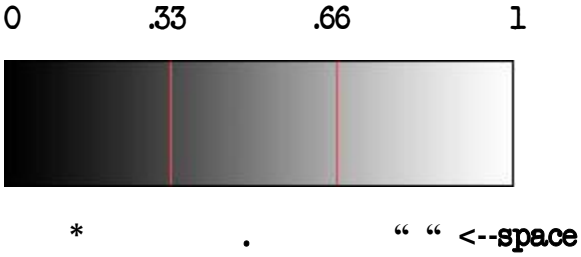
PHOTOSHOP ASCIIFY PROJECT

The Photoshop team leader Dr. Christianna Taylor wants to implement a new image filter called Asciify. The Asciify filter takes an image and renders it as ascii characters. Dr. Taylor wants a prototype developed in C# first. The general process involves.

1. Determine an image kernel width & height.
2. Load an image.
3. Looking at areas of pixels in the image the size of the kernel.
4. For each kernel convert the RGB color values to a normalized greyscale value (0 to 1). There are various ways to convert RGB to greyscale, find a method and implement in your program.
5. Used the normalized greyscale values to determine which ascii character to draw.

The process used to draw the correct ascii character involves mapping normalized ranges of the greyscale to certain characters. Normalized means all values fall between 0 and 1. So a normalized greyscale ramp looks like.

A mapping might look like this, notice how the darker areas of the ramp are assigned to characters that use more "ink".



Note: Your filter should use at least six greyscale ranges to map to ascii characters.

The BitmapAscii Class

Implement a class called BitmapAscii the class should implement the below methods.

`string Asciitize(Bitmap)`

This method should accept a Bitmap and return a string containing the ascii text version of the picture

`double AveragePixel(int, int, int)`

`double AveragePixel(Color) *overload*`

This method should accept components or a color instance and return a normalized value (0-1) of the grey value calculated from the RGB values

`double AverageColor(List<Color>)`

This method should accept a list of Colors and return a normalized value (0-1) of the average grey value calculated from the Colors RGB values

`string GrayToString(double)`

This method should accept a normalized value (0-1) and return a string containing the ascii character mapped to the range the value falls in.

`string ToString() *overload*`

Overload the ToString() method to return a string containing the entire ascii version of the image.

Before coding come up with a design for the GUI and for the process of converting the image to ASCII and get it approved. There is an example of what the program's output should look like on the next pages.