3.4 Graphics Supplement

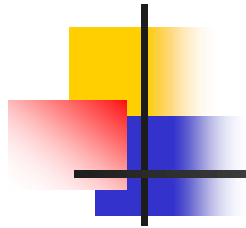- How to add color to your javaFX Drawings
- A `JOptionPane` Yes/No Window

Specifying a Drawing Color

- When drawing a shape inside a JavaFX canvas think of the drawing being done with a pen that can change colors.
- The method **setFill** changes the color of the "pen."

```
gc.        (      .YELLOW);
```

- Drawings done later appear on top of drawings done earlier.

Specifying a Drawing Color,

Figure 3.10 Some Predefined Colors
for he setFill Method.

Color.BLACK
Color.BLUE
Color.CYAN
Color.DARK_GRAY
Color.GRAY
Color.GREEN
Color.LIGHT_GRAY

Color.MAGENTA
Color.ORANGE
Color.PINK
Color.RED
Color.WHITE
Color.YELLOW

Field Summary

Fields

Modifier and Type	Field and Description
static Color	black The color black.
static Color	BLACK The color black.
static Color	blue The color blue.
static Color	BLUE The color blue.
static Color	cyan The color cyan.
static Color	CYAN The color cyan.
static Color	DARK_GRAY The color dark gray.
static Color	darkGray The color dark gray.

Listing 3.6 Adding Color

```java
import javafx.application.Application;
import javafx.scene.canvas.Canvas;
import javafx.scene.Scene;
import javafx.scene.Group;
import javafx.stage.Stage;
import javafx.scene.canvas.GraphicsContext;
import javafx.scene.shape.ArcType;
import javafx.scene.paint.Color;

public class YellowFace extends Application
{
    public static final int WINDOW_WIDTH = 400;
    public static final int WINDOW_HEIGHT = 300;

    public static final int FACE_DIAMETER = 200;
    public static final int X_FACE = 100;
    public static final int Y_FACE = 50;
```

```java
public static final int EYE_WIDTH = 10;
  public static final int EYE_HEIGHT = 20;
  public static final int X_RIGHT_EYE = 155;
  public static final int Y_RIGHT_EYE = 100;
  public static final int X_LEFT_EYE = 230;
  public static final int Y_LEFT_EYE = Y_RIGHT_EYE;

  public static final int NOSE_DIAMETER = 10;
  public static final int X_NOSE = 195; // Center of nose at 200
  public static final int Y_NOSE = 135;

  public static final int MOUTH_WIDTH = 100;
  public static final int MOUTH_HEIGHT = 50;
  public static final int X_MOUTH = 150;
  public static final int Y_MOUTH = 160;
  public static final int MOUTH_START_ANGLE = 180;
  public static final int MOUTH_DEGREES_SHOWN = 180;

  public static void main(String[] args)
  {
    launch(args);
  }
```

```java
@Override
 public void start(Stage primaryStage) throws Exception
 {
        Group root = new Group();
        Scene scene = new Scene(root);

        Canvas canvas = new Canvas(WINDOW_WIDTH, WINDOW_HEIGHT);
        GraphicsContext gc = canvas.getGraphicsContext2D();
        // Draw face interior in yellow and outline in black
        gc.setFill(Color.YELLOW);
        gc.fillOval(X_FACE, Y_FACE, FACE_DIAMETER, FACE_DIAMETER);
        gc.setFill(Color.BLACK);
        gc.strokeOval(X_FACE, Y_FACE, FACE_DIAMETER, FACE_DIAMETER);
        // Draw eyes
        gc.setFill(Color.BLUE);
        gc.fillOval(X_RIGHT_EYE, Y_RIGHT_EYE, EYE_WIDTH, EYE_HEIGHT);
        gc.fillOval(X_LEFT_EYE, Y_LEFT_EYE, EYE_WIDTH, EYE_HEIGHT);
        // Draw nose
        gc.setFill(Color.BLACK);
        gc.fillOval(X_NOSE, Y_NOSE, NOSE_DIAMETER, NOSE_DIAMETER);

        // Draw mouth
        gc.setFill(Color.RED);
        gc.strokeArc(X_MOUTH, Y_MOUTH, MOUTH_WIDTH, MOUTH_HEIGHT,
                MOUTH_START_ANGLE, MOUTH_DEGREES_SHOWN, ArcType.OPEN);

        root.getChildren().add(canvas);
        primaryStage.setTitle("HappyFace in JavaFX");
        primaryStage.setScene(scene);
        primaryStage.show();
    }
}
```