ANH CHAU PHAM | CS201 | ASSIGNMENT: TETRIS DESIGN

1. Tetromino:

A Tetromino defines a tetris piece. It is a a geometric shape composed of four squares, connected orthogonally. This is the super class for each specific tetromino shape.

Instance variables
- isFilled: an array of Booleans to check if the square if filled

Instance methods:
- rotateClock: a method to rotate the tetris clock-wise
- rotateCounter: a method to rotate the tetris counter-clock-wise
- isFilled(): check if the square is filled

2. TetroSquare:

This class is a subclass of Tetromino and demonstrates a square-shaped tetromino. It inherits all of the instance variables and methods from the superclass.

3. TetroLine:

This class is a subclass of Tetromino and demonstrates a line-shaped tetromino. It inherits all of the instance variables and methods from the superclass.

4. TetroT:

This class is a subclass of Tetromino and demonstrates a T-shaped tetromino. It inherits all of the instance variables and methods from the superclass.

5. TetroZ:

This class is a subclass of Tetromino and demonstrates a Z-shaped tetromino. It inherits all of the instance variables and methods from the superclass.

6. TetroS:

This class is a subclass of Tetromino and demonstrates a S-shaped tetromino (mirrored to the Z-shaped tetromino). It inherits all of the instance variables and methods from the superclass.

7. TetroL:

This class is a subclass of Tetromino and demonstrates a L-shaped tetromino. It inherits all of the instance variables and methods from the superclass

8. TetroJ:

This class is a subclass of Tetromino and demonstrates a J-shaped tetromino (mirrored to the L-shaped tetromino). It inherits all of the instance variables and methods from the superclass

9. Board:

This class is responsible for constructing a tetris board with 10 columns and 18 rows and some functionalities.

Instance variables
- NUM_COLS and NUM_ROWS is the number of columns and rows
- tetrominos the current tetrominos being in the board

Instance methods:
- newBoard(): Initializing a new board
- Changing the position of the tetrominos with moveLeft(),moveRight(),moveDown(),rotateClockWise() and rotateCounterWise()
- collapseCheck():n Check if a tetrominos collapse with another tetrominos
- moveOutBound(): Check to make sure tetrominos does not move out of the board's bound.
- boolean addTetrominos(): Add a new random tetrominos
- endGame() Decide when the game is over
- clearLine()Clear a line if that line is filled

10. TextBoard:

This class is used to set up a board in text view using string. The rows and columns in the board is the empty (white space) string. The tetrominos are made up of the "x" strings.

Instance variables
- board: the Board object

Instance methods:
- textBoardView: a method that return strings that display the tetris board

11. GUIBoard:

This class displays the board in GUI view. It mostly display by using the graphic object.

Instance variables
- board: the Board object

Instance methods:
- set up a frame
- paint the grids and the outline

12. Controller:

This class will be responsible for updating the number of lines and tetris

Instance variables
- board: the Board object
- int numLines and int numTetris: the number of lines and tetris

Instance methods:
- numLines() get the number of lines cleared
- numTetris() get the number of tetris cleared

13. TextController:

This class will be responsible for some major functions of the game but the board will be displayed on the terminal. Has a main method.

Instance variables
- controller The Controller of the game
- board the TextBoard object

Instance methods:
- stringControl() : Take in a string to move the tetrominos accordingly
- main()

14. GUIController:

This class will be responsible for some major functions of the game and will display in GUI view. Because the tetrominos falling down the screen, it will also deals with Active Object. . Has a main method.

Instance variables
- controller The Controller of the game
- board the GUIBoard object

Instance methods:
- keyPressed : for moving the tetrominos
- startGame() start the movement of tetrominos
- main()