

Wondrous Labyrinths: Teaching tool for demonstrating pathfinding algorithms

Rebecca Ryall
1705433

1. Introduction

The project will be using different maze building algorithms and path-finding solutions to be used in a individual teaching form. Because there being a variety of different learning styles and teaching approaches, the author focused on visual learning. To show their findings the use of two specific learning styles and two different algorithms will be used within this project

2. Objectives & Aims

- Analyse algorithms and Andragogical approaches to determine the best approach for visual learners to understand applications of pathfinding.
- Evaluate the learning benefits by implementing a teaching tool that can be used by visual learners to study how pathfinding solves different mazes.
- Critically evaluate the Andragogical benefits of a tool for simulating and then presenting the solution steps taken by a pathfinding algorithm.

3. Research

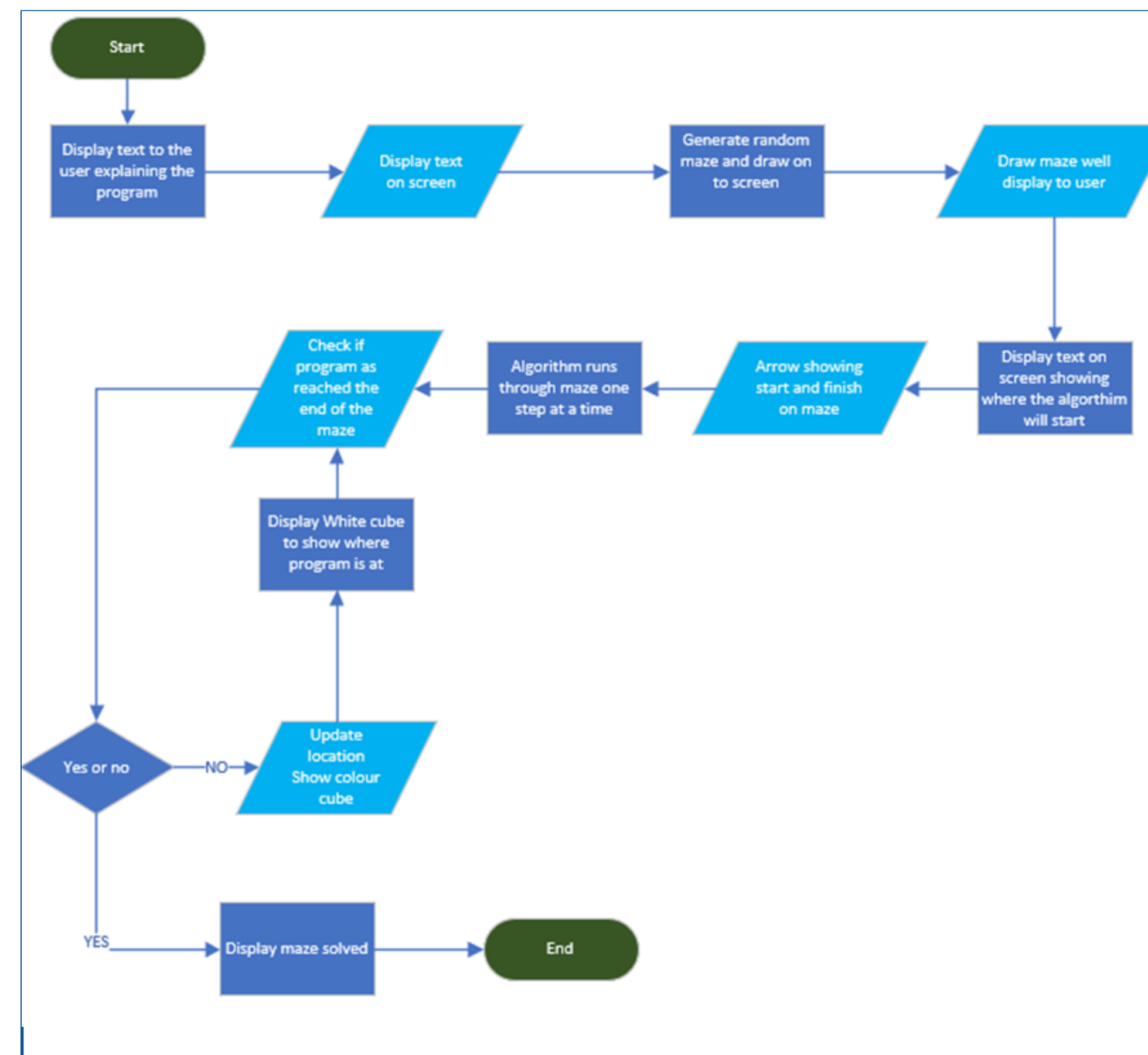
How to Define a pathfinding Algorithm

Within this section of this report the author hopes to answer the important questions about pathfinding such as What is Path Finding and why is it important? And where are mazes used in computing, as well as a comparing and explain the compassion of the different path finding algorithms.

A perfect maze which can also be known as a true maze is a maze that has been create with a single path from the start point of the maze to the end point. meaning these is only one solution and the rest of the paths in the maze are dead ends and can only be solved using the correct path.

An imperfect maze or can also be called a untrue maze is the opposite of a true maze it not only has more than one single solution, they can have multiple solution to one maze, or have no solutions at all making it impossible to be solved.

4. Design & Implementation



5. Testing & Results

Well testing the program, it creates a maze that wasn't able to be solved, this happened because the mazes are created using a random maze generator. So, each time the program is ran it will generate a brand-new maze each time. the program will create an imperfect maze every now and then that are unable to be solved.

The project went well but didn't have enough time or knowledge to complete the project fully due to this there is not results as had not reached that point in the project.

6. Conclusion

My conclusion is that the theory of the project is sound and I still support the premiss that this tool will help visual learners understand pathfinding algorithms with the use of my program.

The aim and objectives where definitely reachable with more time and knowledge.

7. References

- [1] P. Lester, 'A* Pathfinding for Beginners', 2005, Accessed: Aug. 29, 2022. [Online]. Available: <http://www.policyalmanac.org/games/aStarTutorial.htm>.
- [2] J. Buck, 'Mazes for Programmers Code Your Own Twisty Little Passages'. <http://mazesforprogrammers.com/> (accessed Oct. 14, 2021).
- [3] 'Networks, mazes, and R (Rmaze) | R-bloggers'. <https://www.r-bloggers.com/2016/07/networks-mazes-and-r-rmaze/> (accessed Aug. 30, 2022).



School of
Applied Computing