

Assignment 1 Report

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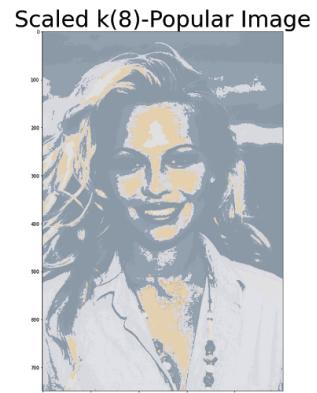
Deliverables:

1. Implemented K-popular Algorithm
2. Implemented Median Cut Algorithm
3. Implemented Floyd and Steinberg algorithm
4. Global Image Matching
5. Swatches

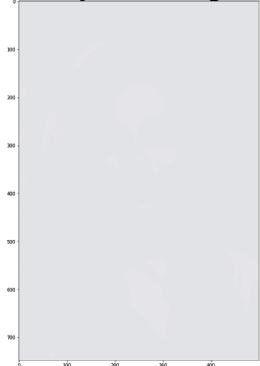
Part 1

Result

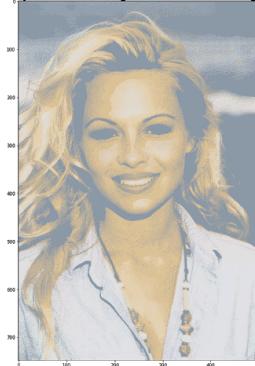
1) K-popular



k(8)-Popular Floyd Stienberg Dither Image



Scaled k(8)-Popular Floyd Stienberg Dither Image



2) Median Cut

Original Image



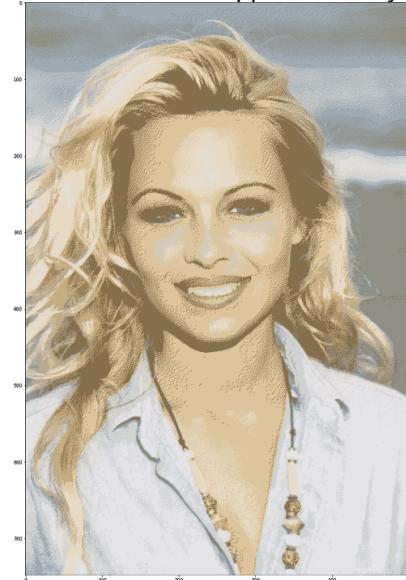
k(8)-Median Cut Direct Mapped



k(8)-Median Cut kdtree Mapped



k(8)-Median Cut kdtree Mapped and Floyd Dither



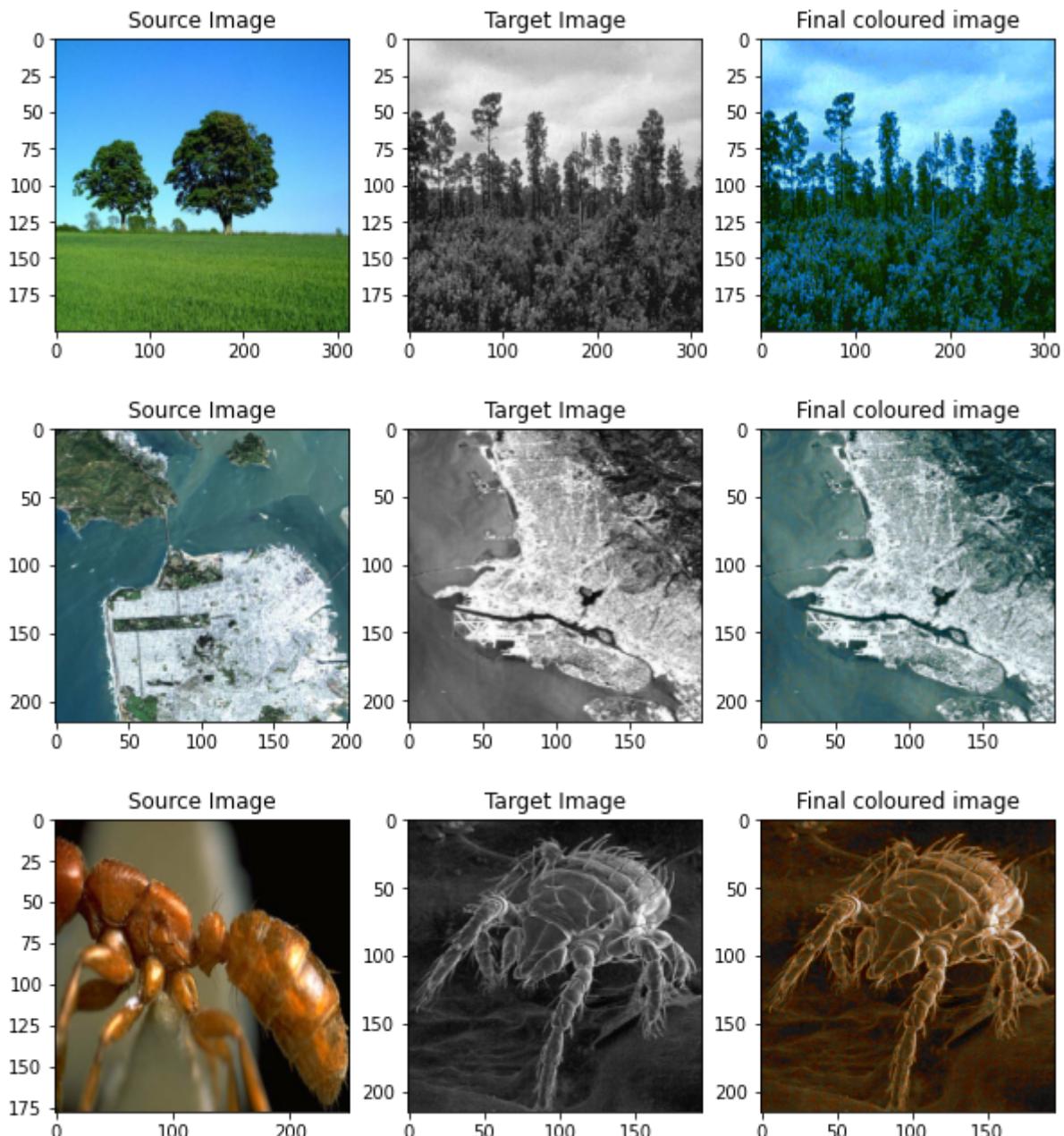
Observations:-

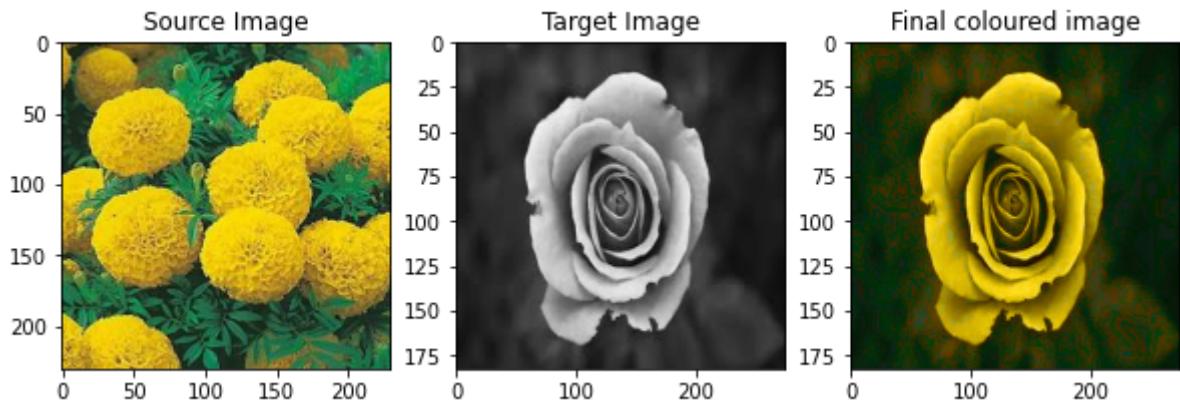
- 1) As we increased the number of colours given for quantization the quality of images improved.
- 2) For K-popular the pre-processing step of scaling down gave better results.
- 3) Median Cut performed better than k-popular Algorithm with the same number of colors.
- 4) Floyd and Steinberg improved the colours of image at the contours.

Part 2: Transferring Color to Gray Scale Images

Global Image Matching

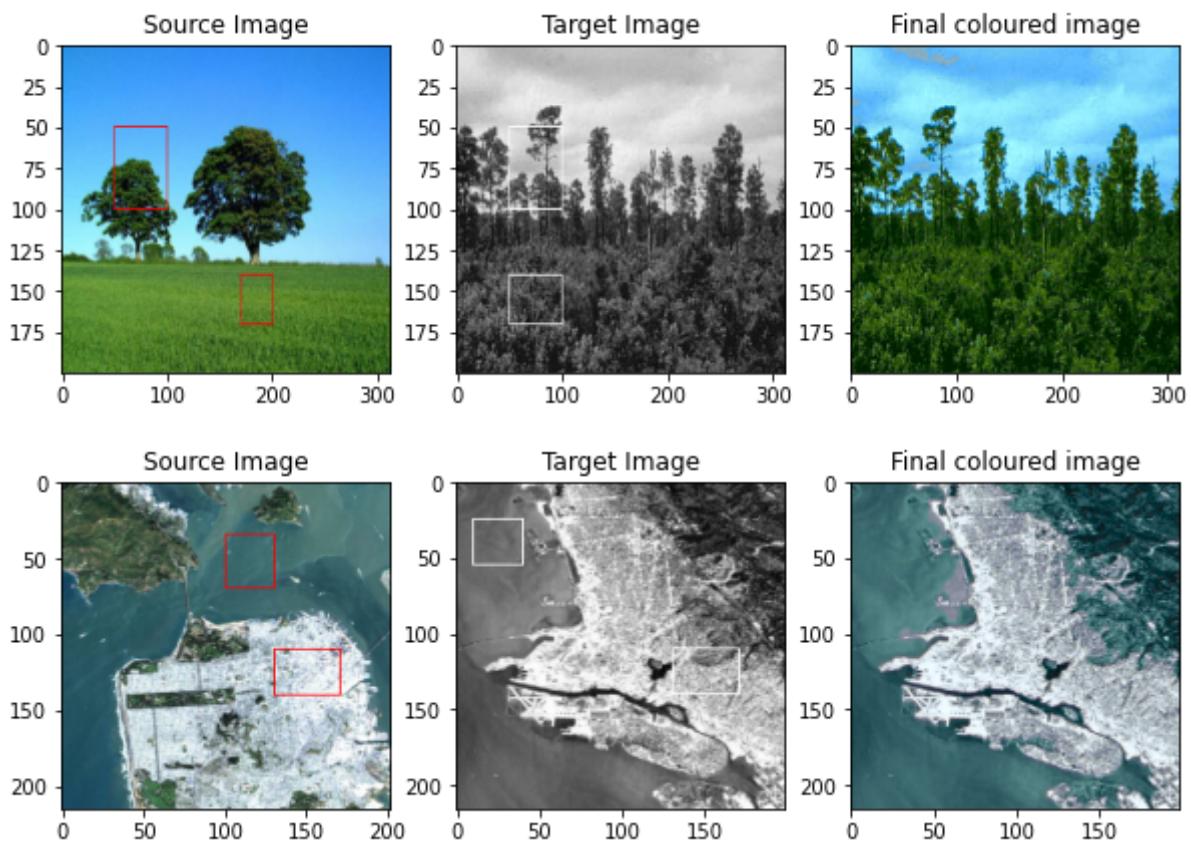
Results:

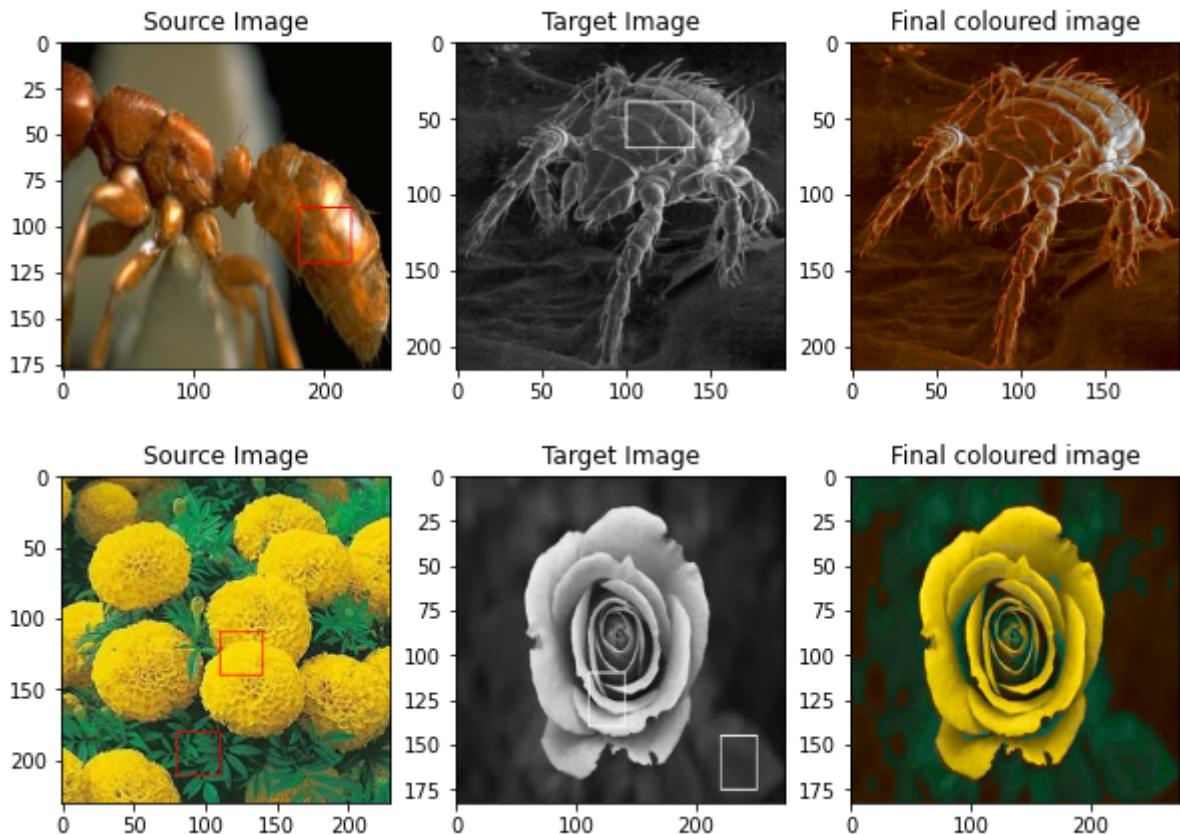




Swatches:

Results





Observation:

Advantage of Swatch Method:

In Image1 for Global Method we can see that some pixels in the forest for the target image are mapped to blue color. This may be because some pixels in forest have similar neighborhood statistics to pixels in the blue part of the source image.

This problem is overcome with the help of Swatch method. Firstly, due to swatch to swatch mapping, the pixels in the target swatch cannot get mapped to some other part of the source image with similar luminance and neighborhood. Also, within the target image, the pixels having similar texture to the swatch are coloured the same.

Hence first a forest swatch in the target image gets mapped to color green, which is replicated by the other pixels in the forest because they have similar texture to the target swatch.

Advantage of Global Method:

No user intervention required.