

Project Title: Sudoku Solvers**Team Members:**

- Michael Richards - mrichards2021@my.fit.edu
- Jaden Krekow - jkrekow2021@my.fit.edu
- Alice Luce - pluce2021@my.fit.edu
- Adrian Rodriguez - adrianrodrig2019@my.fit.edu

Faculty Advisor: Raghuveer Mohan - rmohan@fit.edu**Client:** Not Applicable**Progress Matrix:**

	Completion	Alice	Adrian	Jaden	Michael	To Do
Efficiently Solve Sudoku boards	100%	100%	25%			100%
Efficiently generate and store well-formed Sudoku boards	100%	50%	25%	50%		80%
Develop efficient ways to determine the solvability of a Sudoku board	100%	100%	0%			25%
Create a functional GUI	100%		50%		50%	90%
History functionality for puzzles	100%		0%	100%		75%

1. Discussion of each accomplished task for the current Milestone:
 - a. Boards now generate and solve at a rapid pace due to caching and new algorithms.
 - b. Boards now generate in seconds and can be stored to be later used in fractions of a second

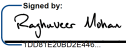
- c. A new algorithm has been implemented to solve boards faster, thus proving their solvability faster
 - d. The GUI is able to visually run a game and allow user input.
 - e. The storage system is complete and can store past puzzles for reuse.
2. Discussion (at least a few sentences, ie a paragraph) of contribution of each team member to the current Milestone:
- a. Alice Luce: Developing the top-down generator and the rules-based algorithms. Led team meetings and coordination.
 - b. Adrian Rodriguez: Create a basic GUI with the majority of functionality enabled. Enhance GUI features with feedback and necessary changes to optimize user playability
 - c. Jaden: Created class that works with the database to make operations within the database easier. Allows for insertion, deletion, and receival of boards within the database.
 - d. Michael Richards: Researching and developing efficient client side optimizations for quicker loading times and a stable client.

Plan for the next Milestone:

	Alice	Adrian	Jaden	Michael
Implement new algorithms to experiment with		Design the algorithm so that future implementations of algorithms can be incorporated and contain valuable metric data		Take a step into algorithm research to find more efficient big O solutions for the solving and generating systems.
Write up documentation and educational explanations for each algorithm		Explain GUI workflow and its interactions		

		with backend		
Implement QOL improvements to the UI		Use feedback from instructors and testers to enhance/change elements of the GUI		Finish work on multithreading and add improvements to loading times of new boards.
Create metrics for measuring algorithms		Display the metrics gathered from different solving algorithms	Create function that can be run along with algorithm to measure speed for comparison between different solving algorithms.	
GUI Implementation for history		Button implementation and connection to database	Create button on GUI home page to open a window to access and modify the history of all Sudoku games.	

1. Discussion (at least a few sentences, ie a paragraph) of each planned task for the next Milestone
 - a. The direction of the project moving forward is to create an educational system that explains and demonstrates the solving capabilities of different algorithms through Sudoku. Implementing these algorithms is a core feature.
 - b. For additional education, full high level explanations of each algorithm implemented and planned must be provided.
 - c. Quality of life improvements will ease both the Sudoku playing capabilities and improve the development of visualizations. QOL improvements include the ability to highlight cells. Determine at a glance which cells are hints and which ones are user-input, and the ability to visualize and rule out potential digits for each cell.
 - d. Metrics for algorithms will be a key part of our educational side of the game where users can see speed differences between algorithms to help understand the time complexity between algorithms.
 - e. Create GUI of Sudoku board history to allow user ease of loading, deleting, or viewing old Sudoku games. In GUI, board will have basic information about board

- on page to help user recall the game before loading the board.
2. Date of meeting with Client during the current milestone:
 - a. N/A
 3. Client feedback on the current milestone
 - a. see Faculty Advisor Feedback below
 4. Date(s) of meeting(s) with Faculty Advisor during the current milestone:
 - a. 11/14/24
 5. Faculty Advisor feedback on each task for the current Milestone
 - a. Begin shifting focus towards algorithms as the front end becomes complete. Algorithms should be implemented with a visual, written description of how it works, and metrics showing how fast it works. Focus on deep machine learning and its applications that can be used to aid in solving algorithms
 6. Faculty Advisor Signature:  Date: 11/25/2024

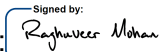
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Evaluation by Faculty Advisor

Faculty Advisor: detach and return this page to Dr. Chan (HC 209) or email the scores to pkc@cs.fit.edu

Score (0-10) for each member: circle a score (or circle two adjacent scores for .25 or write down a real number between 0 and 10)

Alice Luce	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Jane Doe	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Mark Jones	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Adrian Rodriguez	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10

Signed by:

ID: 81E20B02E446

Faculty Advisor Signature: _____ Date: 11/25/2024