

MATH 198/CS 199 Project Pre-Proposal

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1 General Overview

I would like my project to be a multi-player, three-dimensional version of the classic board game Scrabble. There could be up to four players, and the game would be turn based. Players will be able to rotate the cube board in order to see previously placed tiles and available spaces. This expansive board will be designed to mimic the classic Scrabble layout while extending it into three dimensions. To accommodate this, tile distribution will also be statistically altered.

2 Graphical Display

A cube will be displayed on the screen, laced with lines that indicate locations on the board. Certain, preset spots will have classic Scrabble bonuses like Double Word and Triple Letter. The player will see his/her rack of tiles displayed across the bottom. The player will be allowed to rotate the cube, using either the mouse or arrow keys, in order to see all angles. Tiles will be cubic, and will have letters (and point values) printed on all faces. To place tiles, the player will click the tile desired, then click the location on the board, at which point the tile will disappear from the rack and appear on the board. When the word is complete, the player will click a Submit button or similar. If the play is acceptable, its value will be added to the player's total, with all current totals displayed in an upper corner of the screen.

3 Algorithms

Several algorithms will be created to facilitate gameplay:

1. Score Tracker - will keep track of total points for each player, and determine winner at the end of the game
2. Dictionary - will check if the desired play is acceptable by comparing all words made to a Scrabble dictionary
3. Tiles - will move tiles, randomly refilling racks from the remaining letters

and displaying previously played words on the board, as well as making sure each tile is independent and no two exist in the same location

4 Conclusion

Though this project is designed to be interactive between players, there will, time permitting, be an automatic opponent for a single player to face. In pursuit of fairness, this AI will make the most average play possible (through another algorithm). Overall, this three-dimensional rendition of Scrabble should be enjoyable and user-friendly, while accomplishing all functionality goals and closely resembling the classic game.