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**Product Summary**

**Overview:**

The Battleship Web App introduces a digital adaptation of the classic two-player strategy board game "Battleship." This rendition provides players with a solo gameplay experience, pitting their strategic talent against an AI opponent. Tailored for those who enjoy competitive, strategic play, the Battleship Game offers an engaging virtual environment for naval battles.

In this version of Battleship, players assume the role of a naval commander, engaging in a one-player battle against an AI-controlled adversary. The traditional game is transformed into a dynamic digital format.

This Battleship Game merges the classic Battleship board game with digital technology, so users can play any time they wish. Whether seeking mental challenges during breaks or searching for the thrill of testing their strategic abilities, the Battleship Game caters to a diverse audience for both entertainment and intellectual engagement.

**Target Audience:**

1. Demographics: The game caters to a diverse audience, encompassing players of various age groups who enjoy mental stimulation and enjoy solitary gaming experiences.

2. Technical Expertise Level: The Battleship Game is created to cater to a wide spectrum of technical expertise, allowing both those familiar and unfamiliar with digital interfaces to comfortably engage with the game. This web app was designed with a very simple interface, to remove any confusion for those unfamiliar with digital interfaces. It’s easy to learn for those who have never played and is often nostalgic to those who are familiar with it.

3. Motivations: Players are driven by the desire to engage in strategic competition, improve their strategic skills, and engage in an entertaining pastime during leisure moments.

**Features and Functionality**:

Throughout the course, I created an engaging digital version of the classic Battleship game. The finished product is a web-based game that allows players to strategically place their ships on a grid and attempt to sink their opponent's fleet.

**Key Features:**

1. Login-Feature: The game offers a feature to create a username and login. This was the first time I’ve ever implemented this feature and I was surprised that it wasn’t nearly as complicated to setup as I initially thought it might be.

2. Grid Setup: Players can set up their fleet by placing different types of ships (such as battleships, cruisers, and submarines) on their own grid. They strategically position the ships to outwit their AI opponent.

3. Turn-Based Gameplay: The game follows a turn-based structure. Players take alternating turns with the AI opponent to select a target location on the opponent's grid to launch an attack.

4. Attack: Players aim to hit their opponent's ships by selecting specific coordinates on the opponent's grid. The game indicates whether the attack was successful or missed. The ultimate mission is to sink all of the opponent's ships.

5. Visual Cues: As the user goes along throughout the game, the UI offers visual cues on whether or not they have hit an opponent’s ship. The cell is initially teal to start, is blue with an “O” if a miss and is red with an “X” if hit.

**Usage Instructions:**

Using the Battleship game is both enjoyable and straightforward:

1. Create a username and log-in: The homepage offers a simple login screen. The user can create a unique username, which is then saved in a sqlite database. They can then use this username to log back in in the future.
2. Start Game: Once a user has logged in, they click the “Start game” button at the top of the screen.
3. Grid Placement: Each player begins by placing their ships on a grid, which is not visible to the opponent. They do this by hovering over the cells they’d like to select and can see the ship that will be placed in grey. If they want to switch between vertical or horizontal placement, they have to right-click to switch back and forth.
4. Taking Turns: The game operates in turns. Players alternate selecting coordinates on the opponent's grid to launch attacks. This involves clicking or selecting a specific cell to target.
5. Attack Strategy: Players need to use strategy to deduce where the opponent might have placed their ships. They'll select coordinates where they believe the opponent's ships are located. If a ship is present at the chosen coordinates, it's a hit; otherwise, it's a miss.
6. Hit and Miss Indicators: After selecting a target, the game displays an indicator to show whether the attack was successful. This helps players keep track of their progress and make informed decisions for subsequent attacks.
   1. A screenshot of a game

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      1. As you can see, our ships that we have placed are all grey. When attacking out Opponent, we can see we currently have 6 missed attacks and one hit ship. The AI has hit one of our ships, and has missed 6 times as well.
7. Winning the Game: The primary objective is to sink all of the opponent's ships before they sink yours. The player who successfully eliminates the opponent's fleet first emerges victorious.

By following these steps and employing strategic thinking, players can enjoy the classic game of Battleship in a digital format. The game provides an entertaining way to challenge an AI opponent while reliving the excitement of naval warfare strategy.

**User-Interface Flow-Chart** (Non-trivial Graphical Element)A diagram of a diagram

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The previous flow chart demonstrates the user experience and how they interact with the game. The user initially either creates a username, or logs in. Once logged in, they select the “Start” button, and then places their ships on their board. Once their ships are placed, then the user can begin playing the game by guessing which cells their opponent’s ships are in. At the end of the game, they can continue playing by hitting the “Start” button.