**Team Vision**

Our concept is to create a board game where players take turns to roll the dice for movement and choose one of three characters to move around the board in a predefined path, with the goal to have all 3 characters on the final space. Many spaces will affect the character in some way, ranging from damage, moving forward or backward along the board, or gaining a temporary benefit. The target audience for our game is anyone who loves to play board games.

**Competitors**

* Snakes and ladders

Our game has 3 characters and player can choose the character with suitable move to take all the characters to final position to win the game.

* The Game of Life

Our game has an HP system and character death system. Both the player and computer can use gained event cards to effect opponent.

* Trouble

If the character dies after crossing the checkpoint it will be sent to check point, otherwise it will start from 0 tile.

**Risks**

1. Time management

Since all the team members are taking senior level classes, it gave us some problem to make a suitable schedule for implementing all the feature that we discussed to include in our game. But we created scrum to track our progress and divided the work among the team member to manage the time scarcity. Finally, with the feedback and help of Prof. CC, course TA Soumik, reviewing team and classmates, we completed and publish our game.

2) Learning new game engine

Initially, we were completely new to unity game engine and the corresponding C# language. It took our most of the time to be use to. We spent at least 3 hours a week for a month only to become familiar to it.

3) Game balance

Even after completing the game, we spent significant time on calculating win and lose ratio between the player and computer AI in order to balance the game.

4) AI optimization

Another factor that took our time is AI optimization. We spent almost 10 hours on figuring out how AI should behave during the game.

**Features Schedule**

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| Iteration 1 | * Setup game components - Dice, Player character, and Game board * Dice roll mechanism * Character movement * Character status update |
| Iteration 2 | * Character graphics design and incorporation * Characters’ detail design * Turnwise dice roll event * Multi-character status bar |
| Iteration 3 | * Multi-character gameplay * Characters’ interactions * Basic AI system * Menu system |
| Iteration 4 | * Event cards implementation * Characters selection * Sound effects * Game optimizations |

**Features Implemented This Iteration**:

* Event Cards - Players start the game with 2 event cards, and can gain more from landing on specific tiles scattered across the board. Before a player rolls the dice, they can choose to play an event card. These event cards have varying effects, ranging from changing a characters health to influencing their location on the board.
* Character Selection - A character selection menu has been implemented at the beginning of the game now so that each player can choose what character they want to have on their team. Player 1 selects 3 characters, and the unused 3 characters will be placed on his opponent’s team.
* Sound Effects - Sounds have been added throughout the game. These range from background music to various sound effects.
* AI - the AI was made more intelligent to better pose a challenge to the player, utilizing event cards and intelligent decisions on what character to move. The AI lacks a long term plan, however.

**Use Case: Event Card Usage**

Precondition: Player is in the game, it is his turn, and he has not yet used an event card this turn.

Main Success Scenario:

1. Player clicks one of the 4 event card icons.
2. The Event Card resolves appropriately.

Postcondition: Player turn continues

Extension A:

1. The event card must be targeted on a specific character.
2. The player chooses a character to affect with the event card, friend or foe as appropriate.

**Use Case: Character Selection**

Precondition: Player has clicked ‘New Game’ at the main menu.

1. Player chooses to play against the computer or another player.
2. Player chooses three characters to have on his team.
3. Player clicks ‘Start’

Postcondition: The game begins with the appropriate characters controlled by each player.

Alternate Success: Player clicks the ‘Back’ button and is returned to the main menu.

**Game Input and Output for Testing**

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| **Input** | **Output** |
| Player clicks on the dice | Die roll and show output and lets you choose a character |
| Player chooses a character to move | The chosen character moves according to the output of the die roll |
| Player lands his character on a tile with the opponent’s character | The character deals damage to the opponent’s character |
| Player clicks the ‘Medkit’ event card, then one of his characters. | The chosen character is healed. |
| Player clicks the ‘Sabotage’ event card, then an opponent’s character. | The chosen character is damaged. If the character’s health reaches 0, he is sent back to the checkpoint or start as appropriate. |
| Player clicks the ‘Shortcut’ event card. | The players next character should move extra distance. |
| Player clicks the ‘Detour’ event card and then an opponent’s character. | The chosen character is moved backwards and does not activate an event, if they land on one. They cannot move beyond space 1. |

**Codes and scripts files**

GitHub - https://github.com/ablaze007/BoardGame