Milestones:

- Research Milestone

    - The research milestone will be conducted by both team members to learn more about their respective responsibilities.

- Design and Development Milestone

    - The development milestone will be done by both team members; Michael Lieu will design and develop the Sudoku GUI while Will Schreiner designs and develops the back-end implementation of the program, where all of the solving functions will be done.

- Integration Milestone

    - This development milestone will be an effort conducted by Michael Lieu, who will analyze both implementations and integrate them.

- Testing Milestone

    - This development milestone will be an effort conducted by Will Schreiner, who will run a series of tests to test out a variety of algorithms.

- Production Milestone/Final Deliverable

    - The final deliverable will be a fully-integrated Sudoku solver program with a completed GUI where the user can input valid values into a Sudoku board and have the program return a fully solved Sudoku board based on the user input values.

Tasks Timeline:

Task	Start Date	Completion Date
Research TkInter and GUI design implementations of Sudoku boards (Michael Lieu)	October 2023	November 2023
Design and develop the implementation of the visual Sudoku GUI's board (Michael Lieu)	November 2023	December 2023
Design and develop the implementation of traversing across the visual Sudoku GUI (Michael Lieu)	December 2023	December 2023
Design and develop the implementation of inputting, deleting, and replacing values for the Sudoku GUI (Michael Lieu)	December 2023	January 2024
Integrate the back-end implementation with the front-end implementation of the program (Michael Lieu)	January 2024	March 2024
Design data structure for sudoku board	October 2024	November 2024
Design and develop the Square class	October 2024	December 2024
Design and develop Board class structure; basic data functions, and board maintenance functions	October 2024	December 2024
Design basic solve functions and unit tests	December 2024	February 2024
Design advanced solve functions and unit tests	December 2024	March 2024

(hidden + naked pairs) and unit tests		
Design backtracking solve functions and unit tests for non-human solvable fallback	March 2024	April 2024

Milestone Timeline:

Milestone	Start Date	Completion Date
Research	October 2023	December 2023
Design and Development	November 2023	January 2024
Integration	January 2024	February 2024
Testing	January 2024	March 2024
Production	March 2024	March 2024

Effort Matrix:

Task	Hours
Research TkInter and GUI design implementations of Sudoku boards (Michael Lieu)	4 hours
Design and develop the implementation of the visual Sudoku GUI's board (Michael Lieu)	6 hours
Design and develop the implementation of traversing across the visual Sudoku GUI and quality of life features (Michael Lieu)	8 hours
Design and develop the implementation of inputting, deleting, and replacing values for the Sudoku GUI (Michael Lieu)	10 hours (ongoing)

Integrate the back-end implementation with the front-end implementation of the program (Michael Lieu)	20 hours (ongoing, reworks)
Design data structure for sudoku board	3 hours (multiple reworks)
Design and develop the Square class	1 hour
Design and develop Board class structure; basic data functions, and board maintenance functions	20 hours (multiple reworks)
Design basic solve functions and unit tests	10 hours
Design advanced solve functions and unit tests (hidden + naked pairs) and unit tests	15 hours (ongoing)
Design backtracking solve functions and unit tests for non-human solvable fallback	(ongoing)