CPSC 224 Final Project

PROJECT PLAN

March 26, 2024

Project Name:

Nuffatafl

Team Name:

Mark of the Chilli Onions

Prepared by:

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1 Project Overview

1.1 Project Summary

Our team is making a version of the strategy-based checkerboard game Tablut, a member of the Tafl family of games which were initially developed in fourth through 12th-century Northern Europe. The rules of Tablut are one of the most well-preserved amongst the Tafl game family but still have struggled to persist over the centuries [1]. We are referencing the rule set found at brainking.com [2] as inspiration for our game.

The game consists of two teams, an attacking team and a defending team playing on a nine-by-nine grid similar to the eight-by-eight grid of chess or checkers. The defending team has a King and their goal is to get the King to one of the four corners of the board to win. The attacking team's goal is to surround the King on all sides and trap that piece to win. Each turn, each side gets a chance to move one piece either up, down, left, or right by as many contiguous spaces as are not occupied by another piece. If two pieces of the same team surround a piece of the opposing team on two sides (either top and bottom or left and right), that piece is eliminated from the board.

2 Project Requirements

2.1 Major Features

Table 1: Major Features

Feature	Description
Welcome Screen	High Priority: A welcome screen that appears when the program begins or before a new game that contains an image and allows a user to start a new game and view the rules
Gameplay Screen	High Priority: A screen on which the game is played that displays a 9x9 checkerboard, a button to view the rules, a button to view game settings, information about each player and which player's turn it is, and information on eliminated pieces and turn history
After Game Screen	High Priority: A screen that appears after a game concludes that displays which player won, how many of each player's pieces were eliminated from the game, and a turn history as well as a button that allows a user to start a new game
Board Layout	High Priority: The board shall initially be laid out according to Fig. 7
Turns	High Priority: Turns shall alternate between each player and shall consist of allowing a player to move one piece up, down, left, or right by as many contiguous spaces as are empty.
Eliminating a Piece from the Board	High Priority: If a piece is surrounded on two opposite sides, either left and right or up and down, it shall be eliminated from the board

Winning Mechanism for Attacker	High Priority: The attacker shall win if their King piece reaches any corner of the board
Winning Mechanism for Defender	High Priority: The defender shall win if they surround the attacker's King on all four sides. One of these sides can be the center tile.
Center Tile Functionality	High Priority: The center tile can only be occupied by the King at the start of the game and must be treated as a blank space that no piece can land on once the King moves off of the tile
Rules Screen	Medium Priority: A screen that lists the rules and is accessible from the welcome screen and the gameplay screen
Settings	Medium Priority: A screen allowing a user to change the theme, toggle focused gameplay mode, and start a new game
Player Profiles	Medium Priority: Each player shall be able to set their name and an icon that represents them. In the absence of user input, users shall default to "Player 1", "Player 2", etc.
Focused Gameplay Mode	Low Priority: There shall be an option to hide the display of eliminated pieces and the turn history from the gameplay screen
Theme	Low Priority: There shall be at least two themes to choose from that each contain different color schemes or images for the pieces

3 Project Game Design

3.1 Initial User Interface Design

Fig. 1: Welcome Screen Mockup

Fig. 2: Gameplay Screen Mockup

Fig. 3: After-Game Screen Mockup
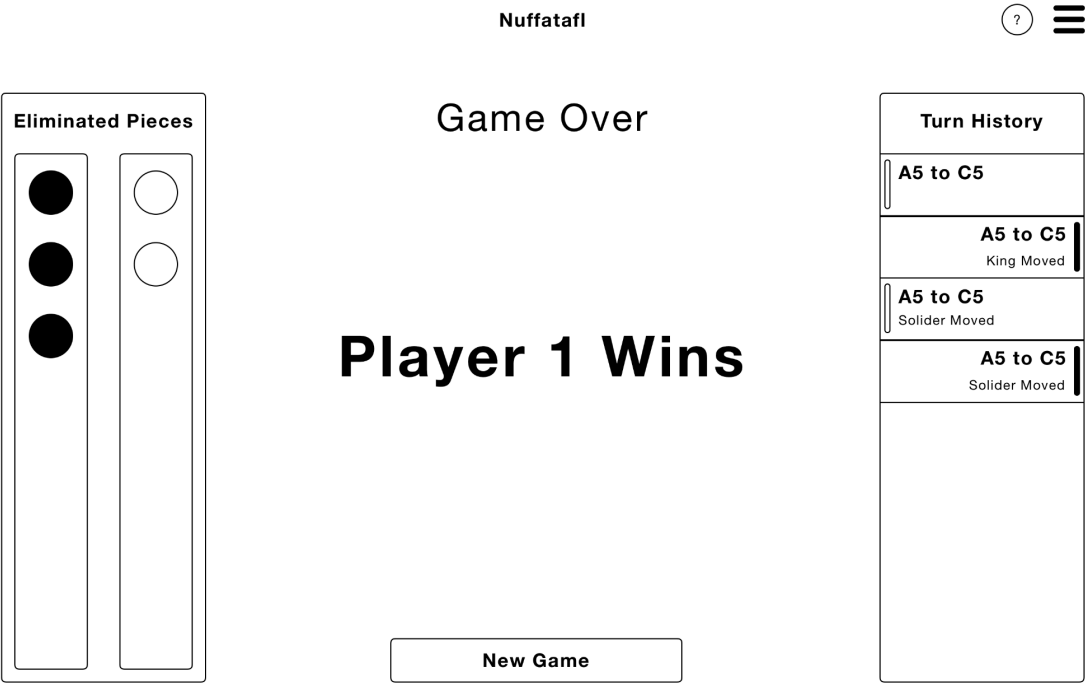
3.2 Initial Software Architecture

Fig. 4: UML Sequence Diagram for Moving a Piece
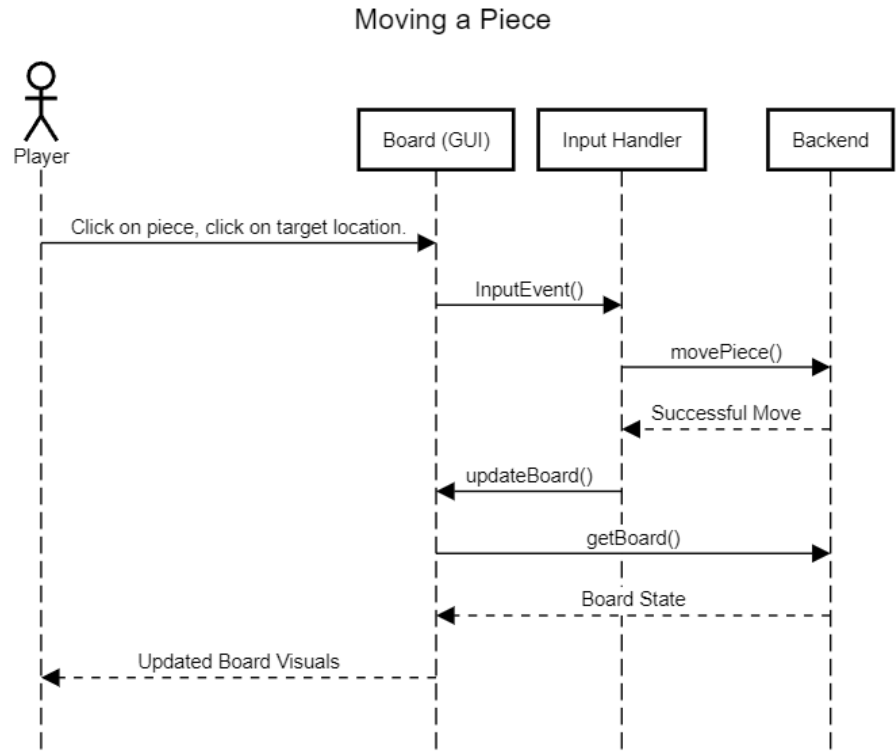
Fig. 5: UML Sequence Diagram for Starting a Game

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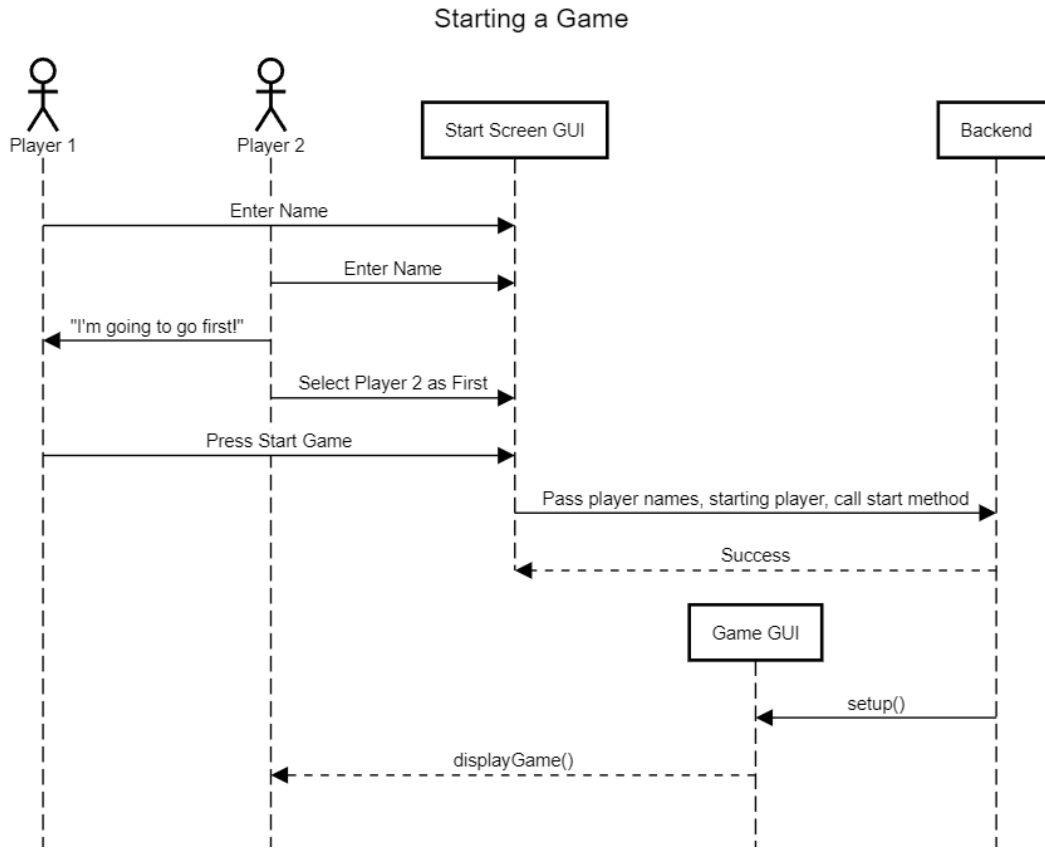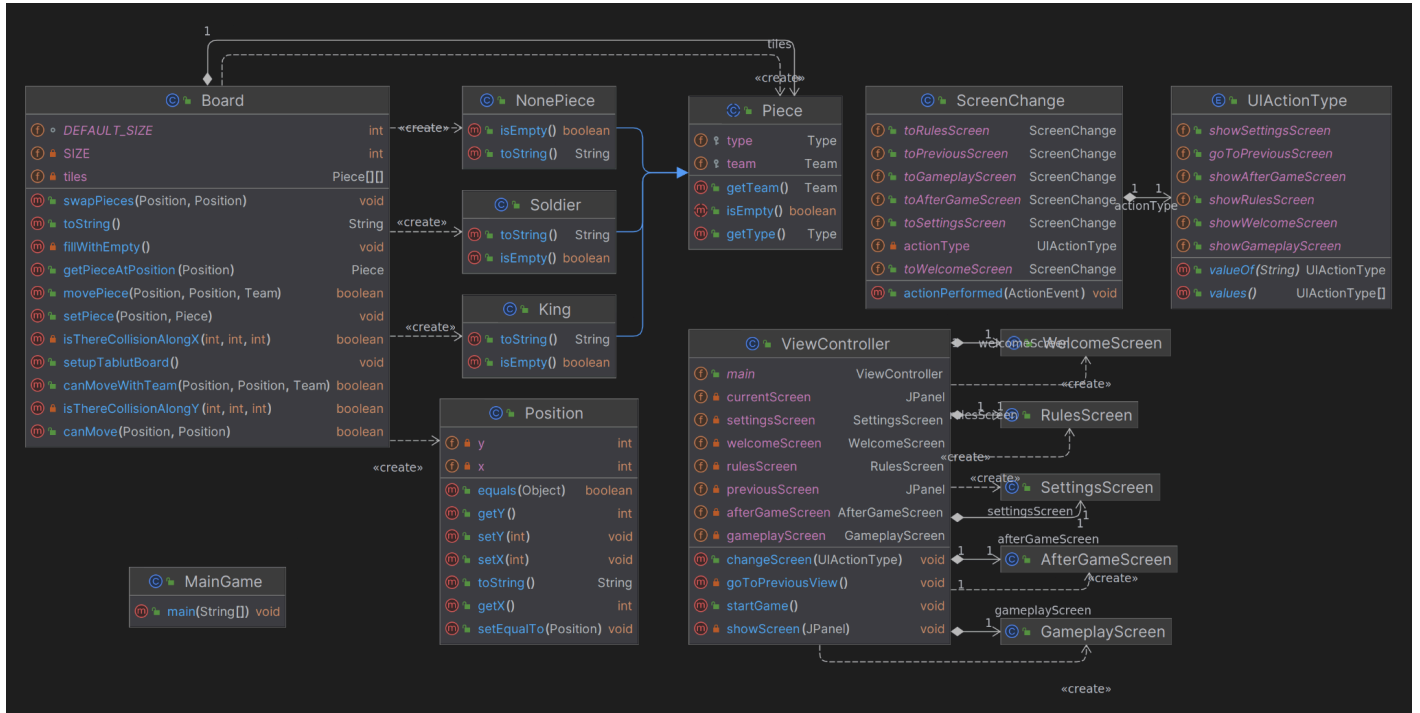## Fig. 6: UML Class Diagram for Program

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4 Project Schedule

Table 3: Major Scheduling Milestones

Milestone	Description	Target Completion Date
Project Plan	Submit Project Plan to Dr. Crandall XOXO <3	April 3rd
A) Functional backend for gameplay	1. Ability to move a piece 2. Players get alternating turns 3. Ability to eliminate a piece 4. Ability for attacker to win game 5. Ability for defender to win game	April 7th
B) Functional frontend for gameplay	1. Welcome Screen basic structure complete 2. Gameplay Screen basic structure complete 3. After-Game Screen basic structure complete 4. Settings Screen basic structure complete 5. Rules Screen basic structure complete 6. Each screen can connect to all of the other screens it needs to	April 7th
C) User Interface Enhancements	1. All images implemented into UI 2. All colors implemented into UI 3. All fonts and font sizes implemented into UI 4. All UI elements properly sized and positioned 5. All UI elements carry out their expected functions	April 14th
D) Customization Settings	1. Themes implemented 2. Focus Mode implemented 3. Any audio implemented 4. Mute functionality implemented if audio is used	April 21st
E) Polished Product	Code and design complete	April 25th
F) Present Project	Additional work for the presentation completed	April 29th
G) Project Report	Project report completed according to instructions	May 9th

Appendix

Fig. 7: Starting Board layout
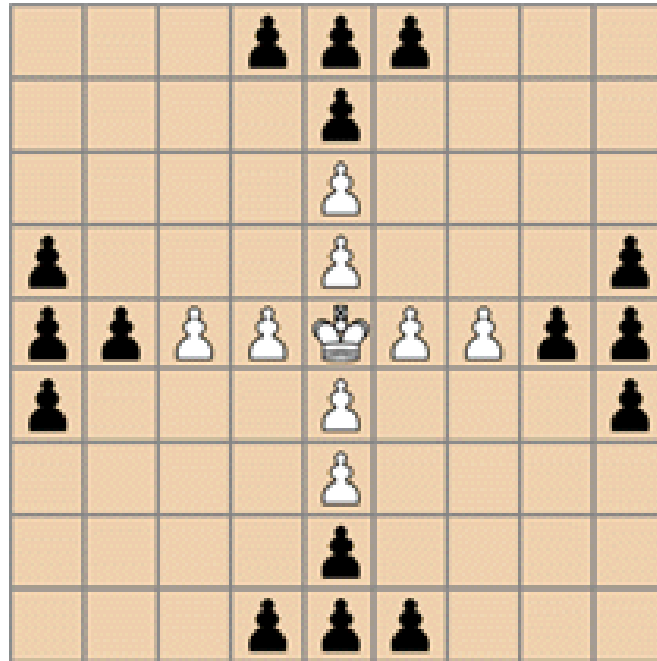
Sources

1. https://en.wikipedia.org/wiki/Tafl_games
2. https://brainking.com/en/GameRules?tp=19