Coms 262 The PuzzleBoard Class Spring 2018

Introduction

A `PuzzleBoard` object represents the current state of the board of the Rectangle Puzzle.

Data Members

- `Vectr<Vectr<bool>> m_board` – The rectangular board where a square is set to `true` if it contains a peg and `false` if it does not contain a peg.
- `int m_num_of_moves` – The number of moves made so far.
- `Vectr<Move> m_history` – A record of the sequence of moves made so far.

Public Member Functions

Constructors

- `PuzzleBoard();`

  Constructs a `PuzzleBoard` with `m_board` and `m_history` initialized to empty vectors and `m_num_of_moves` initialized to `0`.

- `PuzzleBoard(int rows, int cols, const Point& start);`

  Constructs a `PuzzleBoard` with `rows` rows and `cols` columns with all squares set to `true` (occupied) except for the square in position `start`, which is set to `false`.

Inspectors

- `bool occupied(const Point& p) const;`

  Returns `true` if the square at location `p` contains a peg and returns `false` if it does not contain a peg.

Mutators

- `void set(const Point& p, bool value);`

  Sets the square in location `p` to the boolean value `value`.

- `void move(const Move& m);`

  Makes the move `m` by updating `m_board`, `m_num_of_moves`, and `m_history`.

- `void remove(const Move& m);`

  Reverses the move `m` by restoring `m_board`, `m_num_of_moves`, and `m_history` to their previous values.

Other Member Functions

- `void displayHistory() const;`

  Displays the contents of the vector `m_history` as a sequence of moves, each move displayed on a separate line.

- `bool solved() const;`

  Returns `true` if the puzzle has been solved and returns `false` if it has not been solved.