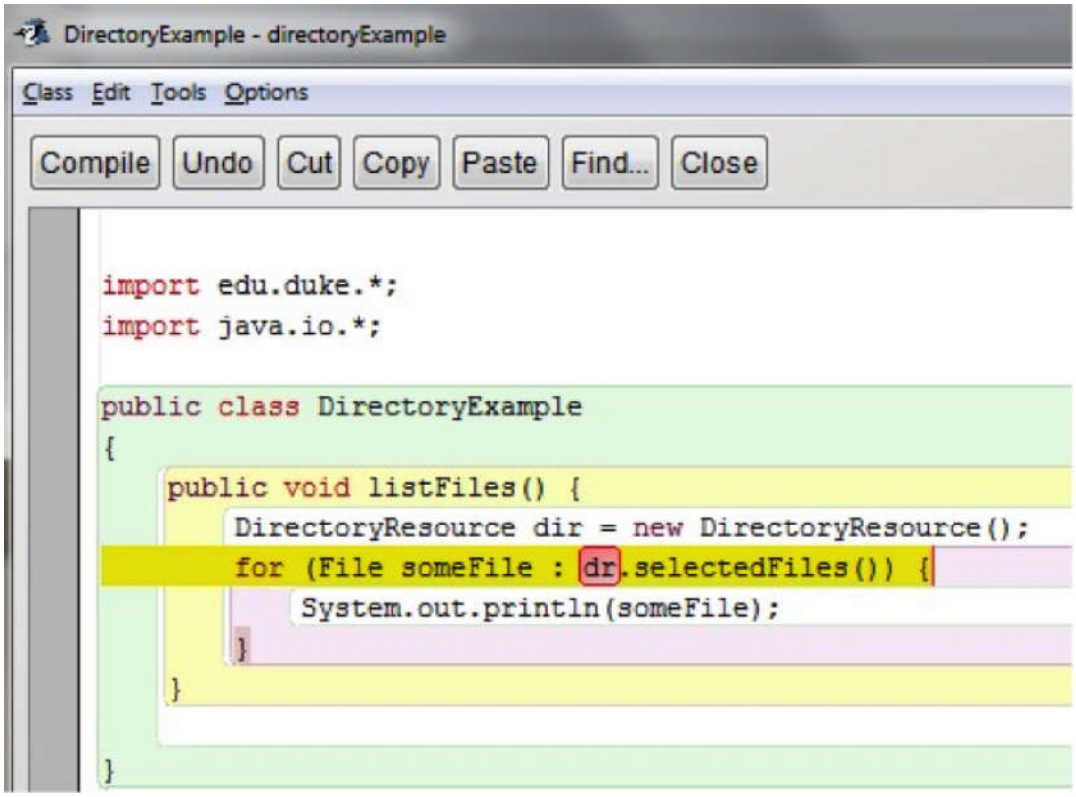
Batch Grayscale Images

Quiz, 6 questions

1 point

1.

Consider writing code to list out files in one of your folders using **DirectoryResource**. The following attempt at writing such code has an error.



Which one of the following best explains what the error is?

- The **dr** that is highlighted should be **dir**.
- The **dr** that is highlighted should be **DirectoryResource**.
- The **dr** that is highlighted should be **listFiles**.
- The **dr** that is highlighted should be **File**.

---

1 point

2.

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Shown below is the code that was developed in one of the videos to convert many images to grayscale and to display those grayscale images.

```
import edu.duke.*;
import java.io.*;
public class GrayScaleConverterBatch
{
    public ImageResource makeGray(ImageResource inImage) {
        ImageResource outImage = new ImageResource(inImage.getWidth(), inImage.getHeight());

        for (Pixel pixel: outImage.pixels()) {
            Pixel inPixel = inImage.getPixel(pixel.getX(), pixel.getY());

            int average = (inPixel.getRed() + inPixel.getGreen() + inPixel.getBlue())/3;

            pixel.setRed(average);
            pixel.setGreen(average);
            pixel.setBlue(average);

        }

        return outImage;

    }

    public void selectAndConvert() {
        DirectoryResource dr = new DirectoryResource();
        for (File f: dr.selectedFiles()){
            ImageResource inImage = new ImageResource(f);
            ImageResource gray = makeGray(inImage);
            gray.draw();
        }
    }

}
```

Consider adding additional code to this program to save each of the new grayscale images created as a file.

Which one of the following is the best method to modify to make this change?

- Modify the **makeGray** method.
- Create a new method to read each image from a file and save the image.
- Modify the **selectAndConvert** method.

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1 point

3.

Suppose one wants to convert a given image to grayscale and then display and save the resulting grayscale image as a file.

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The code below has been started for you. The variable **f** is a file of an image and the method **makeGray** returns an image that is the grayscale image of the original image.

```
1  ImageResource original = new ImageResource(f);
2  ImageResource grayscale = makeGray(original);
3  [MISSING CODE]
```

Which one of the following is the missing code that will convert the original image into a new file that is a grayscale version of the original image?

```
1  String fname = original.getFileName();
2  String newName = "grayscale-" + fname;
3  grayscale.setFileName(newName);
4  grayscale.draw();
5  grayscale.save();
```

```
1  String fname = original.getFileName();
2  String newName = "grayscale-" + fname;
3  original.setFileName(newName);
4  grayscale.draw();
5  grayscale.save();
```

```
1  String fname = grayscale.getFileName();
2  String newName = "grayscale-" + fname;
3  grayscale.setFileName(newName);
4  grayscale.draw();
5  grayscale.save();
```

```
1  String fname = original.getFileName();
2  grayscale.setFileName(newName);
3  String newName = "grayscale-" + fname;
4  grayscale.draw();
5  grayscale.save();
```

1 point

4.

Consider writing a program to create new images that are photographic negatives (or inverted images) of selected images.

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In inverting an image, a pixel's red, blue and green components are modified to be the exact opposite within the 0 to 255 range. That is, if a pixel's red, blue, and green values are (34, 198, 240) then that same pixel in the inverted image would have the red, blue, and green values of (221, 57, 15). Note that 255 - 34 is 221, 255 - 198 is 57, and 255 - 240 is 15.

For example, these images show the original and inverse images of Robert.

Suppose a pixel has RGB values of (100, 30, 250).

Which one of the following shows the correct RGB values for the inverted pixel?

- The RGB values would be (126, 126, 126).
- The RGB values would be (155, 225, 5).
- The RGB values would be (100, 30, 250).
- The RGB values would be (200, 230, 50).
- The RGB values would be (225, 155, 5).

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5.

Consider writing a program to create new images that are photographic negatives (or inverted images) of selected images.

Suppose we have a Pixel named **pxInvert** and a Pixel named **pxOriginal**.

What is the line of code to change **pxInvert**'s red color to the inverted red color of **pxOriginal**?

Hints: Start with **pxInvert.setRed**

Remember the semi colon at the end.

Enter answer here

1 point

6.

Consider writing a program to create new images that are photographic negatives (or inverted images) of selected images.

Suppose we have an ImageResource variable named **picture** whose current value is for an image file named **dragon.png**. See the following code segment below.

```
1  ImageResource invertImage = makeInverted(picture);
2  String fname = picture.getFileName();
3  invertImage.setFileName("inv-" + fname);
4  invertImage.draw();
5  invertImage.save();
```

What is the name of the resulting file?

Enter answer here

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