CPSC 2150 Project 1 Report

Janki Patel, Dev Shah, Janani Salai

Requirements Analysis

Functional Requirements:

1. As a player I need to be able to read directions on gameplay so that I know how to play the game
2. As a player I need to choose whether I will play as Player X or Player O so that I know which player I am
3. As a player I need to know which player's turn it is so that I know when it is my turn to make a move
4. As a player I need to be able to view the game board as a string so that I can choose what move to make
5. As a player I need to be able to choose which column of the game board that I place my token in so that I can make a move
6. As a player I need to be made aware of whether or not the column I choose to place my token in can accept a token, so that I know whether my token is in a valid position or not
7. As a player I need to be able to choose a different column to place my token in if the previous position I chose led to an invalid token position
8. As a player I need to be made aware of whether or not the game ended in a win/loss or a tie so that I know the result of the game
9. As a player I need to be able to view the final game board (after win/tie) so that I can see the net result of all the moves made
10. As a player I need to be able to choose whether or not I would like to play again so that I can quit the game if I would like to
11. As a player I need to be able to restart the game with a new game board so that I can play again
12. As a player, I need to be able to win the game by placing five in a row vertically so that I can achieve a vertical win and end the game.
13. As a player, I need to be able to win the game by placing five in a row horizontally so that I can achieve a horizontal win and end the game.
14. As a player, I need to be able to win the game by placing five in a row diagonally so that I can achieve a diagonal win and end the game.
15. As a player, I need to be able to end the game in a tie if the board contains no open position in which to place a token.

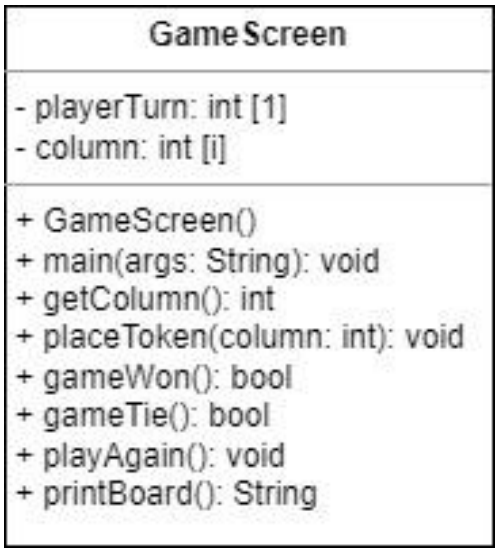
Non-Functional Requirements

1. The game must be coded in Java
2. The game must run on Unix

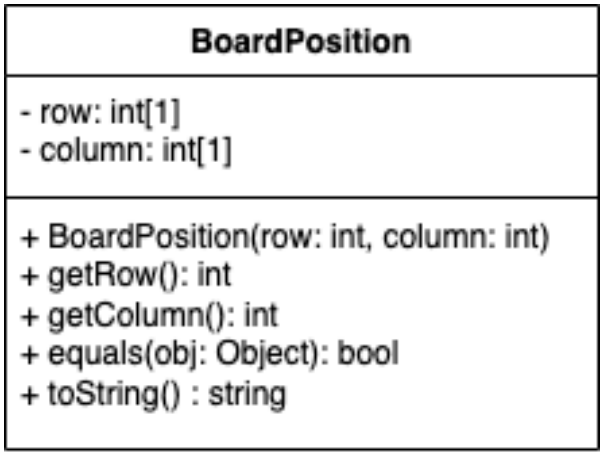
3. The game must be able to print out the game board in a string
4. The game must print out game board quickly and efficiently so game is playable
5. The project must be runnable with JDK21
6. The game board must be 9x7 in size
7. Player X must make the first move
8. The cell (0, 0) must be the bottom left of the board

System Design

Class 1: GameScreen



Class 2: BoardPosition



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Class 3: GameBoard