Java FX: Hello World with a Picture

Learning Goal: Add a picture to your Hello World

Rendering Graphics:

- Adding graphics is called "rendering" graphics
- Particularly important to game programmers!
- In JavaFX the **Canvas** object is an image on which we can draw text, shapes, and images
- We are going to create a much better Hello World with a picture!

Try this:

- Start with the following list of import statements:

```
import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.Scene;
import javafx.scene.Group;
import javafx.scene.canvas.Canvas;
import javafx.scene.canvas.GraphicsContext;
import javafx.scene.paint.Color;
import javafx.scene.text.Font;
import javafx.scene.text.FontWeight;
import javafx.scene.image.Image;
```

- And you should be used to this class statement and main method now:

```
public class HelloWorld extends Application
{
    public static void main(String[] args)
    {
        Launch(args);
    }
}
```

- And here is the rest that simply writes "Hello World"

```java
@Override
public void start(Stage theStage)
{
    theStage.setTitle( "Canvas Example" );

    Group root = new Group();
    Scene theScene = new Scene( root );
    theStage.setScene( theScene );

    Canvas canvas = new Canvas( 400, 400 );
    root.getChildren().add( canvas );

    GraphicsContext gc = canvas.getGraphicsContext2D();

    gc.setFill( Color.RED );
    gc.setStroke( Color.BLACK );
    gc.setLineWidth(2);
    Font theFont = Font.font( "Times New Roman", FontWeight.BOLD, 48 );
    gc.setFont( theFont );
    gc.fillText( "Hello, World!", 60, 50 );
    gc.strokeText( "Hello, World!", 60, 50 );



    theStage.show();
}
```

- Run at this point to make sure there are no issues with your code (don't forget the very last close bracket } for the class)
- Now all you need to do is add the following two lines right before `theStage.show();`

```java
Image world = new Image( "earth.png" );
gc.drawImage( world, 180, 100 );
```

- If you try to run your program at this point, it will crash because it cannot find "earth.png"
- You will need to import this image file (here is a video demonstrating how to do this part)
- Import the picture and run your program!