CSC 530, Data Structures — Final assignment

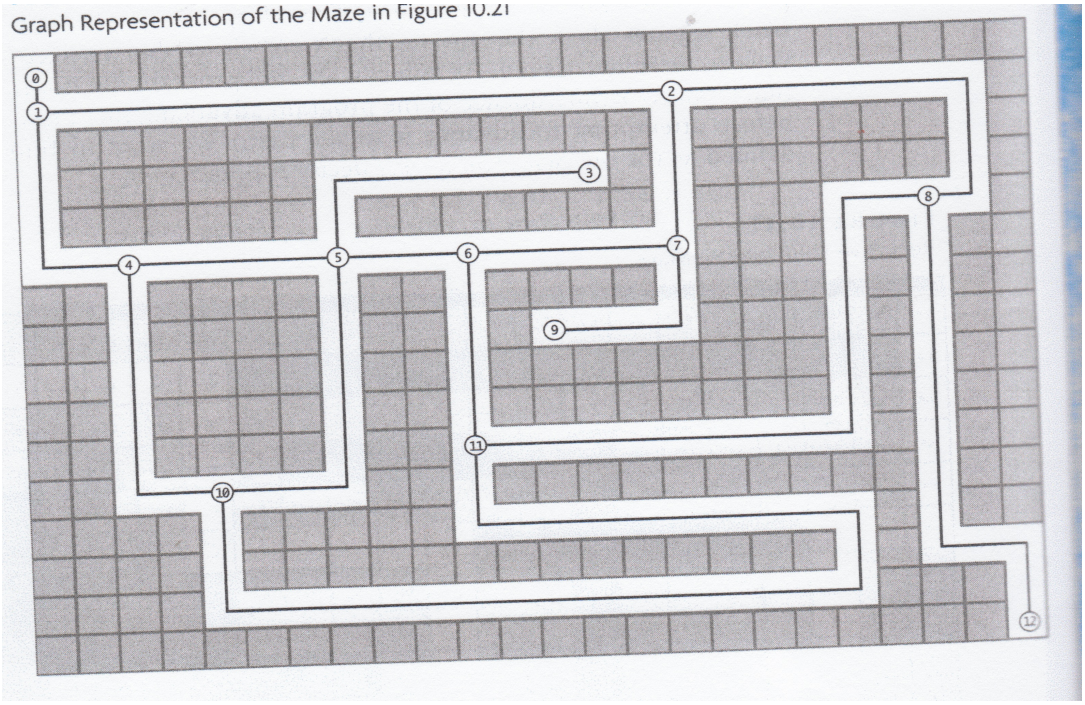
Due via D2L. Late programs are not acceptable.

	1	0	1	1
0	0	0	0	0
1	1	0	1	0
0	0	0	1	0
0	1	0	1	

Assignment:

1. By applying the depth first search to see if the mouse can reach the cheese. Your program will read the right 5x5 matrix from a file and create an identity label for each block. Evaluation:
(a) the graph table used IN your program to express the network (better use your program to print it out).
(b) the code, and
(c) the execution result of each position/block reached step by step. Any part missed will be charged.

2. Find the shortest path from 0 to 12. Evaluation: submit (a) the graph table of 13 nodes in word file to express the network by your calculation. No need for computer to calculate. (b) the code, and (c) the execution result that shows the entire path node by node (NOT block by block).



3. Submit (a) the graph table in word file to express the following graph in your calculation. (b) Apply this graph table to a game application. The game will have two players. Each player will take turns to paint a rectangle, one using green color and the other using red color. Every time, the rectangle to paint cannot have any adjacent colored rectangle. The last play to paint will win the game. (c) Develop your program to determine the start rectangle for the first player so that he/she can always win the game. The execution must show each rectangle in the consideration. Any part missed will be charged. Note this is not to make a game to play. In deed, it searches a decisive path to tell which block to be selected by the first player to win the game.