Date: 3/4/2016

Scope

- Added MRV, LCV, and DH heuristic functionality to the Solver
- Added ACP, MAC functionality to the Solver

Progress

- Heuristics – Added MRV, LCV, and DH. These are activated via command line arguments. When activated these reorder and select variables and values for the solver.
    - MRV chooses the variable in Select Next Variable with the smallest domain.
    - DH chooses the variable in Select Next Variable with the most unassigned neighbors.
    - DH orders the domain of the variable from smallest constraining neighbors to largest.
- AC3 – Added ACP and MAC. These are activated via command line arguments.
    - ACP goes through the initial puzzle and tries its best to enforce arc consistency before the solver is run. This may reduce the domains of several variables to just one value.
    - MAC goes through the puzzle after every assignment and tries its best to maintain arc consistency. If arc consistency cannot be maintained, it detects failure and backtracks.

Problems & Questions

- Executable – No problems, runs fine on openlab
- No Crashes
- DH, LCV make the solver take LONGER than without to solve.
- ACP, MAC sometimes takes LONGER to solve, but results in much less nodes and backtracks.
- The above two might be due to inefficiency and large use of loops in the respective algorithms, causing the runtime to grow much larger than it shrinks when removing values.

Results

Notes

- Added ACP, MAC for extra credit.