

Maze Solver

Introduction

This program is designed to solve mazes with the assumption that the bulls-eye is always in the bottom-right corner of the maze. The input is provided in a specific format, and the output should consist of a sequence of moves that solve the maze.

Input File Format

The input file follows a specific format. Each square in the maze is represented by a character, and the bulls-eye is always in the bottom-right corner. See below figure in the example input file for a visual representation.

8	8						
R-E	R-SE	B-S	B-SW	R-S	R-SW	R-S	R-S
B-E	R-S	B-SE	R-E	B-SE	B-S	B-W	R-SW
R-N	B-W	B-SW	R-SE	R-NE	B-SW	B-W	R-W
R-SE	R-SE	B-SW	R-SE	R-S	B-NW	R-E	B-NW
B-NE	R-W	R-S	B-S	B-E	B-NE	B-NW	R-NW
R-S	B-SE	R-SE	R-SE	R-NW	R-NE	B-E	R-W
R-NE	B-W	B-SE	R-E	R-E	B-E	B-NW	R-SW
B-NE	R-E	B-N	R-NE	B-NE	B-N	B-NW	O

Output File Format

The output file should be written in the following format: a single line consisting of a sequence of moves, separated by spaces. Each move is represented by the number of spaces to move and the direction. The directions are represented using N, E, S, W, NE, SE, SW, and NW, as in the input. The sequence of moves must solve the maze from the input.

For example, if the first 3 moves take you 3 spaces east, 3 spaces southwest, and 4 spaces southeast, your output should begin as follows: `3E 3SW 4SE`.

Multiple Mazes and Testing

The program is designed to handle multiple mazes for testing. Each input file should have a corresponding output file following a particular naming convention: ``inputFileName-soln.txt``. To verify solutions, a script named ``verifyGraph.py`` is provided. This script takes two command line parameters: (1) the input graph; and (2) the corresponding solution file.

Usage

To use the program, follow these steps:

1. Provide the input maze file in the specified format.
2. Run the program to generate the output solution.
3. Save the output solution in a file with the naming convention: ``inputFileName-soln.txt``.
4. Use the ``verifyGraph.py`` script to test the correctness of the solution.