

Team Squared Project Outline and Description

Group Name: Team Squared

Team Members:

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App Name/Category: Squared, a board game style web application

App Description:

Game Overview:

Squared is a multiplayer competitive game where the objective is to take over as many squares on the 11x11 board as possible. The game will run in the browser, allowing both mobile/desktop users to play simultaneously. In Squared, the players rely on chance (in the form of dice rolls) to determine how many spaces they can move in a turn. Numbers 1-4 will be the number of squares they can move, with 5-6 causing the player to skip their turn. Players will then see an outline of the possible squares they can move to via clicking. However, players cannot move diagonally. Also, players cannot move onto board squares already “taken” by other players.

This game concept brings a strategic angle to the game, where it can be advantageous to block off the opponent from parts of the board. A player’s turns are granted in a counterclockwise motion. Once all the squares are occupied, the game concludes. Furthermore, whoever captures the most significant number of squares will win the game. Now we will look at other features the game may incorporate.

The game may also feature items that will spawn randomly on the board. These items can do various things, such as undoing a player’s last turn and allowing them to redo the squares in conjunction with their new turn. Also, the feature could teleport players to a random location on the map or even claim an opponent’s squares for a turn. In short, Squared has an element of luck to it, meaning even less skilled players can stand a chance to win, and players will be required to improvise even the chaos the random items can cause.

Technical Specifications:

This project will be developed using Python, Javascript, HTML5 and CSS3. Within Python, the team will be using Flask and Socket IO. Flask creates an Application Programming Interface (API) to give the game’s interface to interact with the database through the API. In addition to Flask, the team will be using JWT to handle user authentication and tokenization. To add a level of security and controlled access to various API endpoints.

Javascript will control the game logic on the client-side. Javascript will also connect the client to the API to do game validation and other more complex processing. On the other hand, HTML5 and CSS3 will create the game elements that game users interact with. As a possibility, the interface may utilize ReactJs to componentize the project to make the game more scalable. Additionally, ReactJS can handle the routing of the application pages and the flow of the data generated during gameplay, such as tracking scores and player's turns.

Similar Applications:

Throughout the development of Squared, we will be taking inspiration from a variety of games and other applications whose gameplay, layout, or specific elements and features roughly resemble some aspects of Squared, or can otherwise serve to provide insight into how Squared ought to be developed in order for the game to be as unique, replayable and ultimately enjoyable for players as possible. A list of specific games and applications that we intend to hearken back to during the development of Squared, and descriptions of how each game or application has been or will be used in progressing the development of Squared, can be found below.

Go:

Go is a classic strategic board game in which two players compete to control as much space on a square playing board as possible with strategically-placed colored stones. Both players are each assigned a color and given several colored stones corresponding to their respective colors. Players take turns adding stones to a grid on top of a board with the goal of surrounding as much of the board's surface as possible with their colored stones. Stones placed on the board must have at least one empty space, or *liberty*, directly surrounding it horizontally, vertically or diagonally, or that stone is removed from the board; and stones cannot be positioned in a way that is identical to how they were positioned at any point previously in the game. Gameplay continues until both players forfeit their turns consecutively, at which point the player deemed to have surrounded as many vertical, horizontal or diagonal points in the board as possible with their stones is declared the winner.

Given the layout and gameplay of Squared, we have decided to take inspiration from Go in creating and finalizing the design of Squared for a variety of reasons. Perhaps the biggest and most overt similarity between the games of Squared and Go are the grid-like boards that both games predominantly rely on for movement and piece placement. Discussions held so far regarding plans for the general layout of Squared have often harkened back to Go when discussing basic components of the game such as the layout of the board, player positioning, and the alternating turn system between players. Since we intend on beginning development of Squared as a two-player game before expanding the rules and gameplay to accommodate four or more players at once, Go can also be used as a reasonably similar inspiration for early development of Squared's gameplay, and can provide inspiration for balancing the game so that

players who are chosen to move first before other players are not given an advantage over players who are chosen to move last, or vice versa. The game of Go ultimately has served and will likely continue to serve as an inspiration for the development of Squared, with Go's board layout, piece positioning, turn-based gameplay, and focus on balancing the gameplay for players regardless of the order of their turns relative to their opponents, proving especially helpful and inspirational so far for the development of Squared.

Risk:

Risk is a strategy game about trying to control all of the territories in the world while others are trying to do the exact same thing. Risk is similar to Squared in the sense that you are fighting against others to try to control as much of the board as possible, and that it is a turn based game with dice rolls, but it adds a few more rules and mechanics to make the game more complicated than Squared. For one, in Squared, the board is empty besides the spots that the characters start at. In Risk, the entire board is randomly and evenly distributed to all of the players and you must battle for the other spots on the board. The battle mechanic makes the game more in depth because each territory is weighted with the amount of troops stationed in the territory. Each player in the battle will roll dice to decide what side loses a troop until the attacker backs off or one of the territories is out of troops. Troops may also be moved to territories connected by other owned territories. A winner is decided when the board is dominated by only one player. This game is similar to Squared in the big picture, but when you get into the details, the differences start to show, just like with comparing any two games that share inspiration. The largest similarity is the goal of acquiring as many territories as possible, but the differences are in the board design, means of acquiring the territories, and the win condition.

Connect Four:

Connect Four is a two player strategy game where each side is assigned a color, and both players alternate turns by inserting discs into the board with the final goal of connecting four or more discs of the same color in a straight line. Connect four is similar to squared in the sense that both of them are turn based games with each player being assigned a color and they have to win exclusively using pieces of their color. They also both rely on game piece placement to accomplish their specific goal, either accruing as many tiles as possible with squared, or using pieces placed prior to set up wins with connect four. In addition, they're both relatively simple games that can be easily learned, but have nuance to them that gives a layer of complexity. Squared differs from connect four in a couple of ways, primarily in regard to grid style where squared uses tile placement in relation to the player token while connect four uses column placement in a stacking structure to determine where pieces go. Squared and connect four also differ in player count where Squared is a four-person game and connect four is a two-person

game. Squared was inspired by connect four by using the turn based structure and strategic placement of denying winning strategies by countering with your pieces.

User Stories:

1. **As a user, I want** to be able to select a character that matches my personality **so that** I can feel like I am a part of the game.
2. **As a user I want** to be able to see what all the potential moves are for each round **so that** I can learn the game and its character movesets faster.
3. **As a user I want** to be able to purchase or receive character power ups or special moves **so that** I can make a comeback if I am losing to give me the opportunity to win and not automatically lose because I am behind in the scoring in the game session.
4. **As a user I want** to be able to see what my previous scores were **so that** I can be notified when I make a new high score.
5. **As a user I want** to be able to set my font size **so that** I can see the wordings more clearly if they are too small.
6. **As a user I want** to be able to play the game on my mobile phone **so that** I can play the game while I am traveling as a passenger to school.
7. **As a user I want** to be able to use my mouse on my computer and my finger touch on my mobile phone **so that** I can play the game no matter where I am and no matter what form factor device I am using at the time.
8. **As a user I want** to be able to save a game setting on one device and persist it on all my other devices **so that** I don't have to set the game setting each time I play from a different device.
9. **As a user I want** to be able to see whose turn it is to play **so that** I am aware when I should attempt my turn on the board.
10. **As a user I want** to be able to see the scores of the other plays in addition to mine **so that** I can be aware of if I am winning or losing and by how much.
11. **As a user I want** to hear a sound **so that** I will know it is my turn when I am not paying attention.
12. **As a user I want** to be able to select a board theme **so that** I can change up the look when one gets old.
13. **As a user I want** to be able to time my matches **so that** I can know how fast I won/lost.
14. **As a user I want** the ability to forfeit **so that** I can get into another game faster
15. **As a user I want** the option to play on bigger/smaller boards **so that** the game can be played with different paces.
16. **As a user I want** the ability to make tournament lobbies **so that** I can make tournaments for my friends.
17. **As a user I want** an ELO ladder **so that** I can see how I perform against other players.
18. **As a user I want** a downloadable game log **so that** I can review it later.

19. **As a user I want** an indicator to highlight each player's most recent move **so that** I can strategize even if I look away.
20. **As a user I want** shareable links **so that** I can send them to my friends and play together.
21. **As a user I want** a chat feature **so that** I can communicate with the other players.
22. **As a user I want** people who take too long to make a move to be skipped **so that** the game doesn't stop.
23. **As a user I want** unlockable content **so that** I can feel like there's a goal.
24. **As a user I want** an interactive tutorial **so that** I can pick up the game easier.
25. **As a player I want** to be able to host custom games of Squared with custom rules (i.e., time allotted per turn, size of game board, etc.) **so that** I can further personalize and add variety to the game.
26. **As a player I want** the option to spectate ongoing games of Squared **so that** I can observe other player's strategies and enjoy the game even when I'm not playing it.
27. **As a player I want** the ability to customize the layout and positioning of the game board, chat and other features relative to one another **so that** I can observe the game in a way that is comfortable and convenient for me.
28. **As an online player I want** the ability to immediately request a rematch with players I have already finished playing with **so that** I don't have to wait for new players to play against after every complete game.
29. **As a competitive player I want** the ability to display and review previous games by uploading a game log **so that** I can study strategies for the game and review gameplay and moves at a glance.
30. **As an online player I want** the ability to save chat logs made during gameplay **so that** I can look over messages sent to me by other players after I've finished playing with them.