

CE203_2015_Ass2

Short implementation report

Tetris package have three main classes that game works on, it is Tetris, Shape and Board.

Tetris class that extends applet, first makes panels for actual game pieces and for buttons with labels to be displayed. Game panel is width of 10 and height of 20 as asked. Buttons are located at the bottom of the applet using BorderLayout.SOUTH positioning. Both buttons have action listeners, but could not managed to implement ButtonHandler classes for some reasons (Applet would not start).

With button "Start game" you can start a new game at any given time, it resets the score and game grid is cleared as expected or you can drop down a piece to the bottom with "Drop Down" button for faster gameplay.

In class Shape we create Tetriminoes or Tetris game pieces to be played with, they work from using coordinates which are set up with X and Y axis and stored in array. Shapes are created randomly using values of Tetrominoes enum class. Shape includes minY method for minimal Y value to be returned then turning the shape, also it has rotate method for turning tetrominoe shape.

In class Board we initialise important variables for game to be played, like Timer and Boolean variables. Class implements Tetrominoes from Shape to be fully used in class. I named Board constructor with Tetris parent because Tetris class in the main class for all Applet initialization. It has Timer set for 1000ms for game to be slow and steady, Timer calls for actionPerformed every 100ms or when Tetrominoe is collided with another game piece. Class also include implementation of tetrominoes sizing based on window size, for this game looks neat at any set size. Board class is where the real life begins for Tetrominoe pieces. Game starts when start() method is called it works by checking if game is paused or not, setting Boolean values for game to start, timer starts and new piece is created. Pause just pauses the timer and sets score label to "paused" value. Moving downward to the code we can find paint method which paints new pieces and stores previously painted pieces on game grid. It start by getting grid size and start painting at the top of the grid. When piece is collided or dropped it is remembered in array, repainted on the grid and is waiting for collision with another piece. Moving further down the class we can find methods like dropDown() which drop piece to the bottom of the grid or till it collides with another piece, oneLineDown() drops piece only one line down when necessary, clearBoard() which fill panel with empty tetrominoes pieces for collision purposes, pieceDropped() puts new pieces to array and holds them, plus checks if any lines are full and when piece is dropped it creates new piece to be dropped down again if possible, newPiece() of course creates new Tetrominoe by getting it randomly, it checks if there is any place for newly created piece to be dropped down if not game is over. TryMove() tries to checks if rotation is possible, because Tetrominoe can be by the side of grid or touching other game piece. RemoveFullLines() removes any full lines, adds score plus 10 and moves all above lines one full line down because one is removed. DrawSquare() draws are square and fills in with set up colours, top side with brighter ones and bottom side with darker ones, thus giving it 3D colour effect.

Finally at the bottom of the script you will find MyKeyListener and MyMouseListener classes, KeyListener class only for the first round of the game it allows user to pause the game and drop piece one piece at the time. MouseListener lets tetrominoes to move left with left mouse button, move right with right mouse button and rotate clicking mouse wheel.

I wanted to make user to be able to use keyboard buttons all the time, but after new game starts only mouse works and keyboard does not work for some reason. I tried to make use of mouse wheel but in applet viewer it does not work so I made it as comment for you to look at.