1 **import** java.awt.\*;

2 **import** java.io.Serializable;

3

4 **public** **abstract** **class** Boat implements Serializable **//contains attributes**

5 { **//common to all boats**

6 **private** **static** i**n**t PRICE\_PER\_FOOT = 10;

7 **private** **int** x, y, length; **//data members common to all types of boats**

8 **private** Color color;

9

10 **public** Boat(**int** x, **int** y, **int** length, Color color)

11 {

12 **this**.x = x;

13 **this**.y = y;

14 **this**.length = length;

15 **this**.color = color;

16 }

17 **public** **int** calculatePrice() **//will be overridden**

18 {

19 **return** length \* PRICE\_PER\_FOOT;

20 }

21 **public** **void** show(Graphics g) **//will be overridden**

22 {

23 **int**[] xBoat = {getX() , getX() + length, getX() + 6\*length/7,

24 getX() + length/14};

25 **int**[] yBoat = {getY(), getY(), getY() + length/7,

26 getY() + length/7};

27 **int** price = calculatePrice();

28 g.setColor(color);

29 g.fillPolygon(xBoat, yBoat, xBoat.length);

30 g.setColor(Color.BLACK);

31 g.setFont(new Font("Arial", Font.BOLD, 16));

32 g.drawString("$" + String.valueOf(price), x + 10, y + 16);

33 }

34 **public** String toString() **//will be overridden**

35 {

36 **return** "Location: (" + x + ", " + y +"), length: " + length +

37 ",Color: " + color;

38 }

39 **public** **int** getX() **//get & set methods common to all types of boats**

40 {

41 **return** x;

42 }

43 **public** **int** getY()

44 {

45 **return** y;

46 }

47 **public** **int** getLength()

48 {

49 **return** length;

50 }

51 **public** Color getColor()

52 {

53 **return** color;

54 }

55 **public** **void** setX(**int** x)

56 {

57 **this**.x = x;

58 }

59 **public** **void** setY(**int** y)

60 {

61 **this**.y = y;

62 }

63 }

**Figure 8.19The abstract class Boat.**