**Assignment 1 Object-Oriented**

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**Part 1: Requirements Gathering via an Interview(Interview Report)**

**Interviewer**: Thank you for joining us today. Our main focus is on an interesting game called the Battleship. I would like you to start by describing the core gameplay mechanics and what makes this game interesting and engaging.

**Battleship Expert**: Thank you for having me. Battleship certainly is interesting and fun to play as a strategic board game where players place ships on a grid and then take turns trying to guess the location of each other's ships in order to "hit" them with marked pegs on the board. It is a good mixture of luck and strategy because a player must try to locate where their opponent's ships are placed by hit-or-miss feedback. Therefore, interest comes from wondering where the opponent's ships are and the satisfaction of sinking their ships.

**Interviewer**: That's really interesting. I have considered transferring this game digitally, do you think it's possible, and how would you envision this digitized version changing this experience?

**Battleship Specialist**: Absolutely. The digital version would revolutionize the game experience. Unlike the traditional formality of gameplay, this version can allow real-time feedback, animations, and even AI opponents for playing solo. The digital version could even include much more dynamic features that allow customizable ship designs, multiplayer modes.

**Interviewer**: Do you think that there are any challenges with the traditional board game version?

**Battleship Expert**: Battleship Expert: Yes, there are quite a few challenges with the traditional game, such as the manual upkeep of moves and ship placements. Players often resort to paper or mental maps to keep track of the locations they have initially attacked, which is where their ships are placed. In my opinion, a digital version would automate this, thus making the game easier to play and more enjoyable.

**Interviewer**: Do you think that visual aspects of the game are important?

**Battleship expert**: Yes, the visual aspect is very important where some players may be more inclined toward the realistic aspects but many would appreciate a simple or customized look. There could be different themes for the ships and board to personalize the experience of the players.

**Interviews**: I understand that most people now value inclusivity, should we include accessibility features that would consider players with disabilities?

**Battleship Expert**: True, it is indeed very crucial. Thus, I believe that the digital part must also include features such as text narration for the visually impaired players, and maybe some modifiable font sizes as well. I also think that making that game operable through some assistive technologies such as screen readers will also help significantly.

**Interviewer**: You also mentioned about incorporating AI in solo players, what would be the role of AI opponents?

**Battleship Expert**: AI opponents would make the game more enjoyable by offering different difficulty levels, allowing players to practice strategies against different types of opponents. An AI difficulty curve could also be implemented for AI games, which would alter its level of play based on the players' performance.

**Interviewer**: I understand that we might face some challenges while on the assignment; what are the challenges that come to your mind when developing the digital Battleship game?

**Battleship Expert**: One of the biggest issues one can encounter is keeping the performance identical or at par across a range of devices and platforms. The game should be optimized for both mobile and desktop environments, ensuring that there are no lags or bugs.

**Interviewer:** Which important features would you recommend that we focus on during development to ensure the game meets user expectations?

**Battleship Expert**: I would advise you to focus on delivering a seamless gameplay experience with responsive feedback, robust multiplayer capabilities, and engaging visual effects. I would also recommend that you prioritize accessibility and customization options to be inclusive for a wide range of players.

**Part 2: User Stories**

**1. Ship Placement**

User Story: As a player, I would like to place ships on a grid without overlaps so that I can strategize defensively.

Acceptance Criteria: When provided with a 10x10 grid, when a player places a ship horizontally or vertically, the system reserves those coordinates. If the player attempts overlapping placements, the system would reject the action and give a red alert. Ships should fit within the grid boundaries and cannot exceed the required provided size.

**2. Attack Functionality**

User Story: As a player, I would like to attack specific grid coordinates so that I can attempt to sink my opponent’s ships.

Acceptance Criteria: When a player selects a specific coordinate, the system validates if it is still available and has not been previously attacked then goes ahead to provide immediate feedback of either miss or hit with visual and auditory cues.

**3. Game State Feedback**

User Story: As a player, I want to be instantly updated on how the game is progressing so that I know when ships are hit or sunk.

Acceptance Criteria: When a ship is fully hit, the system displays an animation indicating it has sunk.

**4. Multiplayer Mode**

User Story: As a player, I would love to challenge friends online so that I can enjoy competitive gameplay.

Acceptance Criteria: Players can create or join multiplayer sessions through unique game codes and the system ensures that it synchronizes moves and game states between devices.

**5. AI Opponent**

User Story: As a solo player, I want to play against an AI or bot opponent so that I can practice strategies.

Acceptance Criteria: The AI or bot selects moves based on adaptive difficulty levels such as easy, medium, or hard.

**6. Accessibility Features**

User Story: As a colorblind player, I would like alternative color schemes so that I can distinguish hits and misses easily.

Acceptance Criteria: The system has audio-visual cues for hits and misses and includes colorblind-friendly modes with dynamic color adjustments.

**7. Performance Optimization**

User Story: As a mobile user, I want smooth gameplay with minimal lag and uninterrupted experience.

Acceptance Criteria: The game loads within 3 seconds on devices with 4G connectivity, and during multiplayer sessions, it processes it in less than 500ms.