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Homework 5 Report

For my assignment I wanted to continue working on the Sudoku Solver from the previous assignment. I decided to refactor my project by using the Cell class in more places. The Board has an array of Cells that keep track of their own value, row, col, and list of potential values. Originally only the PotentialValueSolver was using Cell but as I added the HiddenTwin solver it made sense for Cell to be used in other places as well.

I added the HiddenTwin solver to help solve the more complicated puzzles. The HiddenTwin solver works by checking in a row/column/block if there are only two cells that have the same two potential values. If it finds a hidden twin then it will remove those two potential values from surrounding cells in row/column/block. Using this new solver will help the OneMissingSolver and the PotentialValueSolver to find the values of cells. I separated the finding of twin cells and the elimination of potential values from other cells using HiddenTwinRow, HiddenTwinCol, and HiddenTwinBlock, I did this to use the practice of encapsulate what varies. HiddenTwinRow, HiddenTwinCol, and HiddenTwinBlock also extend HiddenTwin.

In the class PotentialValueSolver, I created a static method findPotentialValues that's used in other classes, this made it easier to avoid duplicate code. I also added more unit testing for the new solvers.