Objective

The objective is to classify images into bad quality or good quality. The approach intensively revolves around doing feature engineering using pixels of images and hence, use these features as input for classification algorithm.

Theory

1. The distribution of pixel values of good quality or natural image varies from that of distorted/bad quality images. After normalization, if we observe the distribution – it represents normal distribution for natural images and otherwise for bad quality/distorted images. The more the deviation from normal distribution more is the distortion in an image.

(One way to normalize image is called MSCN Mean Subtracted Contrast Normalization)

1. Another clearly observable difference between natural and distorted images is the difference between neighbourhood pixel values.

(To measure this, pairwise product of these orientations are taken- Horizontal, Vertical, Left Diagonal, Right Diagonal)

Feature Engineering

Using the above theory, following features were created:

* Shape & Variance of normalized image
* Shape, mean, left variance, right variance of horizontal pairwise product
* Shape, mean, left variance, right variance of vertical pairwise product
* Shape, mean, left variance, right variance of left diagonal pairwise product
* Shape, mean, left variance, right variance of right diagonal pairwise product

Approach

SVM model was trained on 70 percent of data & predicted on 30% of data.