Assignment #2 – COMP 4106 W 17

**DOMINATION – GAME IMPLEMENTATION**

*Overview*

This artificial intelligence problem focuses on the game Domination. The game is played on a 34-space board, and involves players taking turns trying to make stacks of pieces and capture the opponent’s pieces. A player wins when his or her opponent cannot make any more moves; this means that he or she has no exposed pieces/stacks, and no pieces in his or her reserve of captured pieces that he or she owns.

Players make one move during their turn and may move a stack of pieces vertically or horizontally up to the size of the stack. Pieces that land on a space with a stack already on it are added to the top of the pile on that space. A stack may be split, with the player taking only the top half, however the max move distance is reduced to the size of the moving half of the stack. When a stack reaches a height greater than 5, the excess is removed from the bottom and added to the active player’s reserve. During a player’s turn, he or she may put a piece from his or her reserve anywhere on the board instead of moving a stack as normal.

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The number of moves a player can make at any point changes with the state of the game. Near the beginning of the game, with the default sized board and regular setup, the active player can make anywhere from 60 to 80 moves, depending on the distribution of pieces. As stacks are created, the number of moves decreases, as pieces not in the dominant position in the stack are dormant and do not add to the board complexity. The number of moves increases, however