IT5437 – Assignment 1: Intensity Transformations and Neighbourhood Filtering

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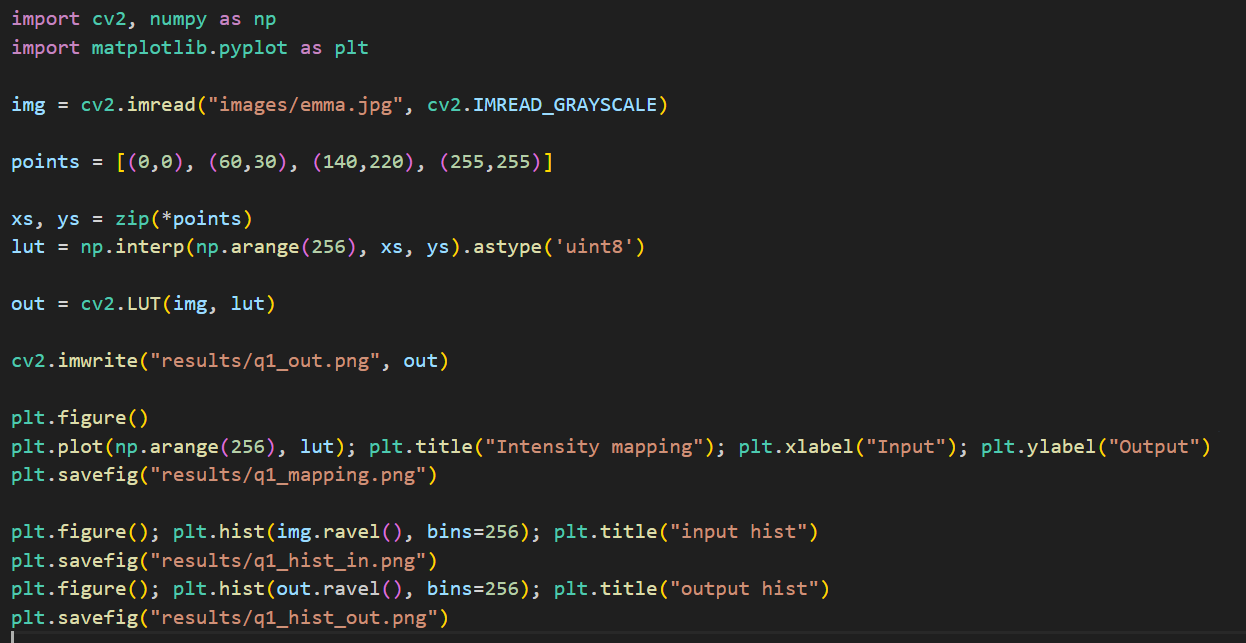
**Index No:** 249311P

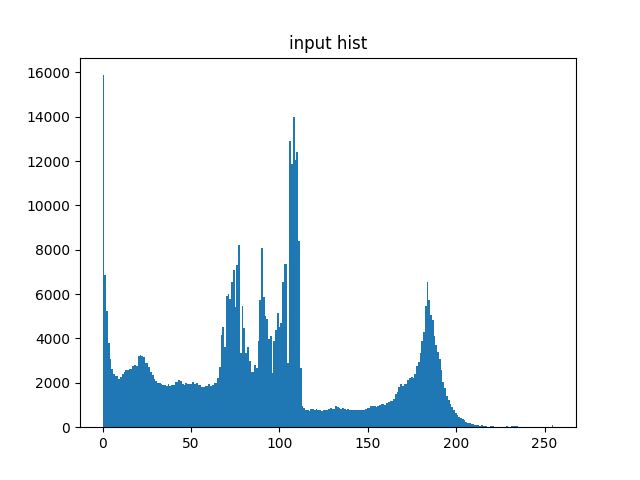
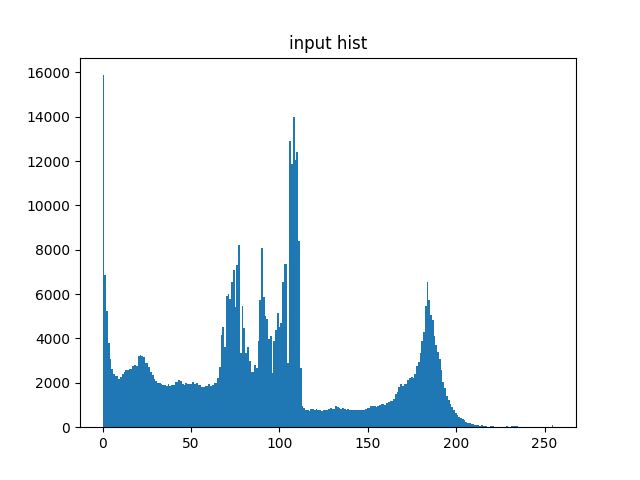
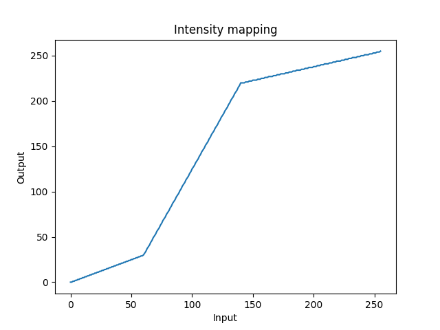
**Module:** IT5437 - Computer Vision

**GitHub Repository:** [Click here](https://github.com/kaumadi123/IT5437_Assignment_249311P)

## Q1. Intensity Transformation and Visualization

Creates a lookup table (LUT) to map input intensities to output intensities.







## Q2. Accentuating White/Gray Matter in Brain PD Images

Making white and gray matter more visible in brain scans.

# Step 2: create LUT functions

def make\_piecewise(points):

    """points = [(x\_in, x\_out), ...]"""

    xs, ys = zip(\*points)

    lut = np.interp(np.arange(256), xs, ys).astype('uint8')

    return lut

# Accentuate white matter

points\_white = [(0,0), (100,60), (140,180), (200,255), (255,255)]

lut\_white = make\_piecewise(points\_white)

out\_white = cv2.LUT(img, lut\_white)

# Accentuate gray matter

points\_gray = [(0,0), (60,60), (120,200), (160,220), (255,255)]

lut\_gray = make\_piecewise(points\_gray)

out\_gray = cv2.LUT(img, lut\_gray)