# CE671 Lab Reports, Laboratory-3

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## 1 Introduction

QGIS functions as geographic information system (GIS) software, allowing users to analyze and edit spatial information, in addition to composing and exporting graphical maps.QGIS supports both raster and vector layers,vector data is stored as either point, line, or polygon features. Multiple formats of raster images are supported, and the software can georeference images.

## 2 Objective

1. Statistical analysis of an image software.
2. Cropping and masking an image.
3. Measurement on an image.

## 3 Methodology

### 3.1 Working With QGIS

1. Import the given multispectral imagery in QGIS.
2. In the layer properties, under style tab, select 'singleband gray', then display each band with no contrast enhancement.
3. Also display for each band, its histogram (available under histogram tab).
4. Apply linear stretching to band3 by giving minimum and maximum values of 100 and 150 respectively (see Figure 1). Save this stretched image (see Figure 2).
5. Why this saved image has more than one band and does all the bands have different values?

6. Compare original band3 image and its histogram with stretched band3 image and its histogram.

7. Apply linear stretching to other bands as well by using different combinations of minimum and maximum values and compare histograms with original images.

8. Explain in brief the working of linear stretching.

9. Import original image as well as a stretched image in QGIS as separate layers. Select both layers and click 'Identify Features' (see Figure 3). Compare digital number (DN) of original image and of the band to which linear stretching has been applied, at different pixel locations. Paste snapshots of these in the report.