

CSci 130 – Fall 2021 - Web Programming

Project – Gomoku (5 in a row)

(Group project: Maximum 2 students)

The project is worth 25% of the CSci 130 course.

Submission

Submission will be done on Canvas by submitting a zip file containing all the files(html files, images, css files, javascript files, php files). The project should work from any computer, i.e., no absolute paths in the folder.

Gomoku, also called Five in a Row, is an abstract strategy board game. It is traditionally played with Go pieces (black and white stones) on a Go board. <https://en.wikipedia.org/wiki/Gomoku>

It is played using a 15×15 board while in the past a 19×19 board was standard.

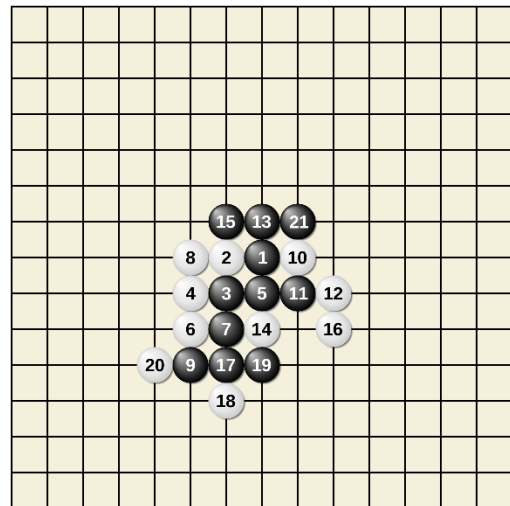
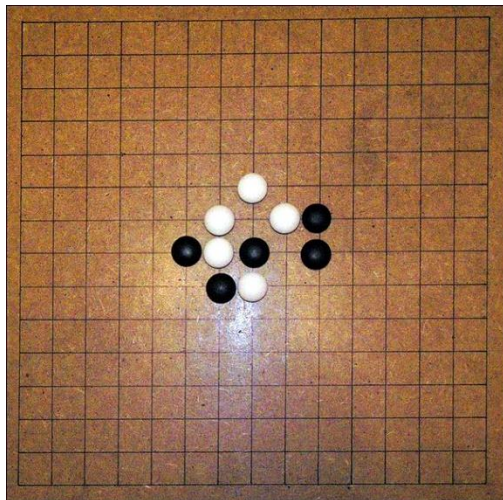


Figure 1. Example of what should be displayed on the page

Rules

Players alternate turns placing a stone of their color on an empty intersection (using the mouse). Black plays first. The winner is the first player to form an unbroken chain of five stones horizontally, vertically, or diagonally. Placing so that a line of more than five stones of the same color is created does not result in a win.

The game is played with 2 players on the same screen. We will consider that the player who is logged into the game will be the first player (black). The second player (white) will be played by another person on the same machine, same screen.

At the end of the game, we will only record the information from Player 1.

At the end of each game, the score, the duration of the game, and the number of turns will be saved in the RDBMS on the server side, so they can be displayed in the leaderboard page. The server side will be only used to save the results of each game, keep information about Player 1.

Main Functionalities and requirements

Documents

- A readme file explaining how to install and use the web pages
- A file giving a detail of who has implemented what, what work was undertaken weekly

Main Pages

- Main page with a menu (index.html)
- Help page: to explain how to play the game (help.html)
- Contact page: short description of the authors of the game (the members of the project) (contact.html)
- Login page: To log into the system
- Sign up page: To create a new account
- The main game (game.html)
- Leaderboard page: To display the best players, to sort players by ascending/descending order of won games, time played, number of games played. To display all the games played by the player who is logged into the system. (leaderboard.html)

Main functionalities

- To have some well-organized HTML5 code with roles
- To use appropriate CSS3 functionalities (external CSS file) for the presentation of the web pages using a Fresno State layout, using the appropriate Fresno State logo and images to decorate the site.
- To use Object Oriented Programming
- To display the board on the screen in an HTML table or in a JavaScript Canvas
- To have a button to start the game, to restart the game.
- Options
 - to change the size of the board (15x15 or 19x19) for a new game
 - to change the color of the board
 - to change the color of the pieces for player 1, and player 2
- Function to place the different pieces on the board
- Function to detect: 3 in a row, 4 in a row, 5 in a row
 - Display some hints in places where the user can create a 4 in row or 5 in a row
- Display:
 - the time since the beginning of the game
 - the number of 3 in a row, 4 in a row for each player
 - the current turn inside each piece (see figure on the right in Page 1)
- Server side:
 - A script to create the database and populate it with data
 - Create appropriate Tables in the RDBMS
 - Return the information to be displayed on the client side.