* Statistical analysis and manipulation of pixel values are key in traditional image processing.
* Contrast is crucial for identifying features, but challenging lighting conditions can affect it.
* We want to ideally adjust the images to have a more uniform contrast so it is easier to work with
* Pixel values range from 0-255 and can be plotted in a histogram showing their frequency.
* The cumulative distribution function (CDF) shows the cumulative distribution of pixel intensities.
* Contrast stretching scales pixel values to improve contrast by evenly distributing them.
* Histogram normalization flattens the histogram and produces a uniform CDF for improved contrast.
* Python libraries simplify the process of adjusting contrast using these techniques.