# Vision Document

## Group No# 9

Members:

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## Introduction

In this project, we aim to build a computerized version of the Blokus board game, involving between 2 to 4 players, with at least one human player and the rest as computer bots.

## Problem Statement

i)Problem/What
Playing traditional board games requires gathering all the playing pieces and the physical board itself. We intend to build a computerised version of Blokus which will allow the player(s) to play without the need of a physical game or the presence of other human players.

ii)Solution/How
A computer-based game can let a single person play without the need of other human players or a physical board. It will allow the user to play alone, save the game states and resume playing later. It can also provide aid for people with visual or hearing impairments, or for people who would like a hint.

## Stakeholders and Interests

| Stakeholders | Key Interests |
|---|---|
| Human Player(s) | Play the game, change blocks' orientation, place the blocks, and win the game. |
| AI Player(s) | Play the game, change blocks' orientation, place the blocks, beat other players, and win the game. |
| Group 9 (Students) | Come up with UI designs, create an implementation plan, create a functional program, create requirements and documentation, and get a good grade on the project. |
| Professor Mark Hatcher | Grade the projects, evaluate the class fairly, review progress, and ensure growth in collaboration and software management skills |
| Teaching Assistants | Clearly evaluate all submitted files, assign marks appropriately |

## Users and User-Level Goals:

| Stakeholders | Key Interests |
|---|---|
| Human Player(s) | Play the game, change blocks' orientation, place the blocks, and win the game. |
| AI Player(s) | Play the game, change blocks' orientation, place the blocks, beat other players, and win the game. |

## Summary of System Features

- The system shall allow the selection of how many players will play the game, with at least 2 being the minimum and 4 being maximum.
- The system shall allow the user selection of how many human players are playing.
- The system shall allow the user to select if they would like to turn on vision impairment mode.
- The system shall allow the user to select the level of difficulty.
- The system shall allow the user to toggle hint to be enabled/disabled.
- The system shall allow the selection of a colour set for each player.
- The system shall allow the user to save the current game.
- The system shall allow the user to load a saved game.
- The system shall allow the user to start a new game.
- The system shall allow the user to reset the current game.
- The system shall monitor board game pieces for illegal moves.
- The system shall do the monitoring of players' turn order.
- The system shall allow a player to select a piece only when it's their turn.
- The system shall allow the player to select a piece from their available pieces.
- The system shall allow a player to rotate their selected piece.
- The system shall allow a player to flip their selected piece.
- The system shall allow a player to place a board game piece on the board only if the move is legal.
- The system shall allow the user to pass their turn.

## Project Risks

It may prove difficult to completely implement a smart system that can play the game with intelligence given the time we have to complete the project. The game has different playing pieces of varying sizes, making it difficult to predict future moves or providing hints that will bring the player(s) closer to victory.