Fortnite Battleship(FortShip)

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Game Description:

The game is a simple yet strategic grid-based game where players roll two dice to determine the number of turns they have. They then click on squares on a grid to reveal items hidden within. Each item has a different shape and size on the grid, and players must uncover all squares occupied by an item to claim it. Players can uncover items like a V-buck coin, a bomb (which penalizes them), a golden fish, a vending machine, a fish, or a llama. The items have different amounts of v-bucks that they could get. Bigger items mean lower rewards while smaller items have bigger rewards.

Gameplay:

- **Roll Dice:** The game starts with the player rolling two dice. The sum of the dice determines the number of turns the player will have.

- **Select Squares:** The player selects squares on the grid to reveal prizes. They continue selecting squares until they have used all their turns.

- **Reveal Prizes:** Each square clicked will either reveal a prize or be empty. Prizes are only fully revealed once all squares occupied by that prize have been clicked.

- **Sound & Visual Alerts:** When a square with a prize is clicked, sound and visual alerts will indicate a successful hit. The prize squares will be colored in red to signify they've been clicked.

- **End of Turns:** The game ends when the player has used all their turns, and their rewards will be totaled.

Layout of the Game:

The game grid consists of a 12x12 grid square space where the prizes are hidden.

Each prize occupies a specific arrangement of squares:

V-buck prize: 1 square

Bomb prize: 1 square

Golden fish grand prize: 1 square

Vending machine: 6 squares (arranged in 3 rows and 2 columns)

Fish prize: 3 squares (arranged in 1 row and 3 columns)

Llama prize: 3 squares (arranged in 2 rows and 2 columns, with the top-left square missing)

Payout:

- **V-buck item:** 100 v-bucks + dice roll for additional turns.
- **Bomb item:** -100 v-bucks and lose a turn.
- **Golden fish grand item:** 1000 v-bucks+ 2 dice rolls
- **Vending machine item:** 125 v-bucks
- **Fish item:** 275 v-bucks
- **Llama item:** 500 v-bucks

Game Statistics:

Since the grid is 12x12, then 12*12= 144. Based on the layout of the items mentioned above, we can calculate the probability in which the user will hit the item.

ITEM	STATISTIC	CONVERT TO PERCENTAGE
• **V-buck item**	1/144 = 0.0069444	1/144 ×100%=0.0069444×100%= **0.69444%**
• **Bomb item**	1/144 = 0.0069444	1/144 ×100%=0.0069444×100%= **0.69444%**
• **Golden fish grand item**	1/144 = 0.0069444	1/144 ×100%=0.0069444×100%= **0.69444%**
• **Vending machine item**	6/144 = 0.0416667	6/144 ×100%=0.0416667×100%= **4.16667%**
• **Fish item**	3/144 = 0.0208333	3/144 ×100%=0.0208333×100%= **2.08333%**
• **Llama item**	3/144 = 0.0208333	3/144 ×100%=0.0208333×100%= **2.08333%**
	TOTAL	= **10.41666%**

The player has a chance of hitting all the items with approximately **10.41666%**. If we subtract 100% from the total, then the player would get the probability of failing to hit any target with approximately **89.58334%**.

Concept Behind the Game:

The game combines elements of chance (rolling dice to determine turns) with strategy (selecting squares to uncover prizes). Players must decide which squares to click on to maximize their score while avoiding the bomb, which penalizes them. The different shapes and sizes of the items add complexity and variety to the gameplay, requiring players to think strategically about how to uncover each item efficiently. The sound and visual alerts add excitement and feedback to the game, enhancing the player's experience. Overall, the game offers a balance of luck and skill, providing an engaging and entertaining experience for players.

ChatGPT Experience:

ChatGPT excels in executing changes quickly and producing high-quality code. Since many of the classes in our game have similar attributes, ChatGPT allowed us to make changes to any class without requiring us to rewrite the code. ChatGPT frequently generated inaccurate or badly functioning code. It sometimes gave out code that doesn't relate to what we asked for, and sometimes when we try to ask it to fix the code due to some errors such as compiling errors, it still gave the same code and when it does fix it another error occurs. When questioned about a particular problem, ChatGPT may also begin modifying other crucial program code. Though ChatGPT is adept at spotting coding errors, ChatGPT can be used to identify the aspects that kept the game functional. For instance, ChatGPT helped us discover the Java backdrop Image object because we were having trouble adding a background image to our game. Although ChatGPT is a great tool, even an AI can't be perfect.

Challenges:

We encountered numerous obstacles along our journey, but we persevered through them, albeit after enduring lengthy battles. Among the significant challenges we encountered was the problem of prizes overlapping, which led to bugs and malfunctioning prizes. This issue was resolved by revising the functionality of the prize classes, introducing a new exception class, and implementing loops to ensure proper functioning. Additionally, we faced difficulty in incorporating a background image, but with the assistance of our reliable ChatGPT, we

successfully addressed this challenge. Another hurdle we encountered was in the placement and revelation of prizes, I would say that half of the time spent on the project was having to align and resize the items so that they would fit perfectly within the grid and not to overlap anything and as well as to not cause any errors with the program.

Future:

As a team, we believe that our project is built decently and the items corresponding to the rewards are well-balanced, after all it is a game of luck and skill but mostly luck. Though if given more time and knowledge with Animation and Game developing, we surely could've made this game more fun and visually appealing to the players. We could have had a gun or a cannon hovering above the grid while following the cursor of the player, we could've had more abilities such as a multi- shot cannon with the visuals of cannon balls shooting out and flying onto the air and landing on random squares on the grid. We could've even added a multiplayer mode which would work both offline and online allowing a 1v1 battle against another person or a bot. In total, we feel like the game has a lot more potential to be a successful indie game in the future.

Conclusion:

Finally, our journey to create this game has been fraught with problems that have required perseverance and creative solutions. From addressing the issue of reward overlapping by rearranging class capabilities and integrating exception handling to overcoming barriers in incorporating a backdrop image with the great aid of ChatGPT, we have displayed tenacity and resourcefulness. Furthermore, our commitment to improving gameplay mechanics, such as reward placement and revelation, has resulted in a smooth and pleasurable experience. As we reflect on our journey, we are proud of our ability to overcome obstacles, to maximize tools such as ChatGPT and with our ability to persevere even through the moments of being burnt out, resulting in a polished and interesting game that demonstrates the results of our effort for this project.

The full layout of the game.

The reveal button reveals the items on the grid. The clear button removes the text on the left (as seen on the previous image)