Date: 2/14/2016

# Scope

* Refactoring of Base Sudoku Solver
* Addition of Forward Checking
* Addition of Book Keeping

# Progress

* Completed a full refactoring of the base solver, including the creation of Sudoku Puzzle and Logger. The Puzzle acts as a container for the 2d array representation of the Sudoku puzzle. It contains Variables, which contain a position on the array, a domain of legal values left, and a value if assigned. The solver makes better use of the Puzzle to perform backtracking search, and other functions.
  + Created and added the Puzzle class, Logger class, and Book Keeper class.
  + Puzzle class holds Variable structs, which hold Position and Domain structs
  + Logger takes in logging information from the solver and prints it to the output file
  + Book Keeper is described below.
* Forward Checking was added as an option in the solver. After every assignment, if FC is enabled, the solver will remove that assigned value from all of the variable’s neighbors. This is added to the book keeper, which will then keep track of assignments and constraint propagations.
* Book Keeping was added via the Book Keeper, which is a vector of Variables and Values. It contains information on the level at which the entry was added, the Variable whose domain is being affected, and the values that are removed from the domain. It can also undo the last action, which will return all of the variables and values from the last level to be added back.

# Problems & Questions

* No Problems. Tested and ran on openlab.

# Results

* See Appendix

# Notes

* There are methods in the solver ready for the AC (ACP, MAC), and the Heuristics.