Design Report for TicTacToe

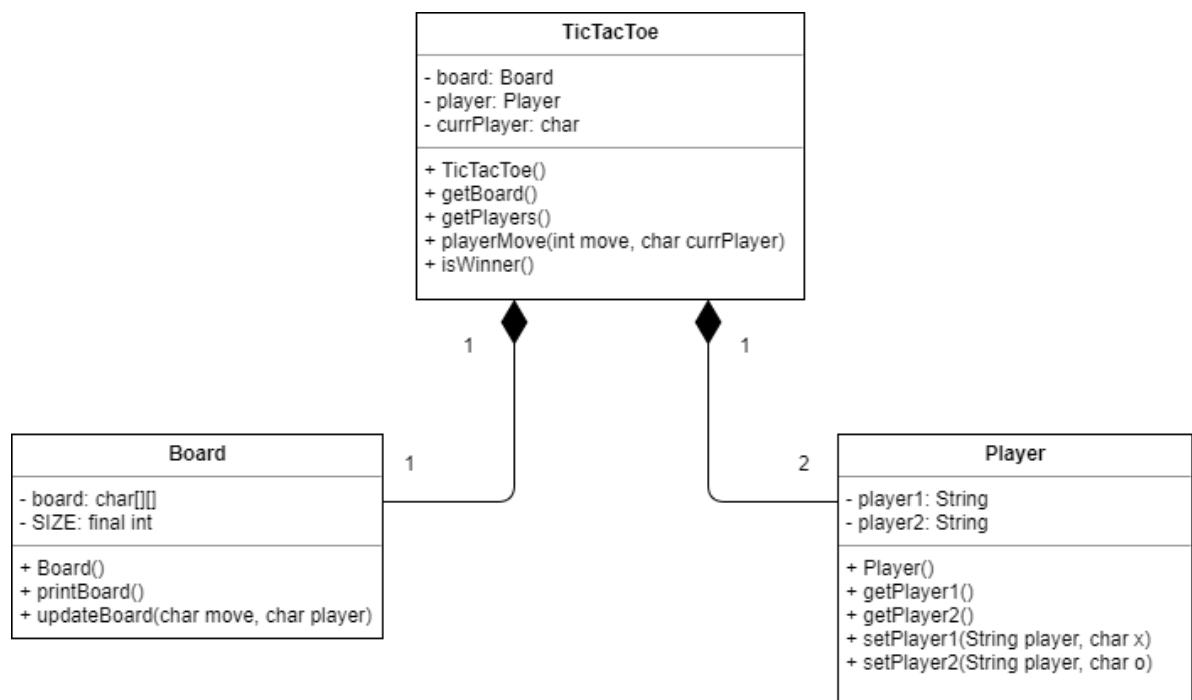*Fall 2017*

Team

Team name:

DreamTeam

Team members:

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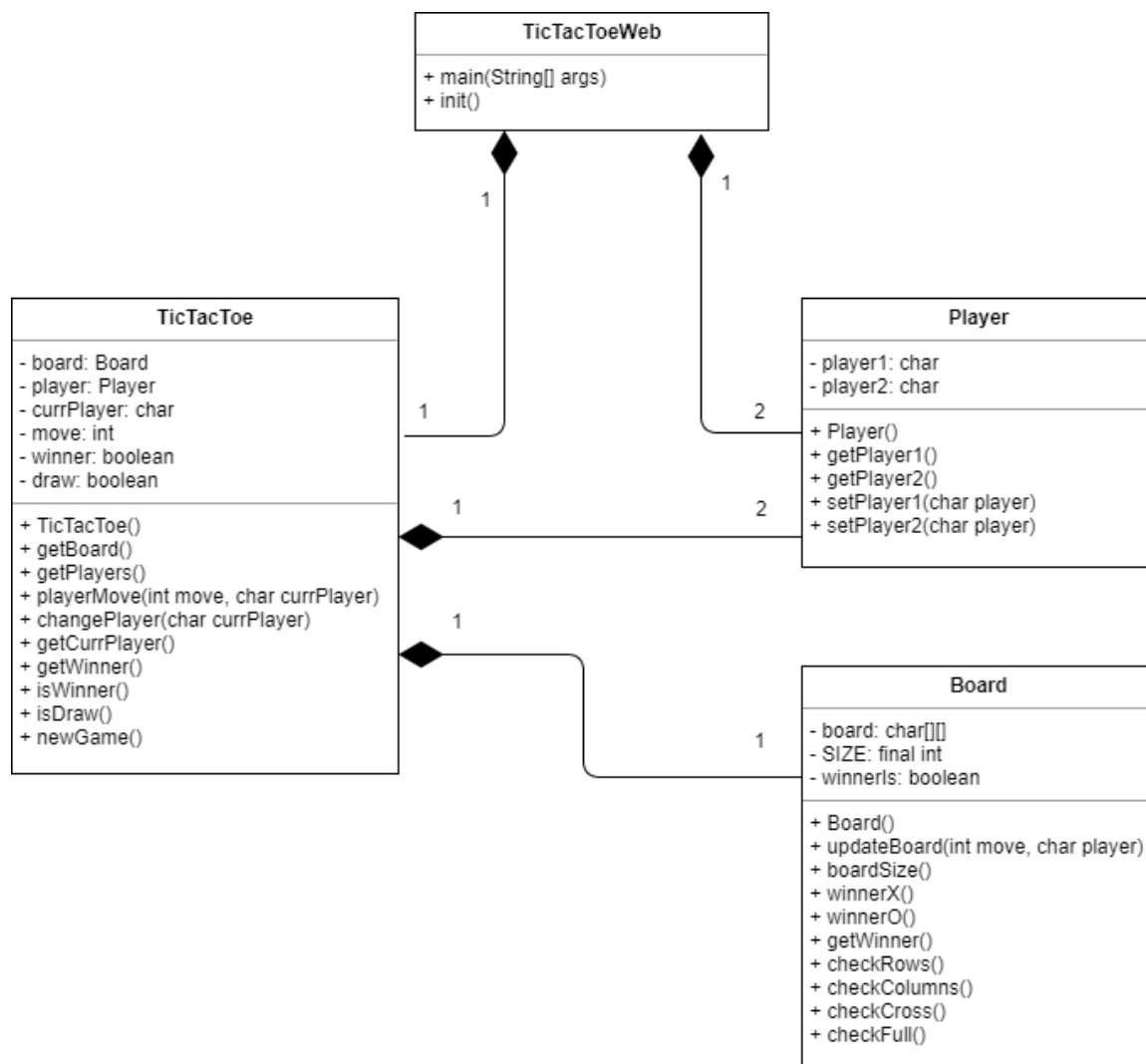- Sigrún Elva Reynisdóttir

Introduction

This document is a design report made for the course SC-T-303 Hugbúnaðarfræði at Reykjavik University. Before we started implementing the code we decided to make both a class diagram and a state diagram to help us better understand what we had in mind and prepare the work ahead of us. The class diagram that was made before the implementation gave us an idea that we could follow but it was not the same as the final outcome. Following are images of both the before and after diagrams where the changes between the first vision and the final outcome can be seen. Considering the time limit we decided to develop a simple program that allows the user to play the game and offers him/her to play again at the end of a game. The state diagram below shows how this is implemented. However, although we decided upon a simple program we decided to put our own mark on the project and themed it by the TV show 'Rick & Morty'. The players are then the main characters from the show respectively and the board is filled with images instead of the usual 'X' and 'O' marks for the players.

Class diagram before implementation

```
                    ┌─────────────────────────────────────────┐
                    │                TicTacToe                │
                    ├─────────────────────────────────────────┤
                    │ - board: Board                          │
                    │ - player: Player                        │
                    │ - currPlayer: char                      │
                    ├─────────────────────────────────────────┤
                    │ + TicTacToe()                           │
                    │ + getBoard()                            │
                    │ + getPlayers()                          │
                    │ + playerMove(int move, char currPlayer) │
                    │ + isWinner()                            │
                    └─────────────────────────────────────────┘
```


Class diagram after implementation

TicTacToeWeb

+ main(String[] args)
+ init()

TicTacToe

- board: Board
- player: Player
- currPlayer: char
- move: int
- winner: boolean
- draw: boolean

+ TicTacToe()
+ getBoard()
+ getPlayers()
+ playerMove(int move, char currPlayer)
+ changePlayer(char currPlayer)
+ getCurrPlayer()
+ getWinner()
+ isWinner()
+ isDraw()
+ newGame()

Player

- player1: char
- player2: char

+ Player()
+ getPlayer1()
+ getPlayer2()
+ setPlayer1(char player)
+ setPlayer2(char player)

Board

- board: char[][]
- SIZE: final int
- winnerIs: boolean

+ Board()
+ updateBoard(int move, char player)
+ boardSize()
+ winnerX()
+ winnerO()
+ getWinner()
+ checkRows()
+ checkColumns()
+ checkCross()
+ checkFull()

State diagram