University of Calgary
Faculty of Science
Department of Computer Science

SENG 513- Web-based Systems
Assignment 2
Web-based Client Game
Fall 2022

1 Objectives

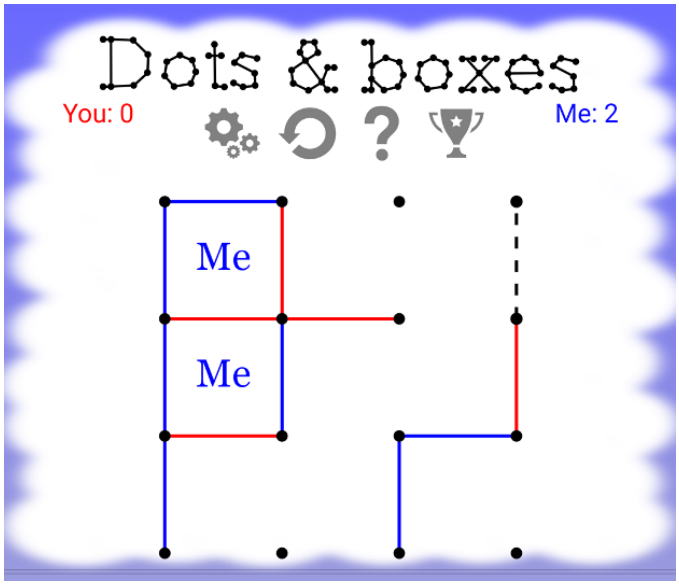
This assignment is intended to give you hands-on experience on web-based client side systems. It combines HTM, CSS, and JavaScript. This is done through the development of a multi-player games, called *Dots and Boxes.* Again, this is an individual assignment and No sharing with other students, including members of your groups whatsoever.

2 Background

If you are not familiar with the **Dots and Boxes** game, you can visit the Wikipedia page for Dots and Boxes or *dotsandboxes.org* to play this game against a computer.

The game would start with an empty game board. Players take turns to add lines to the board. Your game logic should handle turn changes. Each player can add one line connecting two adjacent dots in their turn which will be displayed on the board with their color. Whenever a player completes a box, your game should automatically detect that and color the box accordingly and count it towards that player's points. Each player's points (number of boxes they have) should be displayed on the page. The player who completes a box, gets to add another (bonus) line. This should also be factored into your game logic. The game finishes when someone claims the last box and the winner is the player who has the most boxes.

A snapshot of this game is shown in the figure below.



In this assignment, you need to develop a well styled website that allows **three players** to play this game.

3 Requirements

Your website should consist of at least three pages:

1. A landing page where you can start a game.
2. The main page containing the game board, number of boxes each player completed, and a button to restart the game.
3. A page (or a pop-up) that displays the results when the game is over.
4. Allow Three players to play this game.

The following should also be considered:

1. Do not publish your website until the assignment deadline.
2. You do not need to implement a computer player. But three players must be able to play the game on one browser screen (No backend is required).
3. Your game should handle taking turns, detecting complete boxes, displaying the added lines and boxes correctly and prevent illegal moves.
4. Your code must be readable, well formatted and commented.

5. Avoid using inline Javascript and CSS. Create separate .css and .js files and reference them in your HTML.

6. Your game should be playable on all major web browsers (Chrome, Firefox, Edge, and Safari).

4 Grading policy

Students could be randomly selected to demonstrate their work and answer all related questions. Work should be done individually. Any source of help MUST be indicated and cited.
The following are some of the points used to grade your assignment:

1. Having a well styled landing page, main page and the page containing the game results with the mentioned requirements.

2. The correctness of your game logic and scores.

3. Players must be able to restart the game at any time in the main or results pages using one button.

4. All pages must be navigable, meaning no page should be a 'dead-end' with no links out.

5. Your website should be mobile-friendly and display correctly on mobile, tablet and large screens.

Just having the requirements does not necessarily guarantee the marks, assignments must be styled nicely, show an effective use of CSS styling and clean coding practices.

The assignment will be given a letter grade and carries 10% of the total grade.

5 To Submit

You must submit the following (please follow the instructions of your TA):

1. A PDF document, as described above, titled your first name, last name, followed by the pdf extension. For example if you name is John Doe, your pdf document would be called 'JohnDoe.pdf'.

2. HTML and JS files required for your website.

3. A single CSS stylesheet for your entire webpage

4. Any remaining files required to build your web-client game, such as .mp4 files, and .jpg files.

All submissions must be uploaded through the D2L dropbox.
You are URGED to check your submission after loading on D2L. Empty submission after the deadline will be subject to the indicated penalties.

6 Deadline

Wednesday November 2, 2022 before 11:55 P.M. For each late day (in full or in part), a deduction of %20 will be applied.

7 Plagiarism

All resources must be cited. Any website which you take images / videos from must be cited in your PDF document. Any resources which have significantly helped you in making your code should be cited, and you should not copy paste code from online websites but rather write all code by hand. A tool used to check plagiarism will be ran on student submissions. This is an individual assignment and students MUST not collaborate on the assignment in terms of sharing code under any circumstances. Even after the deadline, you must not share your code or make it available for others.