220 : Software Engineering Design - Coursework

Othello

The game of Othello (also known as Reversi), is a strategy game for two players involving a square board and playing pieces that take form of counters which are white (light) on one side and black (dark) on the other. Players take turns to place pieces on the board, attempting to surround their opponent's pieces. Any opposing pieces that are surrounded are flipped over and converted from light to dark, or vice versa. At the end of the game, the winner is the side with more pieces in their colour on the board. A more detailed explanation of the rules can be found on Wikipedia: http://en.wikipedia.org/wiki/Reversi

The object of this coursework is to implement a computer-based version of the game. Below are a list of core features, which you should implement, and a list of optional features which you may choose to implement as extensions.

Core features:

Two human players should be able to play Othello against one another on the computer, according to rules described on Wikipedia.

The game should present some sort of visual representation of the current state of the board.

The game should control whose turn it is to play.

The game should prevent playing a piece in an illegal square.

When a player places a piece, the game should flip the relevant pieces currently on the board.

The game should detect when the game is over, and notify the players of who has won.

Optional features:

Create a computer player to play against a human (or even against another computer player). The computer player does not need to be good at the game, this is not an AI exercise, as long as they play within the rules.

Make the board a variable size.

Make it possible to increase the number of players so there is more than just "light" and "dark". You may need to make some decisions about how the flipping rules work in this case.

Create a nicer visualisation of the board.

Allow users to interact with the board through a GUI - clicking on squares etc.

Anything else you would like to do.

Coursework Requirements:

You may (and are encouraged to) do this coursework in groups of 2 or 3.

Choose a language to implement the game in (one of the languages we have used in the course).

You should write a report (one per group) describing the design of your software, talk about any trade-offs or design decisions you made. If you used any design patterns, describe how and why you applied them. You may like to include some diagrams to show the structure of your application (or a part of it). Did you use any tools to help you specify and test your implementation?

If you don't have space in the report to describe every aspect of what you did, focus on the most interesting parts.

Include a screenshot or similar to show the application running.

Maximum length of report 6 pages.

Administration

Due date: 11/11/2011

Submit your report as a pdf file, and a zip file containing your code, electronically via CATE