1. Project Vision Document

Introduction

In this project we aim to build the computerized version of Blokus Board Game. We will allow human player(s) to compete with other human player(s) or computer player(s).

Problem statement

In traditional Blokus Board Game, people are required to find a partner to play with and have access to a physical copy of the game. So, our computerised board game will allow people to play the game without necessarily finding another person to play with, and without owning a physical edition of the game. Secondly, the game will allow user to choose the difficulty level, and user will get hints to play if they choose. Additionally, it will allow players with color vision deficiency to choose a different color theme for the board and pieces. During the game, a human player can save the game and resume the session later to finish the game.

Stakeholders & Key Interests

Stakeholders	Key Interests
Human players	Play the game as intended with either other human players or computer players.
Computer players	Follow the rules set by developers and play the game with as intended without making any illegal moves.
Developers	1. Designing and creating the game and making sure that it meets all the requirements for the game to work properly and as intended. 2. Make sure the players know how to start the game, how to navigate through the UI and play the game as intended.
Testers	Test the game before release and to check the functionality of the game for any errors and bugs.

Users & User-Level Goal

User	Goals
Human players	Play the game, choose the difficulty, save the game and resume the session later, choose color
Computer players	Follow a strategy to try to win

Summary of System Features

- The game shall allow to play between 2, 3 or 4 total players.
- The game shall allow the human player(s) to play with the other player(s).
- The game shall allow the human player(s) to choose the difficulty level.
- The game shall provide hints to the human player(s) on where to put a block.
- The game shall allow to customize color theme for player(s) with color vision deficiency.
- The game shall allow human player to save the game and resume it later.

Project Risks

Properly and perfectly handling a state of a saved game might be difficult because of loss of data or data storing, and sometimes retrieving the data as well.

Glossary (Data Dictionary)

Term	Definition & Information	Aliases
Score	The score awarded for all of the players	Mark
Medium	The difficulty (medium mode) for the game.	Middle
Hard	The difficulty (hard mode) for the game.	Difficult
Easy	The difficulty (easy) for the game.	--------
Vision	The color for the game interface.	Theme
Piece	The objects used on the game board	Block

2. Primary Actors and Goals

Users	Goals
Human players	Able to choose how many other players to involve, choose between three difficulty levels for the computers strategy, option to save the current state of the game, able to resume at that point later on, enable or disable hints, and change color theme.
Computer players	To play against a human player, follow a particular strategy to try and beat the player.

3. Use Case Description I: Initiate a Game

Use Case	Initiate a Game
Primary Actor	Human Players, Computer Players.
Stakeholders and Interests	Human Players, Computer Players, Developers, Testers.
Preconditions	1. The difficulty selection buttons exist and valid. 2. The computer player(s) are able to play with other player(s). 3. The function to customize color for people with color vision deficiency is valid.
Postconditions	1. The game shows the consistent difficulty and color. 2. Computer player(s) can interact with the human player(s). 3. The game begins.
Main Success Scenario	1. The human player logs into the game. 2. The human player clicks New Game. 3. The human player chooses total number of human players. 4. The human player chooses number of computer players and difficulty (if not playing with 4 human players). 5. The game begins.
Alternative Flows	1. The player wants to resume a game rather then start a new game. 2. The player changes color theme before starting a game.
Exceptions	1. If hard difficulty level is chosen, game will provide fewer hints.

	2. If easy difficulty level is chosen, game will provide more hints.
Special Requirements	1. At least one player is human. 2. Human player must choose the color theme before the game has started.
Open Issues	1. The initial game color is disadvantage to people with color vision deficiency. 2. The Human player cannot log in game due to technical reasons.

4. Use Case Description II: Take a Turn

Use Case	**Take a Turn**
Primary Actor	Human Players, Computer Players.
Stakeholders and Interests	Human Players, Computer Players.
Preconditions	1. Game has started with chosen difficulty level. 2. Player with color vision deficiency can easily differentiate between different pieces. 3. Human player may see the hint on where to put pieces. 4. Human player must take the first turn.
Postconditions	1. Other players will take their turn in order 2. Displays remaining pieces. 3. Shows the scores in real time.
Main Success Scenario	1. The game displays who's turn it is. 2. The player takes their turn. 3. Remaining pieces are displayed. 4. Score is displayed of each player. 5. The active player changes and the game continues.
Alternative Flows	1. If hints are turned on, the game displays possible moves for the player before they take their turn.
Exceptions	----------
Special Requirements	1. Wait until other players have finished their turn before starting the next turn.

	2. The board displays the current state of the game; active player, score, etc.
Open Issues	1. Player can not take more than one turn at a time 2. Player is not allowed to put any pieces on side by side. 3. Player can not undo or change the position of any pieces after completing a turn.

5. Brief Use Case Descriptions

Player Quits a Game

Human Player decides to quit a game. Player exits match and game asks if progress would like to be saved. Game exits to menu.

Player Resumes a Game

Player clicks resume game from main menu. Program brings players back to the game that was previously suspended.

Player Exits Program

Player clicks exit program from main menu. Program shuts down and exits back to the desktop.

Game Ends

A game is completed and the results about who win are shown by the program. The game quits to the main menu.

Player Changes Game Colors

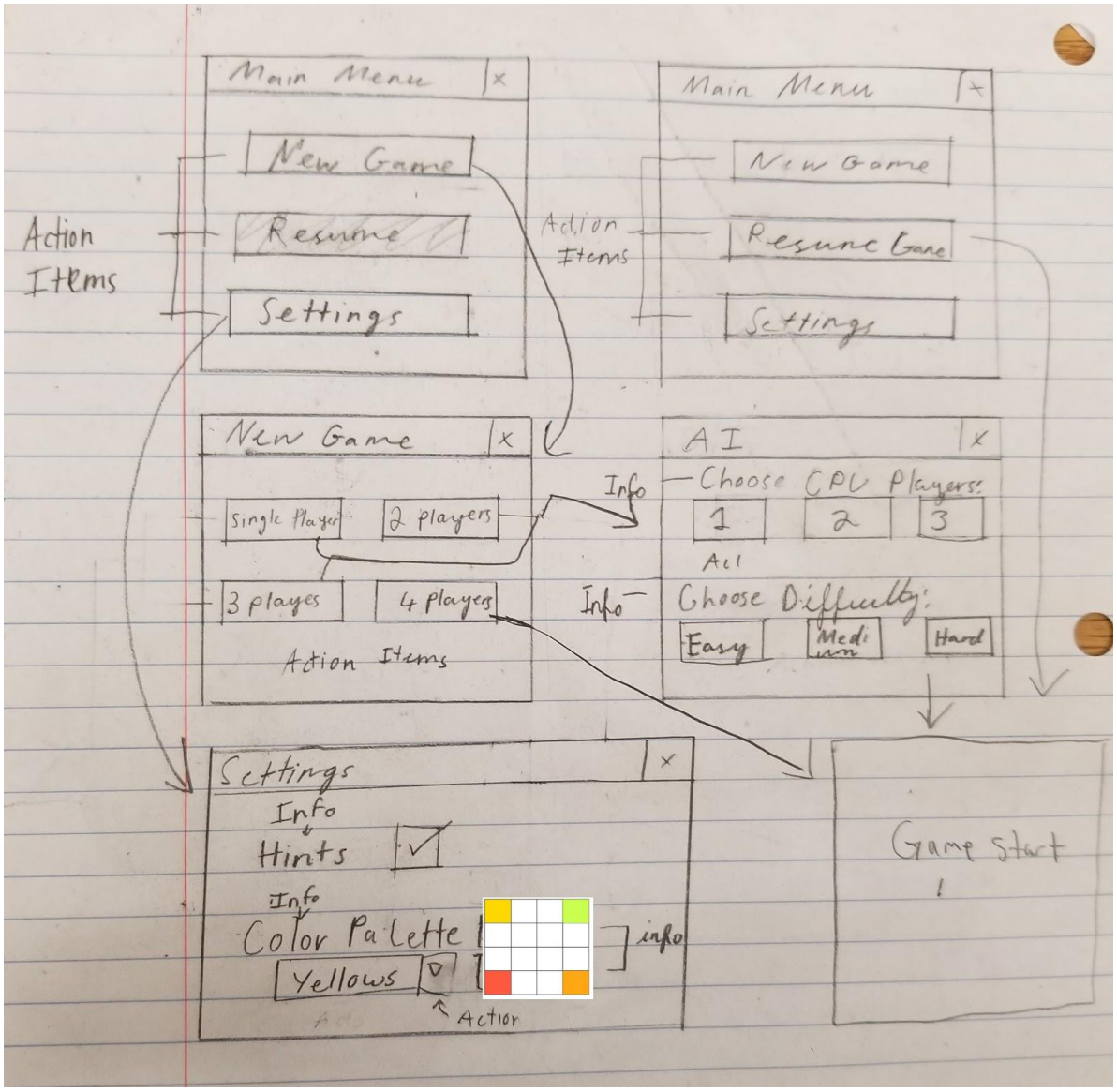
Player Clicks on setting menu and then clicks change color theme. Player is presented with color options. Player clicks their preferred option and the game updates colors to match the choice.

Player Changes Hint Settings

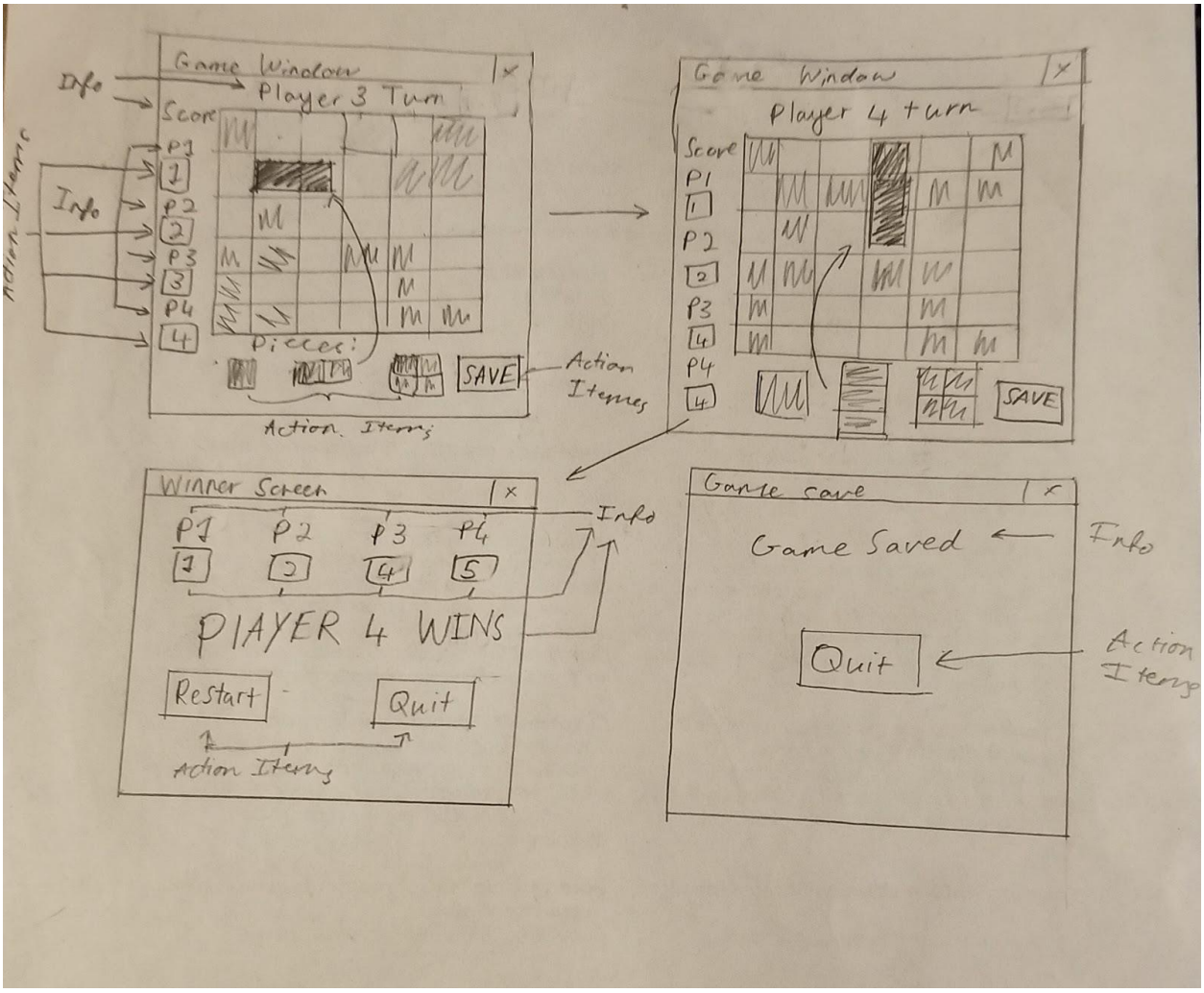
Player clicks on setting menu and then clicks the hint option button to cycle hints on or off.

6. UI Prototype Sketches

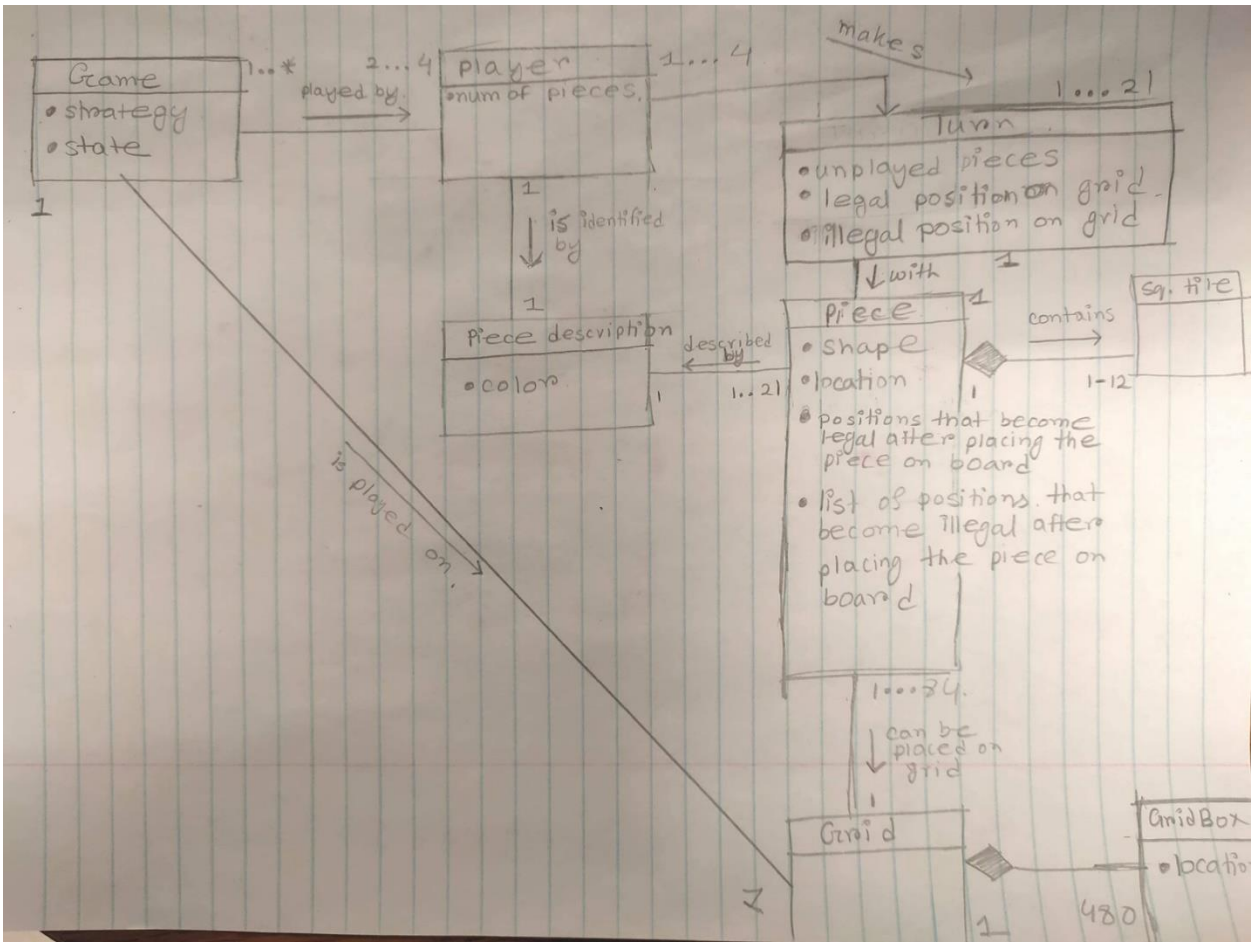
UI Prototype Sketch - Case Description 1: Initiate a Game



UI Prototype Sketch - Use Case Description 2: Take a Turn



7. Domain Model



8. Next Iteration

- Revise current document based on feedback.
- Add 2 fully dressed use cases, possibly “change game color theme,” “pause and resume a game,” or others.
- Create basic working version of our program.
- Create digital version of Domain model for easy future modification.