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COMS 4701
Artificial Intelligence

HW 4: Constraint Satisfaction Problem for Sudoku Puzzle

1. List the variables in the upper middle box in the blue circle and their corresponding initial domains.

A4 = {1, 2, 3, 4, 5, 6, 7, 8, 9}
A5 = {2}
A6 = {1, 2, 3, 4, 5, 6, 7, 8, 9}
B4 = {3}
B5 = {1, 2, 3, 4, 5, 6, 7, 8, 9}
B6 = {5}
C4 = {8}
C5 = {1, 2, 3, 4, 5, 6, 7, 8, 9}
C6 = {6}

2. Reduce the domain for the four unassigned variables by enforcing arc constraints with the entire puzzle.

A4 = {4, 9}
A6 = {1, 4, 7}
B5 = {4, 7, 8}
C5 = {7, 9}

3. Using minimum remaining value heuristic, which variable or variables should we explore next?

A4 should be explored next.

4. Which value of A4 should be tried first?

4 should be explored next because it's involved in the largest number of constraints on other unassigned variables.

5. Implementation of AC-3 algorithm

Number of puzzles solved: 3