CPSC 224 Final Project

PROJECT PLAN
November 3, 2023

Connect 4

Four in a Row

<Insert Team Logo (if you have one)>

Prepared by:

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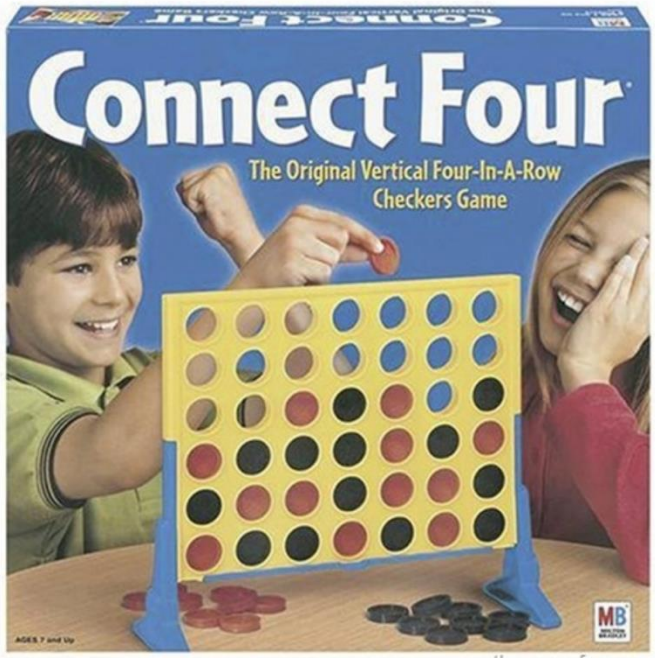
1 Project Overview

1.1 Project Summary

Connect Four is a two-player strategy game. The objective of the game is to be the first player to connect four of their token in a row, either horizontally, vertically, or diagonally, on the game grid. The grid usually consists of six rows and seven columns, forming 42 total slots for discs to be placed. Each player has a set of 21 tokens they can use. To play, each player gets their own color token and they take turns selecting a column to drop their token. The token is then placed at the lowest available position in that column. The first player to connect four discs in a row in any direction wins the game. If the grid fills up without a winner, the game is considered a draw.



2 Project Requirements

2.1 Major Features

Provide a description of the major features that must be implemented for a viable and useful product. Major features include broad feature areas, constraints that must be met, and other major items that must be completed for the project to be considered successful. You should have at least 4-5 major features.

Table 1: Major Features

Feature	*Description*
Make moves	Put a token in a column and have it fall to the lowest open spot
Win game	Detect when there are four tokens in a row
Mutliplayer	Switch turns until someone wins or board is full

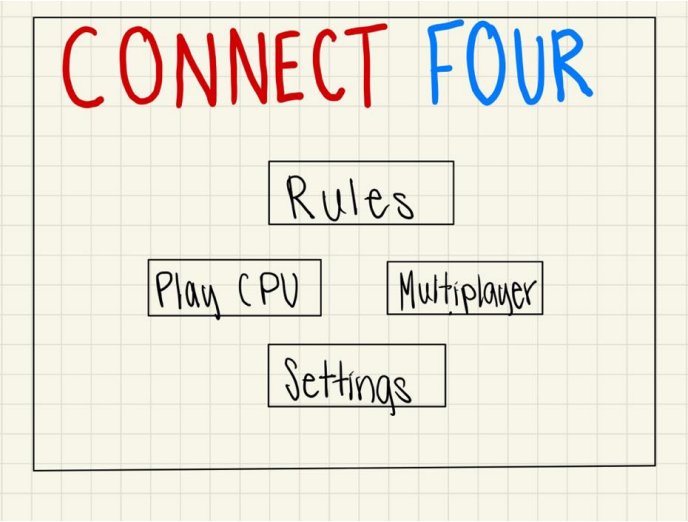
Single Player	Player vs computer, computer chooses random columns
GUI board	Clickable and visable board

3 Project Game Design

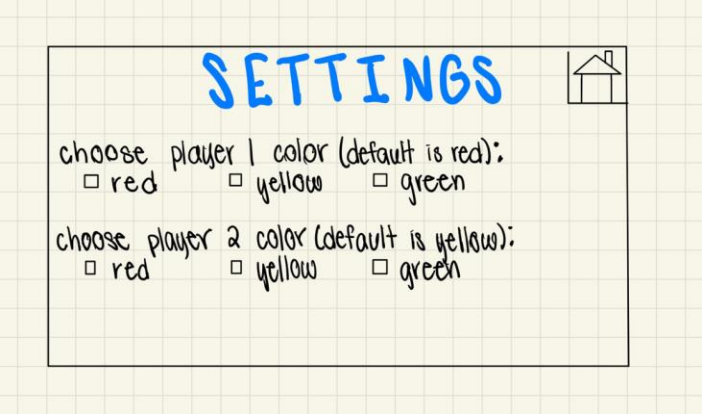
3.1 Initial User Interface Design

Provide a description of the general user interface layout, including a set of initial user interface design mock-ups. This can be done as a sketch if it's cleanly done by hand, or digitally using a drawing tool.

This is the home screen the four buttons on the screen take you to three different screens. The rules button will take you to the rules screen shown below. The multiplayer and Play CPU screens will take you to the same screen, but this screen will function differently depending on what the player selects.



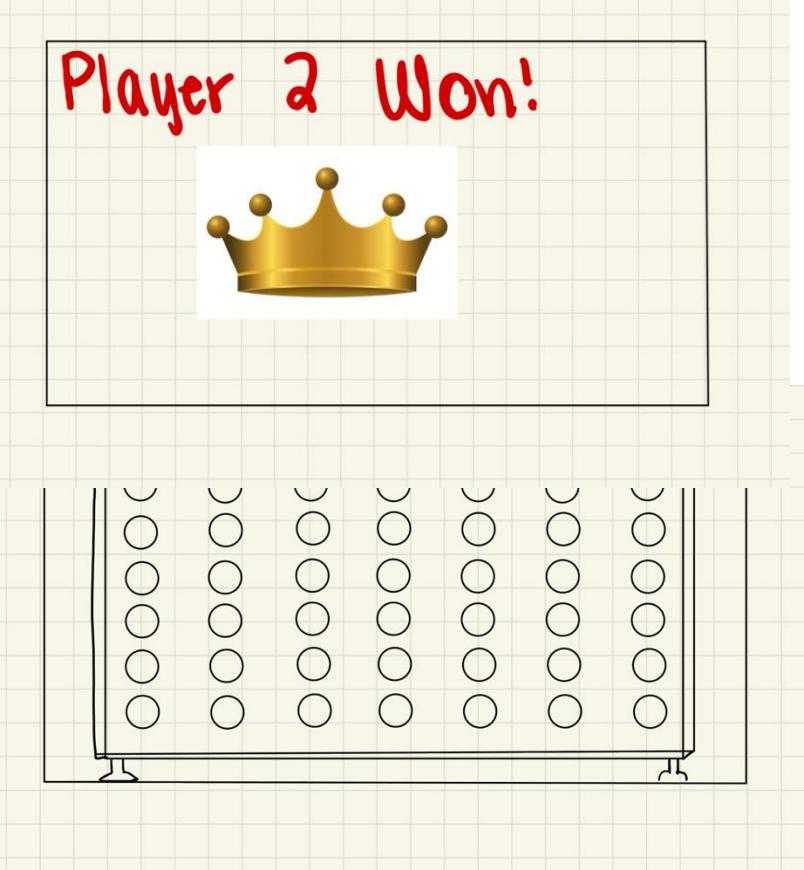
The settings screen allows the player to choose which color they would like to play as. If this screen is not visited then the default colors will be chosen for the player. It also has a home button in the corner, so the player can go back to the main screen after selecting the correct settings.



The page displays the rules for the player if they are unfamilar. The home button in the corner will take them back to the main screen once clicked.

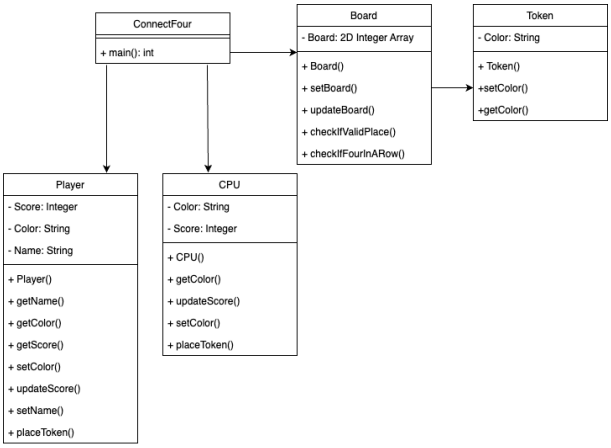
This is the main screen in which the players play the game on. The player can reach this screen by pressing the Play CPU button or multiplayer button. Each column will be a button where the player can place a token.

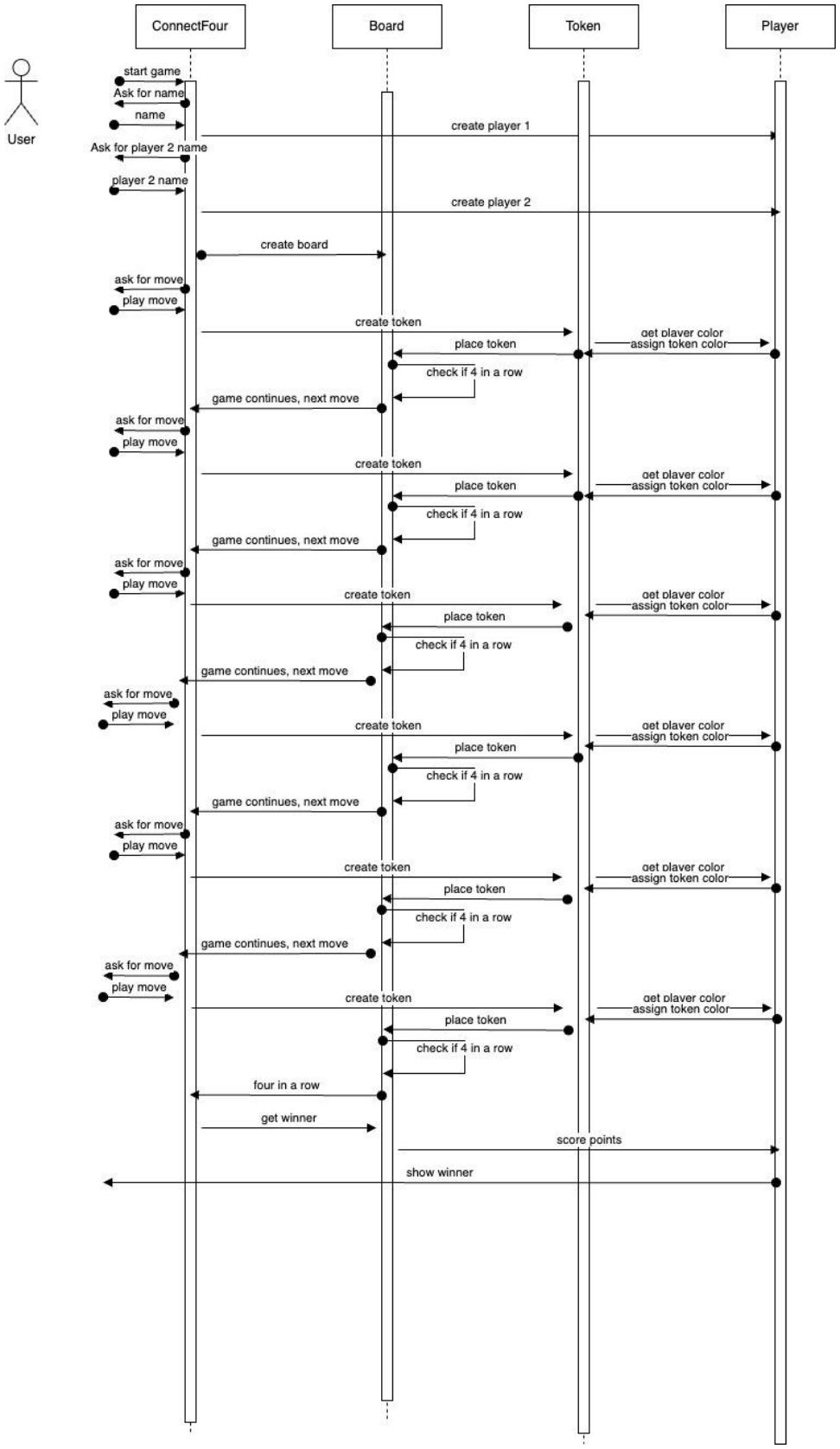
The two screens represent the two possibilities if the first player won or if the second player won. If the CPU is playing then the player is the automatically player 1 and the CPU is player 2.

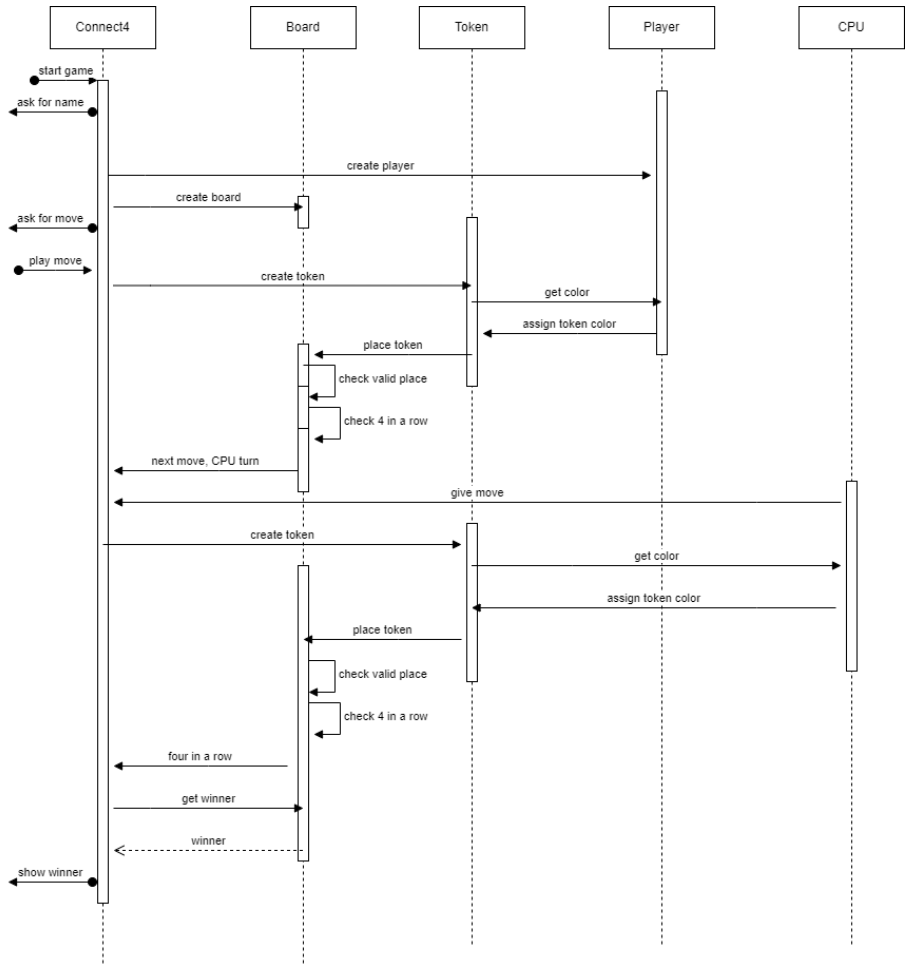


3.2 Initial Software Architecture

Provide a description of the initial architecture of your application, focusing on the major components of your system and how they will interact. This should include a UML class diagram and 2-3 sequence diagrams of the various modules in the system interacting.


ConnectFour
+ main(): int
Board
- Board: 2D Integer Array
+ Board()
+ setBoard()
+ updateBoard()
+ checkIfValidPlace()
+ checkIfFourInARow()
Token
- Color: String
+ Token()
+setColor()
+getColor()
Player
- Score: Integer
- Color: String
- Name: String
+ Player()
+ getName()
+ getColor()
+ getScore()
+ setColor()
+ updateScore()
+ setName()
+ placeToken()
CPU
- Color: String
- Score: Integer
+ CPU()
+ getColor()
+ updateScore()
+ setColor()
+ placeToken()


User
ConnectFour
Board
Token
Player
start game
Ask for name
name
create player 1
Ask for player 2 name
player 2 name
create player 2
create board
ask for move
play move
create token
get player color
assign token color
place token
check if 4 in a row
game continues, next move
four in a row
get winner
score points
show winner



4 Project Schedule

Provide a description of the major scheduling dates of your project. For each schedule milestone dates, clearly describe the milestone (e.g., what features will be implemented) and when the milestone must occur by. Include the project plan, code complete, presentation, and final report dates.

Table 3: Major Scheduling Milestones

Milestone	*Description*	*Target Completion Date*
Project Plan	Finish project plan write up	Nov 9th
Start and End Screen	Finish designing start, game, and end screens	Nov 17th
Finish mutliplayer	Finish multiplayer game	Nov 17th
Gameplay complete	Finish code and gameplay	Nov 26th
GUI	Finish GUI	Dev 2nd

Code complete	Code complete	Dec 4th
Presentation	presentation	Dec 4th
Final report	Final report due	Dec 14th

Appendix

Provide additional supplemental information in an appendix as necessary.