

Homework 2 (50 points)

cs3157 – Advanced Programming
Prof. Shlomo Hershkop
Dept of Computer Science
Columbia University
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Out: June 19.

Due: June 29 9am (final – non negotiable)

Objective:

1. Practice your C and C++ skills
2. Play games online
3. Have fun!

Programming Part:

A well designed system can be extended easily. You will be building an online game system in C++ using an object oriented design approach. We will be implementing a checkers game for our online system. If you would like to create another game please email me. In theory the system should be able to play any board game as long as you code it using your system of inherited classes.

The website will allow users to log in and check their stats and play games. We will be implementing a single game system which can be easily extended to accommodate any online board game.

Website component:

The website part will work in the following manner:

Your cgi script will be launched and will create a default webpage to sign in or create an account.

Creating an account will allow one to create a username and password (should check if exists).

Logging in will show the following “starting page”:

1. When the account was created
2. Last time logged in
3. How many games played
4. Load a saved game.
5. Start a new checkers game

Once in play mode, the cgi should generate each move as the game is played...once done it should go back to the “starting page”.

The game should be programmed with C++ classes. You should generalize the classes so that if you would like to replace checkers with any other game you can.

Create and design a Board.cpp class which will represent a general board game. You need to define the following functions:

- 1) Initialize – starts a new game board
- 2) GetMoves – returns an array of game moves
- 3) SetMove – takes a move and executes it in the game system
- 4) isDone – checks if the game can continue return 1 if the game is done
- 5) getString – will return a string representation of the game
- 6) doNext – plays the computer move
- 7) setup – takes a string and sets up the game accordingly

Create and design a Checkers.cpp class which inherits from Board and implements all the functions correctly. When the player moves successfully, the class should execute a function called “doNext” which plays a random move from the computer side

Create and design a Game.cpp class which has the logic of playing a board class.

Remember the cgi script is awakened at every game time. Feel free to improvise but here is a simple suggestion of how to implement the website part of the project:

Use an html table to represent the game and have X part of the board be denoted by A-H and Y part of the board be denoted by 1-8. The player inputs moves by saying starting to ending location (C1 , D2) would attempt to move the piece from C1 to D2. etc

Start as soon as possible and make sure you have a clear idea of what you are doing...please speak to me asap if you do not.

Best of luck!!