A* ALGORITHM VISUALIZER

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OVERVIEW

Algorithms and data structures as an essential part of knowledge in a framework of computer science have their stable position in computer science curricula, since every computer scientist and every professional programmer should have the basic knowledge from the area. With the increasing number of students in Central European's higher education systems in last decades, introduction of appropriate methods into the process of their education is also required. Our scope here is the higher education in the field of computer science. So, within the paper, we discuss the extension of standard methods of teaching algorithms, with the algorithm visualizations. In this project we're using A* algorithm for algorithm visualization. According to they can be used to attract students' attention during the lecture, explain concepts in visual terms, encourage a practical learning process, and facilitate better communication between students and instructors. Interactive algorithm visualizations

OVERVIEW

allow students to experiment and explore the ideas with respect to their individual needs. Results of empirical study aimed at the determination of factors influencing the effectiveness of algorithm visualization. Another example is the study with the objective to determine learning advantage of the interactive prediction facility provided by the courseware containing algorithm animations and data structure visualizations. Based on above mentioned reasons, results of studies carried, as well as our own experiences and explorations, we consider algorithm visualization important and perspective area of further research and application of its results in nowadays computer science education.

AIMS AND OBJECTIVES

Objectives of the A* algorithm visualizer :

• The main objective of pathfinding visualizer is to find a shortest path.

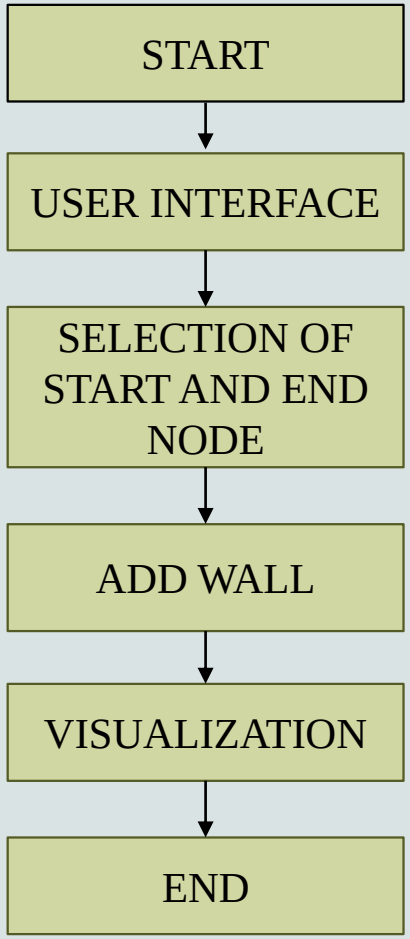
• Also, we can use the pathfinding visualizer as a visualization tool for educational purpose to understand the working and implementation of various pathfinding algorithms.

• It is also used to GPS system to find the path.

IMPLEMENTATION

There are many steps by which we can have the great idea about the implementation of the pathfinding algorithm. The below block diagram shows the exact working flow of pathfinding visualizer. The first stage of pathfinding algorithm is to start, the first step of any project is always be a start, after that there is the user interface where all the important things that is important to pathfinding visualizer is visible to user. When user select the start and end node, at that point user can also put wall, so he can add various obstacles and find the shortest path between them. The user can visualize the searching by pressing the spacebar key on their keyboard. After visualizing the algorithm user can clear the board or clear the path by using the ‘C’ key in the keyboard. This are the basic steps of pathfinding visualizer.

IMPLEMENTATION



PRODUCT BACKLOG

ID	PRIORITY	SIZE (Hours)	SPRINT	STATUS	NAME
1	Medium	11	1	Completed	Coding
2	Medium	10	2	Completed	Coding
3	Medium	14	3	Completed	Testing
4	High	6		Completed	Output Generation

PROJECT PLAN

ID	TASK NAME	START DATE	END DATE	PROJECT HOURS	STATUS
1	Sprint 1	15/09/2023	12/10/2023	13	Completed
2	Sprint 2	13/10/2023	03/11/2023	14	Completed
3	Sprint 3	08/11/2023	30/11/2023	14	Completed

SPRINT PLAN

SPRINT 1

Backlog Item	Status and Completion date	Original Estimate in hours	Day 1 15/09	Day 2 20/09	Day 3 21/09	Day 4 28/09	Day 5 29/09	Day 6 04/10	Day 7 05/10	Day 8 06/10	Day 9 11/10	Day 10 12/10
Coding	29/09/2023	7	2	1	1	1	2	0	0	0	0	0
Testing & Validation	12/10/2023	6	0	0	0	0	0	1	1	2	1	1
Total		13	2	1	1	1	2	1	1	2	1	1

SPRINT PLAN

SPRINT 2

Backlog Item	Status and Completion date	Original Estimate in hours	Day 1 13/10	Day 2 18/10	Day 3 19/10	Day 4 20/10	Day 5 25/10	Day 6 26/10	Day 7 27/10	Day 8 01/11	Day 9 02/11	Day 10 03/11
Coding	25/10/2023	7	2	1	1	2	1	0	0	0	0	0
Testing & Validation	03/11/2023	7	0	0	0	0	0	1	2	1	1	2
Total		14	2	1	1	2	1	1	2	1	1	2

SPRINT PLAN

SPRINT 3

Backlog Item	Status and Completion date	Original Estimate in hours	Day 1 08/11	Day 2 09/11	Day 3 10/11	Day 4 15/11	Day 5 16/11	Day 6 17/11	Day 7 22/11	Day 8 23/11	Day 9 24/11	Day 10 29/11	Day 11 30/11
Coding	17/11/2023	7	1	1	2	1	1	1	0	0	0	0	0
Testing & Validation	30/11/2023	7	0	0	0	0	0	1	1	1	2	1	1
Total		14	1	1	2	1	1	2	1	1	2	1	1

Thank you