Gebze Technical University
Department of Computer Engineering
CSE 481/603
Artificial Intelligence
Spring 2016
Homework # 1

Search
Due date Mar 26th 2016

As you know, DeepMind is nowadays is making good progress in competing with the human players these days at the game of go. So, in this homework, we will develop a simplified game of go with one player.

At the beginning the game will ask the user the rectangular board size MxN, where $0 < M,N < 10$. After the user enters the board size, an empty GUI board is shown to the user and the user is allowed to mark some cells as blocked. After the blocked cells are marked, the user chooses the search strategy (DFS or BFS). Then, each time user asks NEXT, a new move is chosen and the results are shown. At the end of the game the number of nodes expanded and the number of nodes in the fringe list is also shown.

We changed the rules of the go game to make it simpler and easier to code. Here are rules

- The purpose of the game to is to fill all cells of the board with the smallest number of moves
- The horizontal, vertical or diagonal spaces between the user marked cells are automatically filled by the computer.

Here is a sample run of the game

```
What is the board size?
3 x 4
```


```
Fill the blocked cells
```

		x	

```
BFS(1) or DFS(2)?
1
Next
```

x			
		x	

```
Next
```

x	o	o	x
		x	

Next

X	o	o	X
o		X	
X			

Next

X	o	o	X
o		X	o
X	o	o	X

Next

X	o	o	X
o	X	X	o
X	o	o	X

Expanded nodes: ..., Fringe List size: …
Game over, total of 5 moves

Note that red X represents the blocked cells, black X is the user marks and black o represents the cells between user marked cells, which are marked by the computer.

Write a HW report that includes at least 5 different runs of your system with different search methods and board sizes.

Notes

- Submit your HW through moodle
- Your HW will include your code, the HW report
- You will demo your program after the class.
- Make sure to submit this HW because the next HW will depend on this homework.
- In your demo, you are not allowed to compile your code, make changes in your code, or use any development environment during the demo. You will either click on an icon to run your demo or type the executable file name at the command line.