

## CS ID2230 DATA STRUCTURES &amp; APPLICATIONS

## ASSIGNMENT 4

## Instructions

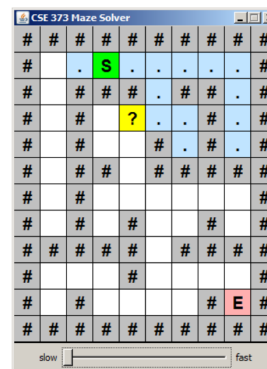
- Please read the below description of the assignment carefully.
- Deadline of submission :November 20, 2023 EOD
- Grading Policy:
  - 5 marks if your program runs correctly on the inputs the TAs give
  - 3 marks if the design/logic of the program is correct. That is, it meets all design and implementation expectations but may have 1 - 2 minor problems because of which it may not run correctly
  - 2 marks if the code styling is good. One example of such standards is <https://cs.brynmawr.edu/Courses/cs206/fall2012/codingStandards.html>.
- You will have to code the algorithms in C programming language.

This is a similar question as that of Assignment 1. The input will be a .txt file which will give the description of a 2D maze as shown in the left part of Fig.0.1. The description captures a maze as shown in the right part of the figure. The hashes represent walls/blocks in the maze, S denotes the start position and E denotes the final/end position.

In this assignment, you have to use a **graph representation for the 2-D maze and breadth first search of the graph** to design an algorithm that searches for a path from the start position to the end position. The same input files for the first assignment can be used for this assignment as well.

**input file maze1.txt:**

```
#####
#      S      #
#   ###      #
#  #        # #
# #        # #
#  #      # #
#  #    #####
#   #        #
#  # #      # #
#####      # #
#          #
#  #      #E#
#####
```



**Figure 0.1.** Maze description