SUMMARY
In this assignment you will add a method to the Picture class (Picture.java) to create a color component layout.

DEADLINE
This assignment is due on Friday, October 11 at 11:00 pm.

DESCRIPTION
COMPONENTLAYOUT
Create a new method:

    public Picture componentLayout()

in Picture.java. This method will create and return a new picture object.

The new picture should be a grid layout with four versions of the picture. The four versions will be Grays, Reds, Greens, and Blues. Each version will contain the pixels that fit in that category, and there will be no overlap. The layout will be as follows:

<table>
<thead>
<tr>
<th>Grays</th>
<th>Reds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greens</td>
<td>Blues</td>
</tr>
</tbody>
</table>

The new picture will obviously have twice the width and twice the height as the original. You should check each pixel to see where it belongs. Use an if/else if/else statement. You should check for grayscale first.

To determine if a pixel is grayscale:

- Compute the intensity
- Create the grayscale color of that pixel
- Check if the color distance between that pixel and the grayscale color is less than 16

After that, check for each of the other three regions. A pixel belongs in the red region if its red component is larger than green and blue. Similar for green and blue. Once you determine the region where a pixel belongs, copy it to the correct location in the new picture object. (Think about the x and y values)

Be sure that your method creates and returns a new picture object with the component layout. Do not modify the original picture.
EXAMPLE

```java
String fileName = "../balloon.jpg";
Picture original = new Picture(fileName);
original.componentLayout().show();
```

ORIGINAL

![Original Image]

OUTPUT

![Output Image]
SUBMISSION

Submit the file

    Picture.java

with your method added by the deadline given above. Place all files for submission in a directory in your cs account. Submit the entire directory with the following command:

    submit102 assign1 MY_DIRECTORY

For example, if you named your directory assignment-01, and your current working directory contained the assignment-01 directory, you would submit with the following command:

    submit102 assign1 assignment-01