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CPS111
Assignment: 5

Problem 1: smoothimage.py

The smoothimage module contains two functions: **smoothImage** and **main**.
The **smoothImage** function takes a FileImage object, provided by the user on the command-line, and "smooths" the image out so it no longer looks "pixelated". In order to do this, the function has to take a pixel value, finds the average value of the eight surrounding pixels and itself, and replaces the original pixel value by this average value.
The **main** function takes the chosen FileImage (provided by the user on the command-line), calls the **smoothImage** function, to smooth the image, and then draws the original and new image onto an image window.
The code should run using: python3 smoothimage.py *<Name of File Image>*

Problem 2: zoomandenhance.py

The zoomandenhance module takes four functions: **zoom**, **restrict**, **sharpenImage**, and **main**.
The **zoom** function take a FileImage whose name was provided by the user on the command-line and zooms into the area selected by the user, and increases the size of the section by a scaling factor, provided by the user on the command-line.
The **restrict** function takes the pixel value and then determines if the number fits within the desired range (0 to 255). If the number does not fit within the range then the number has to be increased to the minimum number or decreased to the maximum number.
The **sharpenImage** function takes a FileImage whose name was provided by the user on the command-line and "sharpens" the image, or makes the image less like the surrounding pixels. In order to do this, the function has to take a pixel, multiply it the pixel value by the total number of pixels (nine), subtracts the pixel value of each pixel to the multiplication. SharpenImage then calls **restrict** to make sure the pixel values are within the range 0 and 255, and replaces the original pixel value by this new value.
The **main** function takes the FileImage whose name was provided by the user on the command-line and makes two copies, an original and one that will be processed. Main then asks the user for the specific area they want to "Zoom and Enhance" and the desired scaling Factor. Main then calls **sharpenImage,** to sharpen the image. Main then calls **zoom**, to zoom into the desired image section and increase the image size by the scale provided by the user. Main then draws both original image and the new enhanced, zoomed, and rescaled image onto an image window.
The code should run using: python3 zoomandenhance.py *<Name of File Image>*