

Lesson 3:  
A\* Search

SEARCH

RESOURCES

CONCEPTS

1. Intro

2. Motion Planning

3. Maze

4. Maze 2

5. Coding the Shortest Path Algorithm

6. A\* Search

7. Lesson Code Structure

8. CODE: Starting A\* Search

9. CODE: Writing the A\* Heuristic

10. Pass by Reference in C++

11. CODE: Adding Nodes to the Ope...

12. CODE: Initialize the Open Vector

13. CODE: Create a Comparison Fun...

14. CODE: Write a While Loop for the...

15. CODE: Check for Valid Neighbors

16. Constants

17. CODE: Expand the A\* Search to ...

18. Arrays

19. CODE: Adding a Start and End to ...

20. Congratulations!!

21. How to Become More Proficient ...

Pass by Reference in C++

SEND FEEDBACK

Pass by Reference

In the previous exercises, you've written functions that accept and return various kinds of objects. However, in all of the functions you've written so far, the objects returned by the function are different from the objects provided to the function. In other words, when the function is called on some data, a copy of that data is made, and the function operates on a copy of the data instead of the original data. This is referred to as pass by value, since only a copy of the values of an object are passed to the function, and not the actual objects itself.

To see how to use a function to operate directly on a given object, have a look at the notebook below.

Saving Graffiti Recording. Please wait...

↑ Menu ↗ Expand

On to the Exercises!

In the next exercises you will write some functions that require passing variables by reference. This will allow helper functions in the A\* search program to modify the state of the board without having to copy the entire board, for instance.

Note that if you've encountered references before in C++, you are aware that they can be used in many other scenarios, aside from just passing variables to functions. In the next lessons, you will learn about references more generally, along with closely related *pointers*. However, you now know enough to finish the mini-project for the first half of the course!

Since you are well prepared with all you need at this point, this will be the last notebook in this half of the course. Good luck!

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