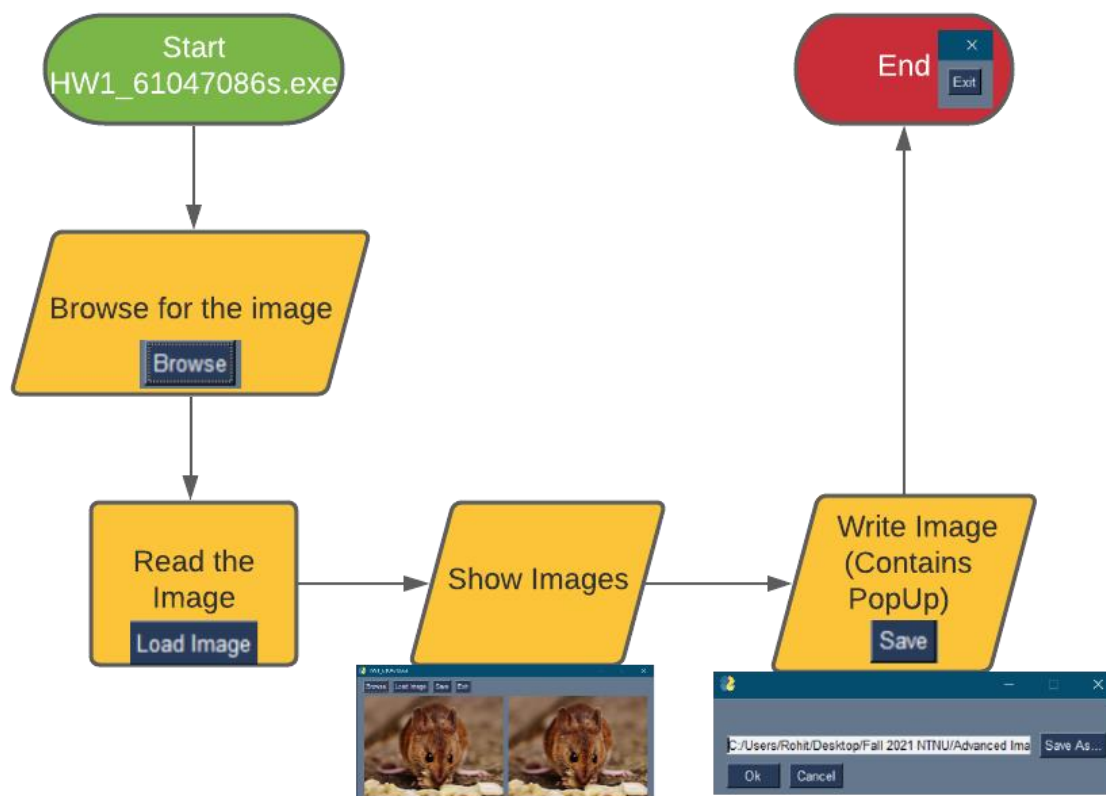# Advance Image Processing
# Homework 1

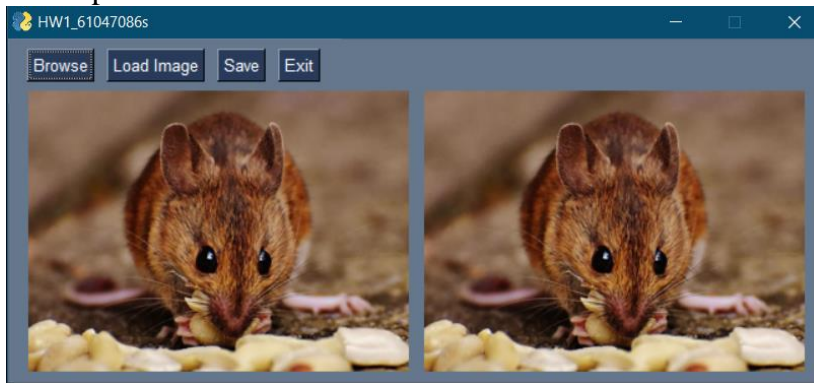Student No: <u>61047086s</u>                    Name: <u>ROHIT DAS</u>

1. Project topic: Read and Write Image
2. Programming language and Compiler: Python 3.7.8  Library - OpenCV Latest, PySimpleGUI- Latest, Numpy- Latest
3. The main functions of the program:
   - (a) Read image files: including JPG files, BMP files, and PPM files.
   - (b) Write image files: JPG files.
4. The flowchart of the program:

5. Testing results (3 examples)

Example: 1



(Input Image)                    (Output Image)
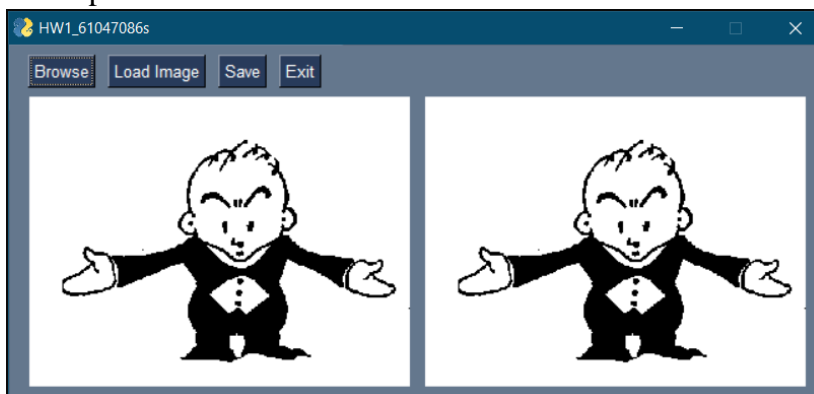
Example: 2



(Input Image)                    (Output Image)

Example: 3



(Input Image)                    (Output Image)

6. What you have learned in this homework? (at least 100 words)

This homework made me learn two important things:

1. How to read and write an image using Pillow.
2. How to create a GUI using PysimpleGUI.

The first and foremost challenge I faced in this assignment is how to create a GUI in

Python. After creating the window: loading, showing and saving the image was another challenge. The images cannot be directly shown to the window. It should be broken down to byte stream, which saves the image in memory. Then the byte-data is merged as an image object (Default: PNG format) which when updated through the window shows the image.

My question right now is why PNG format should be used?

Because while using other formats, the window is showing errors or simply not showing the images. Upon further investigation I found that since JPEG is a lossy compression and PySimpleGUI does not support other formats except PNG. So, that cleared my doubts a little. But I am still not satisfied with the answers. In future tasks I might get clearer view on this.

The challenge though daunting cleared up many of my doubts in GUI Development.