4.1: Class/ Module Description

Item in red text is new to assignment 3, Item in black text is old and for assignment 1 and 2

main module

This module consists of the main method, which calls and instantiates objects at the highest hierarchy. This includes creating the game board object and starting the board setup and gameplay game loop.

draw module

Both a controller and view component of the MVC framework, this module consists of methods that display the GUI of the game, including the interactive buttons, game board, and game pieces. It contains some logic regarding how to display the game board given the data matrices, as well as displaying game mode selection and win screens.

classes module

The interface of classes for game objects.

This includes:

- Tile class: a representation of a single tile on the board, with the properties of location index, colour, and size (which is constant for all tiles)

- Piece class: a representation of a single game piece, with the properties of location index, a value indicating team, and a value indication piece type (normal or king), includes a small function checking for a promotion to a King piece

- Board class: a representation of the entire game board, done through two matrices, one pertaining to the tiles and another to game pieces, includes a small function that can remove a piece and a function that executes a piece movement after checking if move is legal.

gameloop module

A controller component of the MVC framework, this module consists of several methods that react to user input. At the core of this module is a run function that drives the drag and drop piece movement system that starts after piece placing is finished. This module also includes the piece placing function before the game starts, as well as logic pertaining to rules of gameplay, including turn mechanics, piece movement rules, and win conditions.

The essential functions mentioned above use resources from board and the new Move class.

AI module

An interface that also acts as a controller component of the MVC framework, this module consists of a class called Move, which contains calculations about all possible moves on a specific turn, and use that

information to check for a valid move. All functions here rely on the resources from the board class, while move calculations require piece and turn arguments to be brought in addition to board.

save module

A controller component of the MVC framework, this module consists of two functions that save and load game states. It uses the piece matrix generated by user inputs and stores the data in text file. It also loads by overriding the running board class instance with data generated by accessing said text file.

The program was decomposed this way by following the simple GUI framework of MVC 1. It consists of the combined controller/view component for I/O processing and their interfaces, and the model component that copes with core functionality data.