# Pentago

## Functions:

rotate:

Rotates a block of the grid

Params:

@grid: the current grid

@move: the rotation move

Return:

grid after rotation

copyGrid:

shallow copies a grid into a new variable without mutation the original grid

Params:

@grid: the grid to be copied

Return:

newgrid: the grid copied

makeMove:

Adds the intended piece to the grid

Params:

@grid: the current grid

@color: the player color

@moveL the drop move

Return:

Grid after drop move

checkWin:

Checks if the move leads to a win condition:

Params:

@grid: the current grid

Returns:

The winning condition if one exists else None

checkWinColor:

Checks win condition for each color for the sake of simplicity.

params:

@color: the color to be checked

@grid: the current grid

return:

win: win condition for the color in boolean

genRandomMove:

Generates move for the computer randomly (player 2)

Params:

@grid: the current grid

Returns:

A random move that is valid

genMinMax:

Generates move base on min max algorithm and executes alpha beta pruning:

Params:

@grid: Grid of the game

@playerno: the player value to determine the color piece for the computer

@moves: the current streak of moves

@depth: the depth bound for min max

@alpha: the alpha for pruning

@beta: the beta for pruning

@maximizing: to check if we are in max or min state

Returns

bestScoreAndMove: a tuple that contains the best score and the best move for recursive purposes.

allPossibleMoves:

Params:

@grid: The current grid state

Returns:

moves: a list of all possible valid moves in the grid.

Pentago:

Runs the game for the two players till there is a winner.

Calls all the previous stated functions.

Params:

@grid: the previous grid

@p1: the player 1 name

@p2: the player 2 name

@userplayer: the choice of player the user wants to be

## Problems:

## There are currently a lot of problems with the code. Mainly it’s broken functionality of min max when ran with the game. The min max algorithm works alone with alpha beta pruning. The random algorithm still works. I believe I should be able to fix it before the class tournament but not before submission deadline tonight.