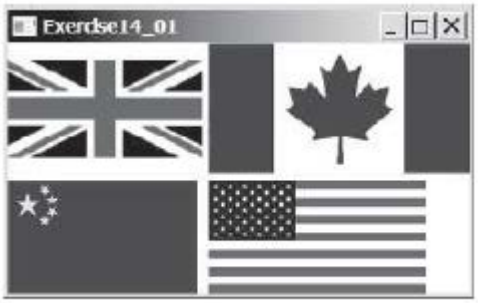
การทดลองที่ 8

Chapter 14 JavaFX Basics

① **Programming Exercise 14.1 p.578** (Display images)

Write a program that displays four images in a grid pane, as shown in Figure 14.43a.



(a)

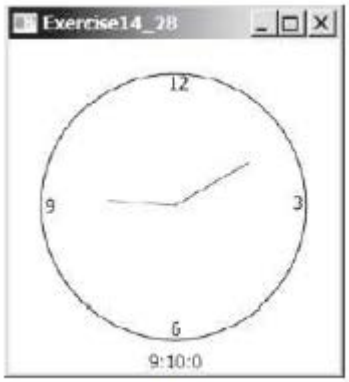
② **Programming Exercise 14.7 p.579** (Display random 0 or 1)

Write a program that displays a 10-by-10 square matrix, as shown in Figure 14.45a. Each element in the matrix is 0 or 1, randomly generated. Display each number centered in a text field. Use TextField's setText method to set value 0 or 1 as a string.

(a)

③ **Programming Exercise 14.28 p.583** (Random time)

Modify the ClockPane class with three new Boolean properties—hourHandVisible, minuteHandVisible, and secondHandVisible—and their associated accessor and mutator methods. You can use the set methods to make a hand visible or invisible. Write a test program that displays only the hour and minute hands. The hour and minute values are randomly generated. The hour is between 0 and 11, and the minute is either 0 or 30, as shown in Figure 14.52b.



(b)

① **Programming Exercise 15.29 p.625** (Racing car)

Write a program that simulates car racing, as shown in Figure 15.34a. The car moves from left to right. When it hits the right end, it restarts from the left and continues the same process. You can use a timer to control animation. Redraw the car with a new base coordinates (x, y), as shown in Figure 15.34b. Also let the user pause/resume the animation with a button press/release and increase/decrease the car speed by pressing the UP and DOWN arrow keys.

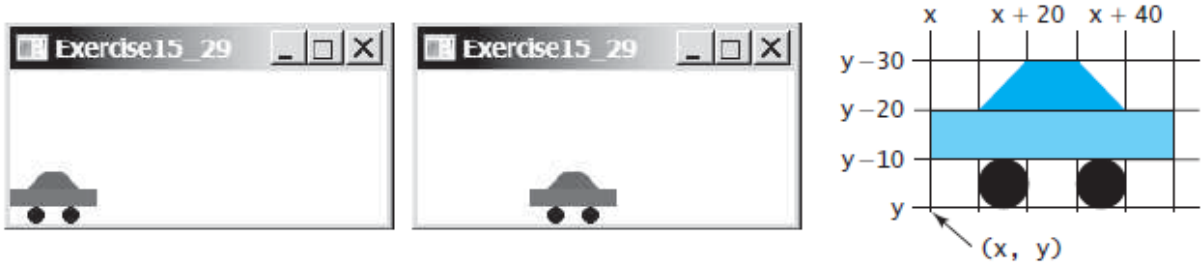
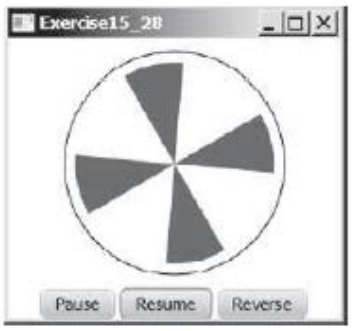


FIGURE 15.34 (a) The program displays a moving car. (b) You can redraw a car with a new base point.

② **Programming Exercise 15.28 p.625** (Display a running fan)

Write a program that displays a running fan, as shown in Figure 15.33c. Use the Pause, Resume, Reverse buttons to pause, resume, and reverse fan running.



(c)

③ **Programming Exercise 16.18 p.672** (Simulation: a running fan)

Rewrite Programming Exercise 15.28 to add a slider to control the speed of the fan, as shown in Figure 16.43c.

(c)