**Project Scope**

The project scope stays the same:

My idea is to implement the video game, *Snake*. Snake is as it sounds, a snake hunting for food. Once the snake eats the food, a new piece of food appears in a new location and if the snake hits a wall, the game is over. Similar to pacman, I plan to implement various search algorithms (BFS, DFS, greedy, uniform cost, and A\* search) to see which can repeatedly find the food the fastest. Additionally, I plan to create a few heuristics and compare their speed in finding the food.

**Goals**

Goal: For the game *Snake*: implement 4 search algorithms, a couple heuristics, and compare the speed in which snake finds for the food between the heuristics

* Implement DFS
* Implement BFS
* Implement Uniform Cost Search (UCS)
* Implement A\* search
* Implement 2 heuristics
* Compare heuristics

**Milestones**

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| **Grade** | **Milestones** |
| B | * 2 out of the 4 search algorithms have been implemented into the code * The final report is complete, including the explanation for both of the search algorithms. |
| B+ | * 3 out of the 4 search algorithms have been implemented into the code * The final report is complete, including the explanation for all 3 of the search algorithms. |
| A- | * All 4 of the search algorithms have been implemented into the code * The final report is complete, including the explanation for all search algorithms. |
| A | * All 4 of the search algorithms have been implemented into the code * A couple heuristics are implemented into the code. * The code file includes a readme comparing and contrasting the heuristics. * The final report is complete, including the explanation for all search algorithms and a brief explanation of the heuristics. |

Resources:

<https://www.edureka.co/blog/snake-game-with-pygame/>

<https://www.youtube.com/watch?v=hrMI7ppUGyU>

Milestones:

1. A+ 🡪 Implementing all 4 search algorithms and 2 heuristics. Compare the heuristics.
2. A 🡪 Implementing all 4 search algorithms
3. B + 🡪 Implement 3 out the of the 4 search algorithms
4. B 🡪 Implement 2 out the of the 4 search algorithms
5. Anything lower 🡪 Implement anything less