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CS Senior Design

Assignment 4

User Stories and Design Diagrams

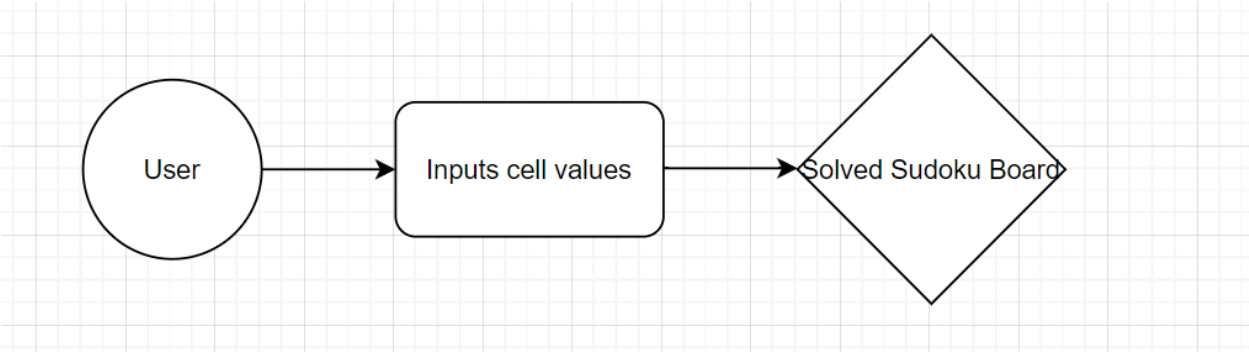
User Stories

- As a Player, I want the square I have selected to be highlighted, so that I can read the board easier.
- As a Player, I want to be able to traverse the board using mouse clicks and arrow keys, so that I can access cells according to my preference.
- As a Player, I want to be able to replace a square's value without having to manually delete the square's current value, to make interactivity with the board more fluid.
- As a Player, I want to be able to solve Sudoku puzzles of varying difficulty, so that I can solve any board.

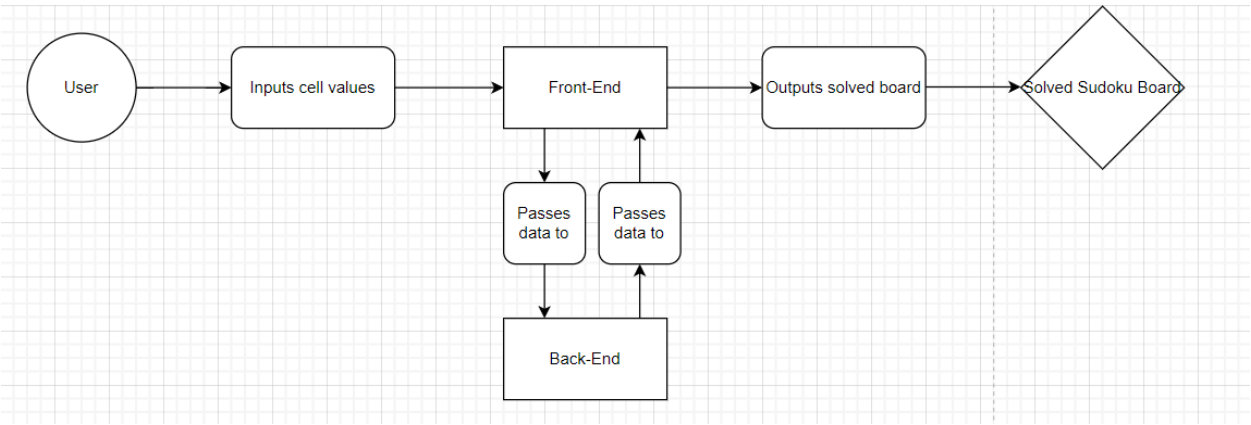
Design Diagrams

Title: Sudoku Solver in Python

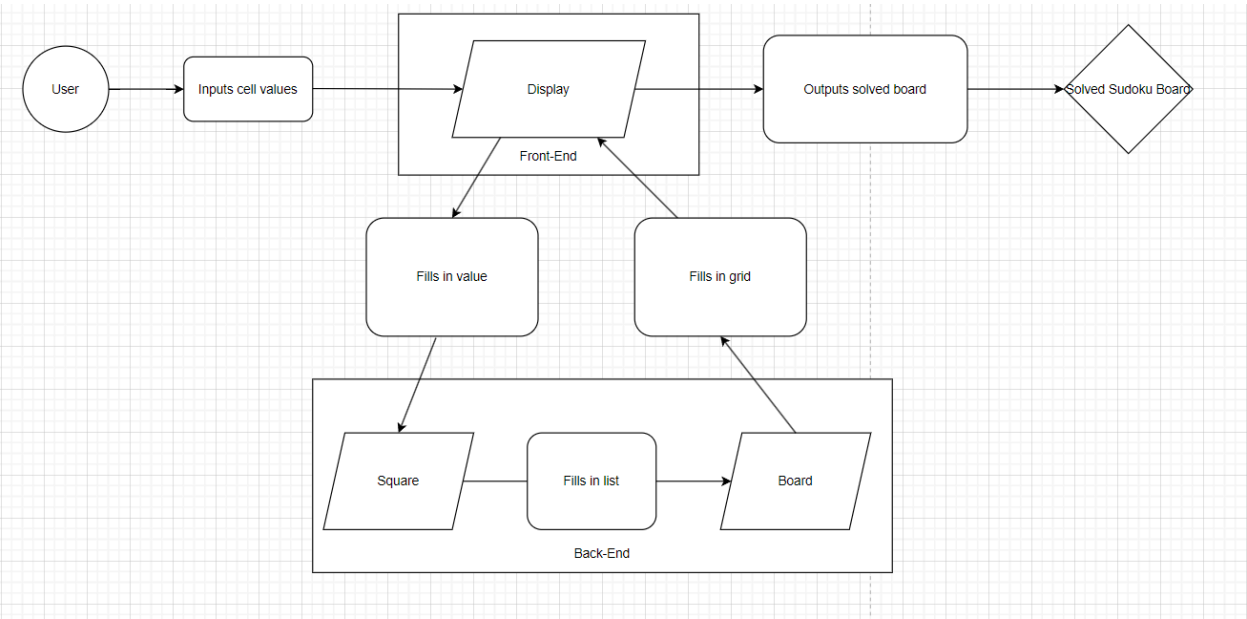
Goal: Design and develop a program that takes user inputs from a Sudoku board, solves the board based on those user inputs, and outputs the solved board.



D0: The user (represented by the circle) inputs the values of cells (action represented by the rounded rectangle) and the final output is a solved Sudoku board (represented by the diamond).



D1: The user (represented by the circle) inputs the values of cells (action represented by the rounded rectangle) into the front-end layer of the program (represented by the rectangle). The front-end layer of the program passes data (action represented by the rounded rectangle) to the back-end layer of the program (represented by the rectangle). The back-end layer then passes data (action represented by the rounded rectangle) back to the front-end layer. The front-end layer then outputs the solved Sudoku board (action represented by the round rectangle). The final output is a solved Sudoku board (represented by the diamond).



D2: The user (represented by the circle) inputs the values of cells (action represented by the rounded rectangle) into the front-end layer of the program (represented by the rectangle). The front-end layer of the program consists of the Display class object (represented by the parallelogram). The Display class fills in the value (action represented by rounded rectangle) of the Square class object (represented by the parallelogram). The Square class object fills in (action represented by the rounded rectangle) the Board class object (represented by the parallelogram) and the Board class object fills in (action represented by the rounded rectangle) the grid/Display class object. Finally, the Display class object outputs the solved board (action represented by the rounded rectangle). The final output is the solved Sudoku board (represented by the diamond).