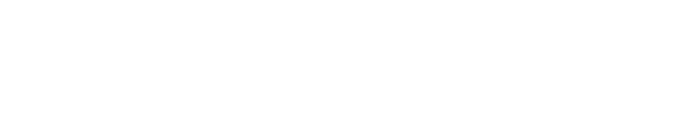
Final Project

Image Processing

College of Management Academic Studies

Computer Science





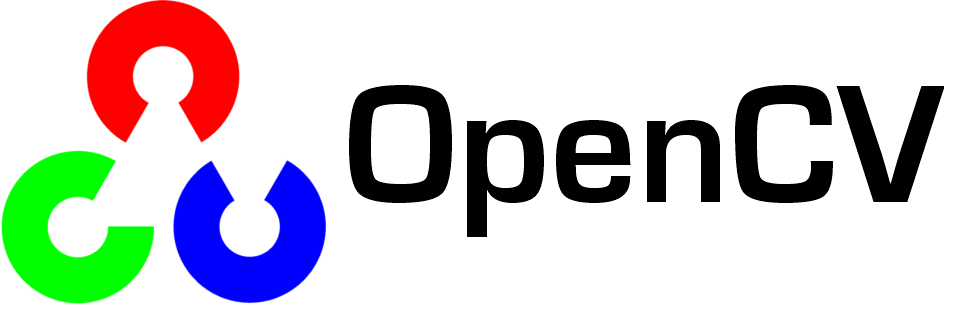


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# Submission Details

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**Submitted Due date:**

28.03.2017

**Submitted To:**

Dr. Moshe Butman

# Part A: Single image processing

The answers in the section are written in MATLAB.

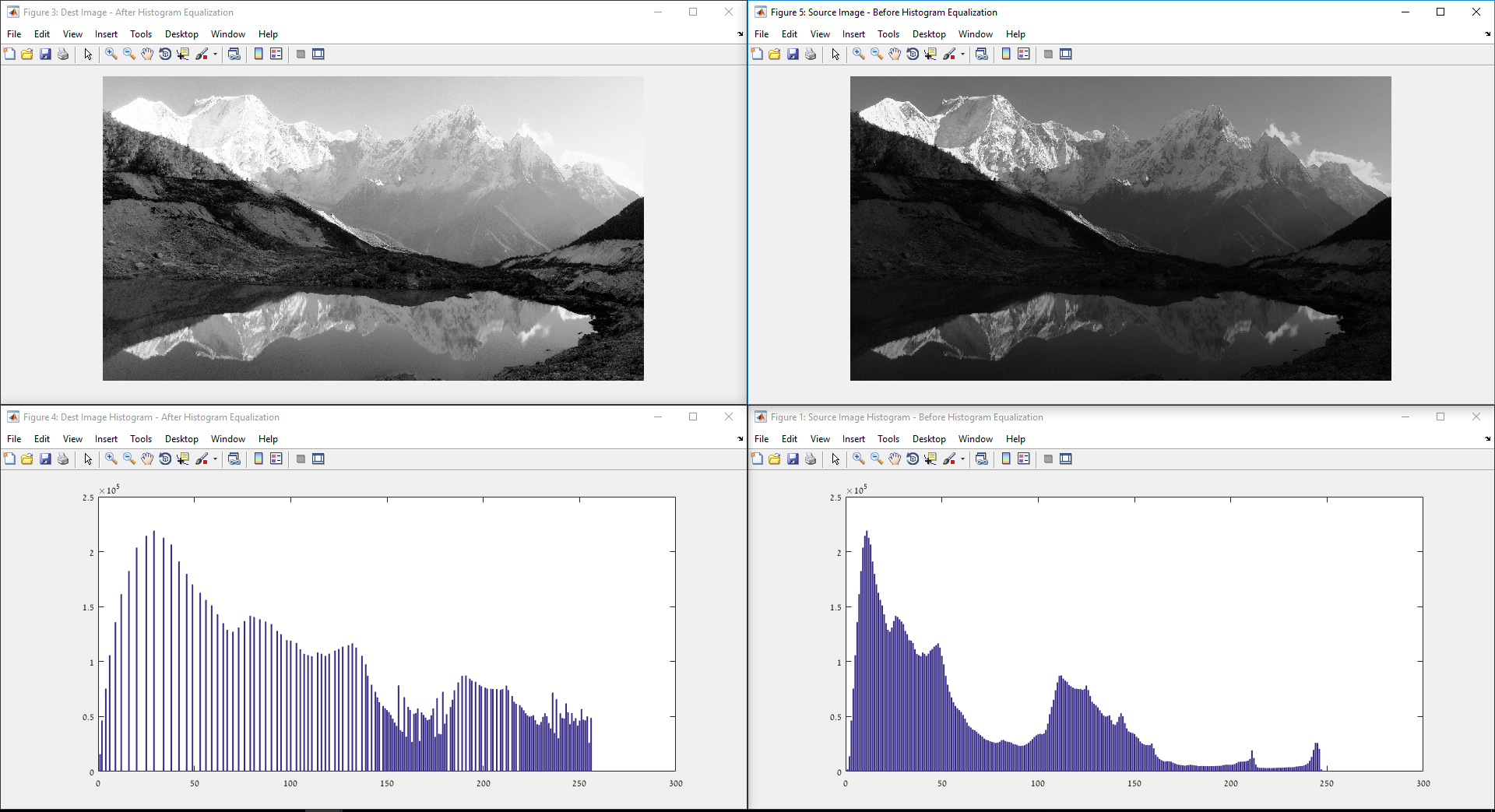
## Question 1: Histogram Equalization Algorithm

In this question we were asked to create a histogram equalization function,

We created a function that calculates the frequency of each grey level and then the probability for each gray level in our image (between 0-1) and the cumulative probability.

By applying the cumulative probability on to our original image we will eventually get a new image with a much more balanced intensities of grey as little impact the image as possible.

### Print screen from MATLAB



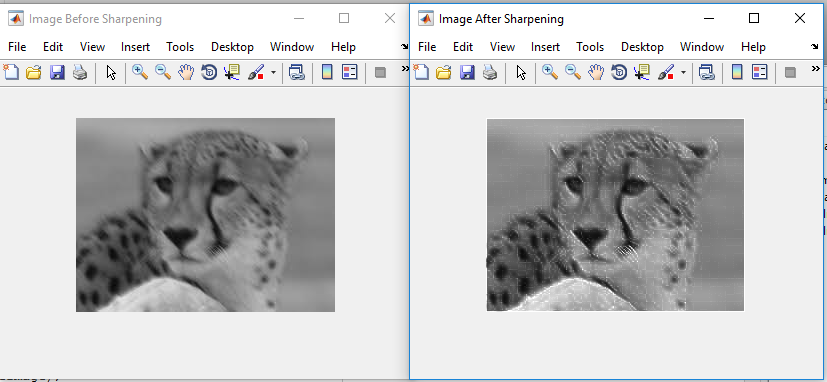
## Question 2: Image sharpening

In this question we were asked to sharpen an image,

We used a 2D convolution with a kernel of 3x3 with 0.111 to smooth the image

Than we used reduced it from the image and multiplied by the sharp rate

### Print screen from MATLAB



## 

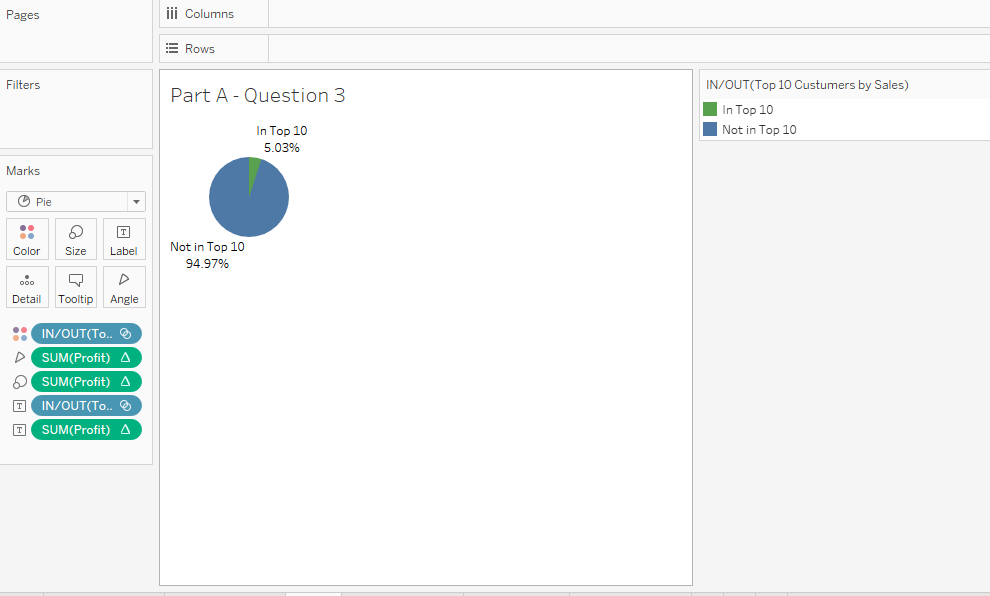
## Question3: Image compression using FFT

In this question we were asked to sharpen an image,

We used a 2D convolution with a kernel of 3x3 with 0.111 to smooth the image

Than we used reduced it from the image and multiplied by the sharp rate

### Print screen from MATLAB



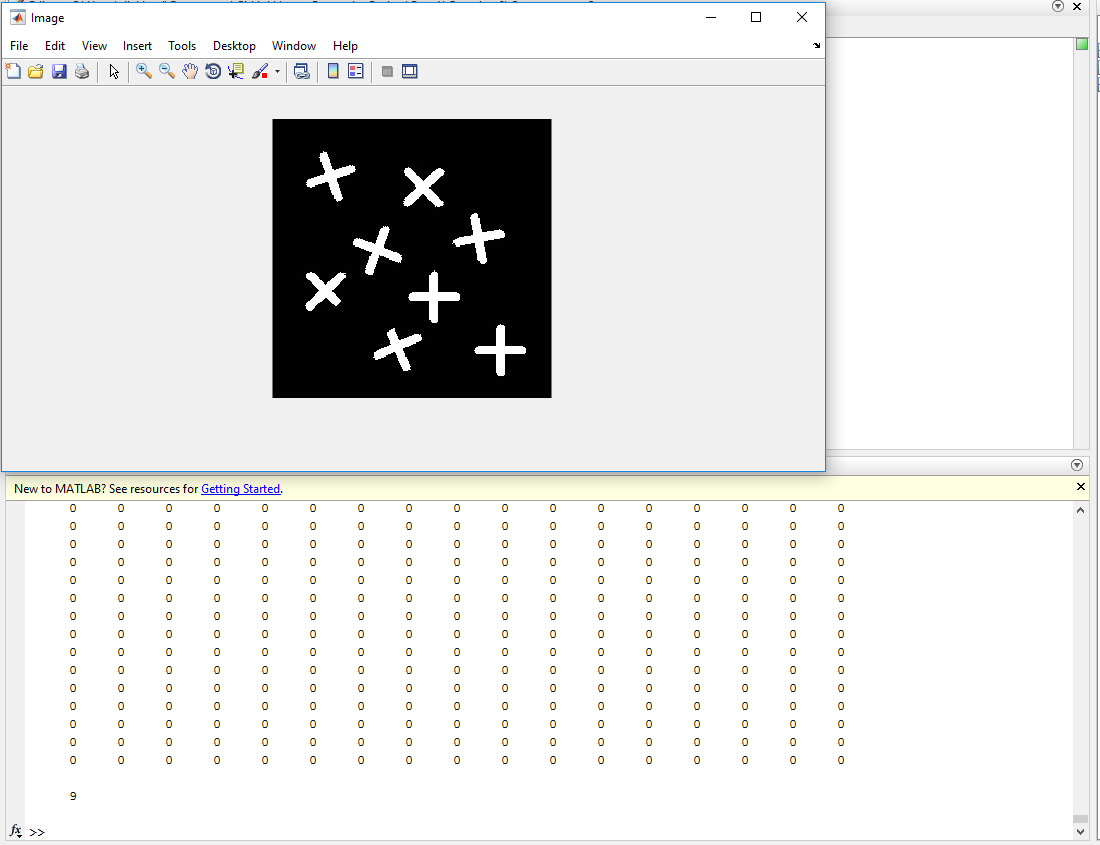
## Question 4: Finding connected components in a binary image

In this question we were asked find the number of connected components in a binary image,

We implemented a function that counts the connected components according to a threshold.

continue

### Print screen from MATLAB



# Part B: Completion of straight lines using Hough Transform algorithm

The answers in the section are written in Python using the open-cv library.

## Question 1 (15 Points)

Q: Kaggle is a platform for data science competitions which includes many datasets available at: https://www.kaggle.com Sign up for Kaggle and download a dataset which is suitable for Tableau from https://www.kaggle.com/datasets Format the dataset, clean it, find outliers, and visualize the dataset using a Dashboard. Provide screenshots.

# Part C: Image watermarking

The answers in the section are written in MATLAB.