Homework 1: Python Starter

CS 566, Fall 2025

Total points: 5

Due on Tuesday, September 16, 2025

The goal of this assignment is to get you started with Python for image processing and computer vision. The accompanying Python script `runHw1.py` contains instructions and partially complete code to illustrate some of the basic features of Python and the packages we will use. Your tasks are to fill in the incomplete code and to generate the results by executing the script. Include both the completed script and the outputs in your submission.

Please follow the homework guidelines at `https://pages.cs.wisc.edu/~mohitg/courses/CS566/hw-guidelines.html` in your submission.

This assignment makes use of the following Python packages: `NumPy`, `Matplotlib`, `scikit-image`.

Walkthrough 1: (2 points)

Fill in the missing parts in `hw1_walkthrough1.py` to read an image and generate a 2x2 collage as shown below (note: the actual output should be twice the height and twice the width of the input image). The four patches of the collage are the original image and its red, green, and blue channels. Submit both the completed script and the output.

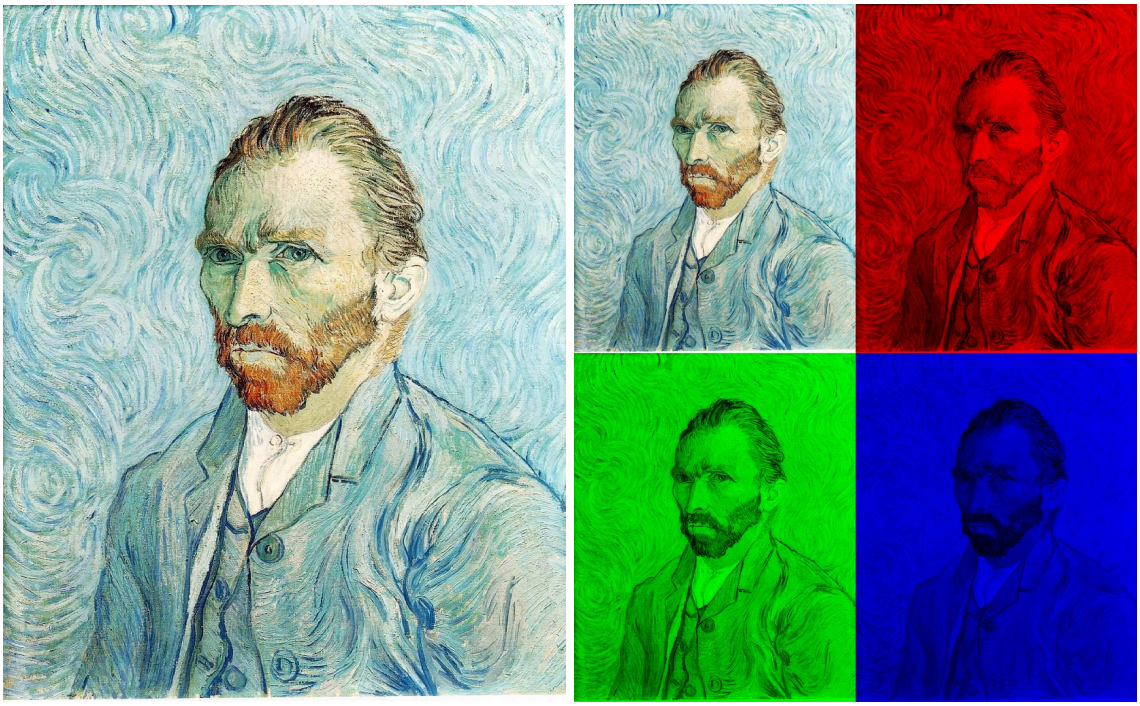

Figure 1: Example collage: original image and its RGB channels. Source: Wikipedia (File:SelbstPortrait VG2.jpg).

Source: `http://en.wikipedia.org/wiki/File:SelbstPortrait_VG2.jpg`

Walkthrough 2: (3 points)

Complete `hw1_walkthrough2.py` to superimpose the "I Love NY" logo on top of a Manhattan scene.

Figure 2: Superimposing the "I Love NY" logo on a Manhattan scene.

Figure 3: Example output after superimposing the logo.

Sources:

- `http://en.wikipedia.org/wiki/File:I_Love_New_York.svg`
- `http://www.flickr.com/photos/ruben3d/4392232665/`