Digital Image Processing HW1 Due 10/12 (Wed.) 2022

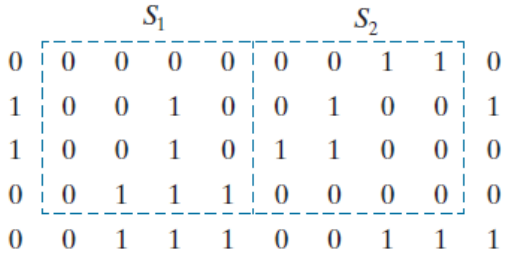
Prob. 1:

Consider the two image subsets, S_1 and S_2 in the following figure. With reference to Section 2.5, and assuming that $V = \{1\}$, determine whether these two subsets are:

(a)* 4-adjacent.

(b) 8-adjacent.

(c) m-adjacent.



Prob. 2:

Consider the image segment shown in the figure that follows.

(a)* As in Section 2.5, let $V = \{0,1\}$ be the set of intensity values used to define adjacency. Compute the lengths of the shortest 4-, 8-, and m-path between p and q in the following image. If a particular path does not exist between these two points, explain why.

3	1	2	1 (q)
2	2	0	2
1	2	1	1
(p) 1	0	1	2

(b) Repeat (a) but using $V = \{1,2\}$.

Prob.3: Write a matlab m-file for detecting 4-connected and 8-connected components with labelling results on a binary image (V={0,255}). (ex. connect(f,8) and/or connect(f,4))

Prob. 4: Write a matlab m-file for performing histogram equalization on grayscale images. (ex histeq(f))