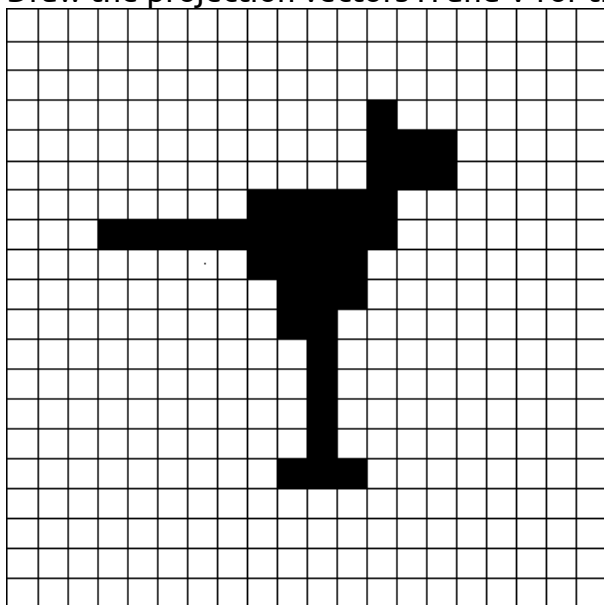# CAS CS 585 - Spring 2020

Parts 1 of the assignment is due 12:00 PM, Thursday, February 4th. **Please scan your written assignment (Part 1) as a single PDF file and use Gradescope to submit under "HW1 - Written".** The programming assignment, Parts 2 and 3, must be submitted electronically via **Gradescope under "Hw1- Programming"** by midnight the night BEFORE (i.e., February 3rd the night from Wednesday to Thursday at 00:00 EST). You are encouraged to work in teams of two or three students, but each student must submit his or her own solutions and acknowledge any teammates.

Part 1: Paper-and-pencil Assignment: Projections, Labeling, and Pyramids

1. Projections:
    1. Define the horizontal and vertical projection vectors H and V mathematically for a binary image B(x,y).
    2. Draw the projection vectors H and V for the following image:

Part 2: Programming Assignment

In your lab section on Friday, January 29th, you learned how to input an image into your code, process it, and output it. The goal of this part of the assignment is to further familiarize you with programming with images. Your program should take an image of your face as an input, manipulate it in two ways and then output the processed face:

1. Create a grayscale image of your face by converting your color image using one of the conversions we discussed in class last week.
2. Come up with another way of manipulating your face that produces an interesting output. For example, you may create a blurred image of your grayscale face by assigning to each pixel the

average grayscale pixel value of itself and its 8 neighbors. Hint: You may have to run your program a few times to make the blurring noticeable.

Please collect your code, your input image and your output images in one directory called hw1-YourLastName and zip them.

Please follow our naming convention. It helps us locate your files (especially if they ended up in the wrong directory or were submitted late) and speeds up the grading process.

Please submit your ZIP file, containing both part 2 AND part 3 of this assignment, to "HW1-Programming" on grade scope. See below for instructions on part 3.

Part 3: Webpage Assignment

You can either choose to use a personal webpage or create a new webpage on the CS web servers.

If you want to use a webpage on the CS web servers

- Log into csa1.bu.edu, csa2.bu.edu, or csa3.edu.
- Read and follow the Wiki instructions how to create a web page on the CS web server: https://cs-wiki.bu.edu/tiki-index.php?page=Personal+WebPage+aka+cs-people"
- Create your personal CS 585 webpage. Add your original face image and the processed image(s) and a short explanation about your processing algorithm.
- Submit your html page with your code.

If you want to use a personal webpage not on the CS web server

- Create a CS 585 page on your website. Add your original face image and the processed image(s) and a short explanation about your processing algorithm.
- Submit your html page with your code.

Margrit Betke, Professor
Computer Science Department
Email: betke @ bu.edu