

Proposal

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We choose project 9 from the project suggestion as our final project for EC504. The project topic is web-based animation for algorithm and data structure. The purpose of this project, in my opinion, is to create a fully interactive and functional animation for learning purpose especially when most of relative animations are not perfect or not fully interactive. We would like to build a matrix and allow users to determine the start and end point on the matrix. Then the users can decide which path finding algorithm he we like to see. Furthermore, users can determine which points are block where the path is not allowed to pass, a path finding visualization. When demo Dijkstra Algorithm, we provide a couple of choices, like a binary heap, Fibonacci heap, and so on. With Fibonacci Heap, the Dijkstra algorithm improves its performance with the ordinary binary heap. We can show the time comparison.

For our project, since we want our animation to interact with user input. The minimum viable product is an animation that will create the correct output with fixed data, which mean no interact with user at all. To make this happen, we have access to USC animation source code, and it should be easy with some modification. Then, we need to output the abstract data to a visible data set, node for example. Our web should be able to display the visible data sets and define the relation between them correctly. On the other hand, for each step of animation, it should have corrected and detailed explanation to demonstrate the process so that the user can easily understand how this algorithm works. Furthermore, there should have some buttons to control the process and the animation speed so that it allows user to control. We will use GitHub to cooperate and Trello to assign work to each member.

The most difficult for our project should be the frontend design. Our initial idea is to use JavaScript to do this project. Some of our member have 0 knowledge about it so it will take time to learn the JS. My estimate for the MVP is 1 week's workload and the rest of our time should focus on interactive function.