```

The flow pane and tile pane also use the `.pane` style class for the background color. Example 3-13 shows how the styles are assigned to the flow pane and tile pane.

Example 3-13 Assigning Styles to the Flow Pane and Tile Pane

```
FlowPane flow = new FlowPane();
flow.getStyleClass().addAll("pane", "flow-tile");

TilePane tile = new TilePane();
tile.getStyleClass().addAll("pane", "flow-tile");
```

Styling the Anchor Pane

Anchor panes do not have any additional properties beyond the basic set of properties for all layout panes.

The anchor pane in the center region of Figure 3-1 contains a grid and an `HBox`pane, each of which has its own styling. The only styling applied to the anchor pane is the background color set by the `.pane` style class shown in Example 3-4.

Example 3-14 shows how the style is assigned to the anchor pane.

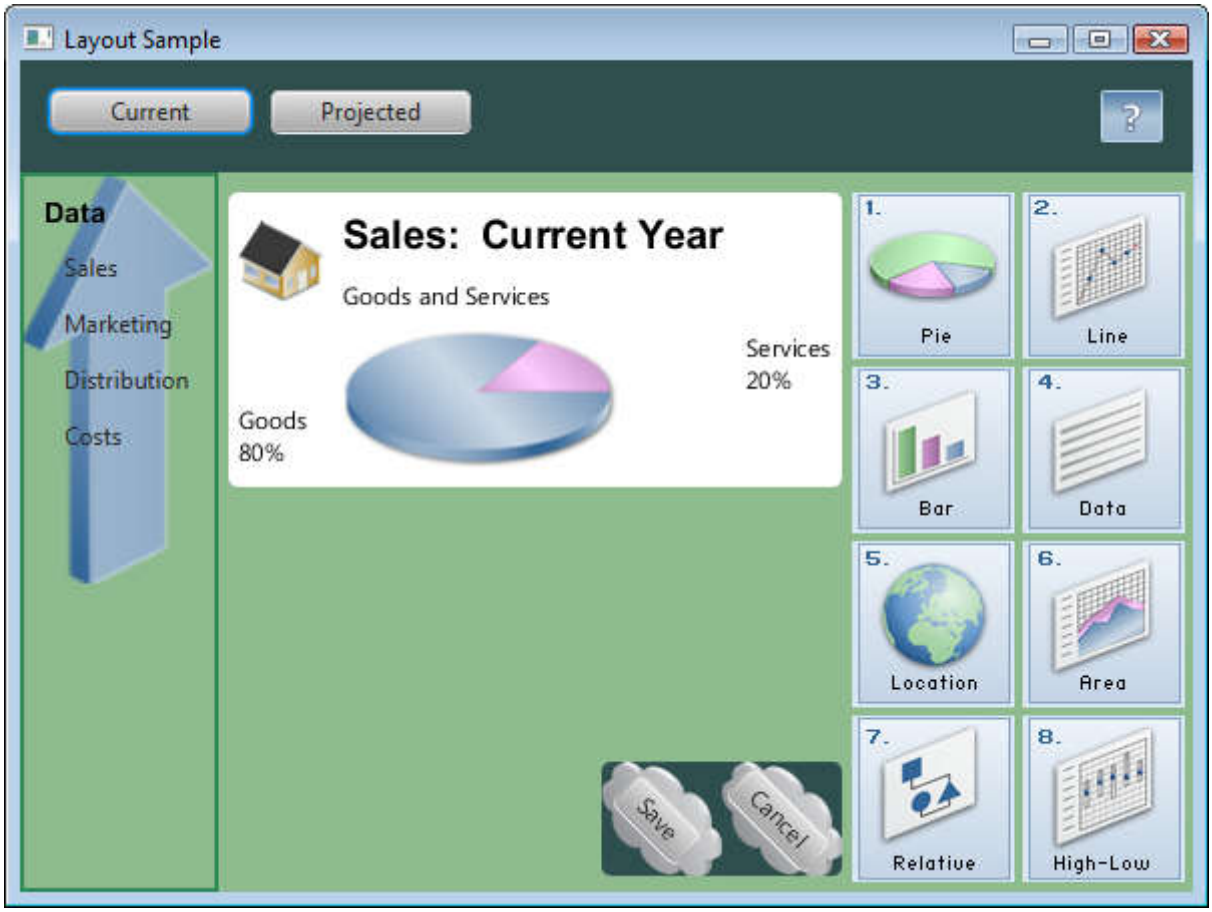
Example 3-14 Assigning a Style to the Anchor Pane

```
AnchorPane anchorpane = new AnchorPane();
anchorpane.getStyleClass().add("pane");
```

Using a Background Image

Images can be used as the background for a layout pane by setting the background image properties. You can specify the image, size, position, and repetition in a style class. Figure 3-3 shows another version of the Layout Sample user interface that uses background images for the `VBox` pane on the left and the `HBox` pane that contains the Save and Cancel buttons.

Figure 3-3 Styled with Images



Description of "Figure 3-3 Styled with Images"

Example 3-15 shows the style class definitions for adding the background images.

Example 3-15 Styles Using Background Images

```
.vbox {
    -fx-background-image: url("graphics/arrow_t_up_right.png");
    -fx-background-size: 96, 205;
    -fx-background-repeat: no-repeat;
    -fx-border-color: #2e8b57;
    -fx-border-width: 2px;
    -fx-padding: 10;
    -fx-spacing: 8;
}

#hbox-custom {
    -fx-background-image: url("graphics/cloud.png");
    -fx-background-size: 60,69;
    -fx-padding: 18 3 18 6;
    -fx-background-radius: 5.0;
}

#button-custom {
    -fx-rotate: 45;
    -fx-text-alignment: center;
}
```

Note the following:

- The images are located in the /graphics directory, which is at the same level as the class file for the application.
- The arrow image was smaller than desired and the cloud image was larger than desired, so the images were resized using the `-fx-background-size`property.
- To prevent the arrow from repeating in the background of the `VBox` pane, the `-fx-background-repeat` property is set to `no-repeat`.
- To angle the buttons, a new style class named `#button-custom` is defined, and the ID for the Save and Cancel buttons is set to `button-custom`.

Additional Resources

For more information on CSS and JavaFX, see the following documents:

- JavaFX CSS Reference Guide
- Skinning JavaFX Applications with CSS