# CMPT 365 Multimedia Systems

# Programming Assignment 1

**Deadline 6:00pm, Feb 26, 2021**

**Note**: This assignment is NOT group based.

**Q. 1.** Given input Y U V = 156, 28, 37, print out the corresponding Y Co Cg and the average running time of your code. (A trick here is to use a loop to automatically run your program many times, say, 1 million times, and then take the average).

Discuss the complexity of your program and make it as fast as possible (and discuss your optimization).

Your marks will depend on the correctness, the speed, and more importantly the insight presented in your discussion.

**Q. 2.** Given an NxN picture (N in [4..16], and each pixel has a grey level in [0..255]), and an MxM dither matrix, where N is always an integer multiple of M. Print out resultant pictures with *halftone printing* and with *ordered dithering*, representatively. You may use "1" to represent "on", and "0" otherwise.