CS252: An Example Project Report

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1 Problem Statement

Building a python based multiplayer game, to be played online through web login. The game would display an array of dots connected through lines, to form a rectangular mesh. Players should be able to then click on the lines turn by turn. The lines will get colored upon click to mark the player who clicked on it. If a player manages to click on a line which completes a square, then, the player's score is incremented by one, and he gets another turn. When there is no line left on the board to color, the game terminates. The player with highest score wins the game.

2 Method Used

The game has been built using the pygame library. The display is created as a background guide for the players to play on, by drawing circles, vertical and horizontal lines in grey color.

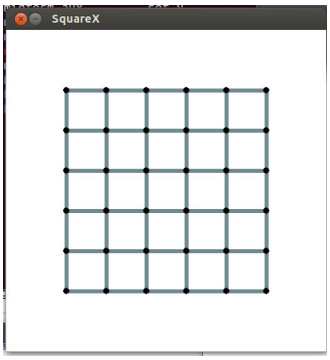

Figure 1: Basic game board

Then, rectangles overlapping the lines have been used to identify each line differently. A collision is detected on mouse click on any of these rectangles. Based on the clicked rectangle, the line it overlaps is reprinted in the current player color, and marked as having been used. Once the line has been marked, the program checks if any box has been completed because of this line, based on whether it is a vertical or a horizontal line. If a box has been completed, the program calculates it's center, and prints a filled circle in the color of the player, and the player gets another chance. Otherwise, the program changes the player, i.e. the current color.

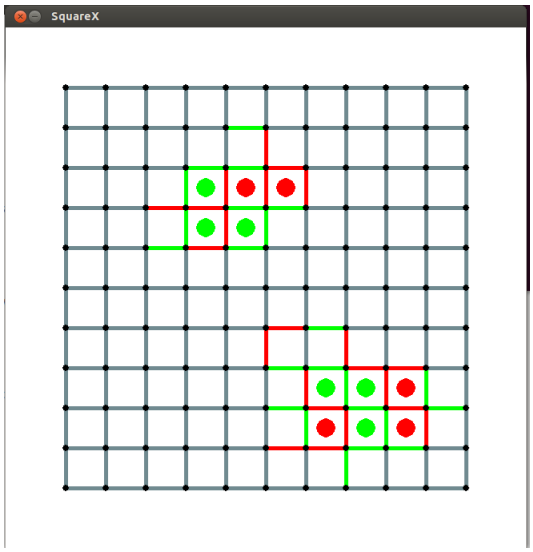

Figure 2: Flexible game size with Gamplay.

On coloring all the lines, the program then changes the screen to display the result of the game.

As an additional functionality, choices of number of players, and size of grid has been added as the home screen. Lastly, in order to make game more visually pleasing, and fun, background and a color brush has been added to identify the current player.

3 Results

The game's UI, as mentioned in the above section is working efficiently, as per the requirement. The home screen, background, current player status, and the result screen are working correctly.
The game Changes the player correctly. On completing a box, it doesn't change the player. The results are calculated efficiently, along with tie detection. Combinations of choices between number of players, and the size of grid also works well.

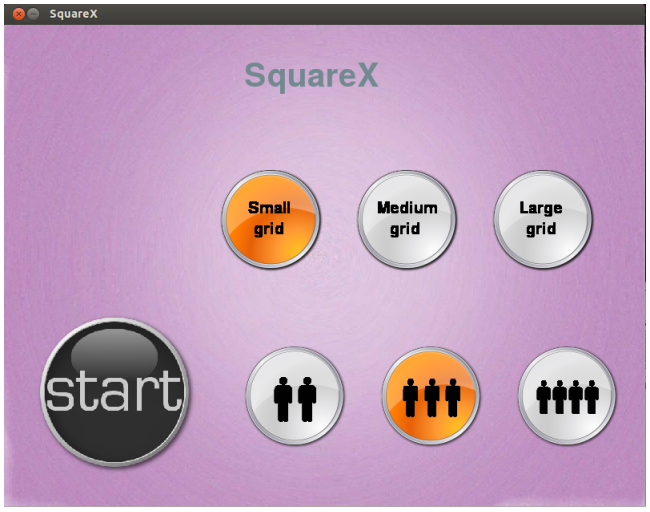

Figure 3: Game start Screen

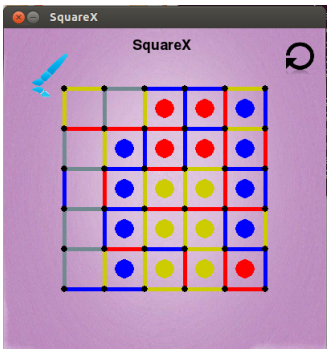

Figure 4: Game Play

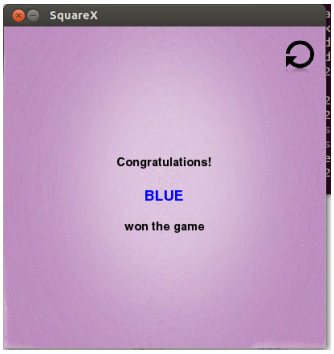

Figure 5: Game Results Screen

4 Conclusions

The game can be used as a web extension to be played online through web login. Advance algorithms can be devised to allow a player to play game against computer, for practice. More advanced games can be implemented using the techniques learnt.

References

[1] `www.stackoverflow.com`

[2] `www.pygame.org`

[3] `en.wikipedia.org`