%Assigns images folder the varaible “originalFolder”

originalFolder = 'images';

%Assigns preprocessed images folder the varaible “preprocessedFolder”

preprocessedFolder = 'preprocessed images';

%Check if the preprocessedFolder already exists using the exist function. If not, you create the folder using the mkdir function.

if ~exist(preprocessedFolder, 'dir')

mkdir(preprocessedFolder);

end

% Get the list of the names of the image files with jpeg extension using the dir funtion

ImageList = dir(fullfile('images', '\*.jpeg'));

%Loop over the images files for the nummber of records in ImageList which is the number of images in the image folder

for i = 1:length(ImageList)

currentImagePath = fullfile(originalFolder, ImageList(i).name);

Original\_Image = imread(currentImagePath); %read the image data

% Resizing the image to 500x500 pixels using imresize function

resizedImage = imresize(Original\_Image, [500, 500]);

% Opening an interactive window to rotate the image

figure(1);

imshow(resizedImage);

title('Resized image');

%Prompt user to enter the roation angle

rotationAngle = input('Enter rotation angle (in degrees): ');

%rotate the image by the specified angle

rotatedImage = imrotate(resizedImage, rotationAngle);

close;

% Reduce the noise of the image using a Gaussian Filter to the image with standard deviation of 3 using the imgaussfilt function.

denoised = imgaussfilt(rotatedImage, 3);

%For the preprocessed image generate a new image, and save the

...preprocessed image in 'preprocessed images' folder

outputFileName = sprintf('image\_%d.jpeg', i);

outputFilePath = fullfile(preprocessedFolder, outputFileName);

imwrite(denoised, outputFilePath);

end

# Self Reflection

* If I had more time to redo the coursework I would use a better way to filter the noise from the images than using imgaussfilt, as it blurs out an image to reduce the noise and this affects the sharpness and contrast of the image
* the global binarization method also had some drawbacks, such as introducing some artifacts or errors in the background, and losing some details or textures in the foreground. Had to conduct multiple experiments on how to apply the binrisation, made another loop to use the standard deviation of pixel intensities as a threshold to decide which binarization worked best. Although the “global” method gave the best result. If possible would explore more into this topic to binarize the image better.