

22.12 Wrap-Up

In this chapter, we completed our discussion of JavaFX that began in [Chapters 12](#) and [13](#). Here, we presented various JavaFX graphics and multimedia capabilities.

We used external Cascading Style Sheets (CSS) to customize the appearance of JavaFX `Nodes`, including `Labels` and objects of various `Shape` subclasses. We displayed two-dimensional shapes, including lines, rectangles, circles, ellipses, arcs, polylines, polygons and custom paths.

We showed how to apply a transform to a `Node`, rotating 18 `Polygon` objects around a specific point to create a circle of star shapes. We created a simple video player using class `Media` to specify the video's location, class `MediaPlayer` to load the video and control its playback and class `MediaView` to display the video.

We animated `Nodes` with `Transition` and `Timeline` animations that change `Node` properties to new values over time. We used built-in `Transition` animations to change specific JavaFX `Node` properties (such as a `Node`'s stroke and fill colors, opacity, angle of rotation and scale). We used `Timeline` animations with `KeyFrames` to bounce a `Circle` around a window, and showed that such animations can be used to change any modifiable `Node` property. We also

showed how to create frame-by-frame animations with `AnimationTimer`.

Next, we presented various capabilities for drawing on a `Canvas Node` using a `GraphicsContext` object. You saw that `GraphicsContext` supports many of the same drawing characteristics and shapes that you can implement with `Shape Nodes`. Finally, we showed the three-dimensional shapes `Box`, `Cylinder` and `Sphere`, and demonstrated how to use materials to apply color and images to them. For more information on JavaFX, visit the FX Experience blog at

<http://fxexperience.com/>

