Introduction

In this project we aim to create the multiplayer computerized version of the game Kingdomino, allowing players to explore and choose different terrains and enhance their kingdom in 2 difficulty settings. Progress of the game can be recorded and resumed at a different time.

Problem Statement

Our system will provide opportunities to 2 or 4 players to join the game at a time. At least one player should be human and the other 3 roles can be played by computer. The players will be able to select dominoes from a randomly shuffled stack and add them to their provided grid system. Players can connect the dominos horizontally or vertically in their provided grids. The progress of a game can be saved and resumed later. The game is playable in two difficulty settings: 1) Easy and 2) hard. Settings will be provided to accommodate any color deficiency related problems.

Stakeholders and Key Interests

Stakeholder	Key Interest
Players	Selecting grids and seeing the result after successfully completing the game.
Game Designer	Properly programming a computerized version of the game Kingdomino
IT Staff	Updating the game according to user needs and solving any bugs
Evaluator	Checking if the required functionalities of the game are working properly.

User and User level goals

User	Goals
Player	Selecting a player identity, king figures, choosing a new or a previously saved game, picking game difficulty, domino tiles, choosing grids, saving progress, choosing number of players attending the game, choosing to play with AI.

Summary of System features

The system shall:

1) allow players to start a new game or continue from a previously started progress.
2) ask the user how many players will be involved.
3) assign the AI to fill any empty player positions
4) indicate a players turn
5) shuffle dominos in a random fashion and let players choose
6) allow users to place their dominos in the empty grids according to the rule.
7) ensure AI is completing its turn in correct order.
8) make sure AI is selecting an appropriate grid.
9) keep track of the game progress.
10) allow player to save the game progress at any time.
11) notify the players if a winner has been found.
12) display the winner's name and the total points at the end of the game

Project Risks

1) Designing the 2-d game layout might be complex for our level of experience. Displaying the playing pieces and setting up the chosen ones on the 2-d game board for 4 users to join at a time might be a bit complex.
2) Keeping track of the selected regions on the 2-d board by each player might be a bit challenging for our level of experience.
3) Determining the level of difficulties for AI performance might need some time.

4) Saving a game progress in a collection and reloading a previously saved one might be a bit challenging.