# COL783 Assignment 1 Report

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# Case : 1 Face image



sigma = 1  
k = 1.6  
tau = 0.998  
eps = 0.35  
phi = 10  
  
dither = False  
color\_levels = 256  
color\_palette = 200

# Case : 2 Butterfly image



sigma = 1  
k = 1.6  
tau = 0.998  
eps = 0.35  
phi = 10  
  
dither = False  
color\_levels = 256  
color\_palette = 100



sigma = 1  
k = 1.6  
tau = 0.998  
eps = 0.35  
phi = 10  
  
dither = True  
color\_levels = 256  
color\_palette = 100

# Case : 3 Building image



sigma = 1  
k = 1.6  
tau = 0.998  
eps = 0.35  
phi = 10  
  
dither = False  
color\_levels = 256  
color\_palette = 200



sigma = 1  
k = 1.6  
tau = 0.998  
eps = 0.33  
phi = 10  
  
dither = True  
color\_levels = 256  
color\_palette = 200

General Notes:

1. On increasing epsilon parameter, image tend to get darker as the threshold of xDoG increases
2. Increasing phi makes the difference between edges and non-edges noticeable.

Note on Color Quantization:

1. Median cut performs much better that Popularity algorithm.

2. Dithering generally further improved quality of results produced – but its very slow – pixel wise computation that can not be parallelised.

3. Performance of Median cut can be improved by kd-tree algorithm(without dethering though)

4. Popularity algorithm can be improved by selecting color using k-means – running k-means on pixel value space and finding k clusters.