

Executive Summary

Battleship Extreme

[Group 9]

Basil Issac, Bradley Robinson, Kanishka Garg, Shubham Jain

Our team has designed a 2-D graphical game called Battleship Extreme. This game is based on the famous classic board game called 'Battleship'. This online version of Battleship called 'Battleship Extreme' includes, other than ships and hitting or missing targets, other attack weapons, defensive methods, and virtual currency. A user will control the game using a mouse with simple clicks. Each player makes an attack and their turn is over, and will have to wait for the opponent to finish their turn. The opponent can be another user or a computer. Throughout the game, the computer can make complete random moves or moves based on probability and AI. The goal of this game is to destroy all of the opponents' ships using the various attack methods. The better the player handles their money, attacks, and resources, the more chance of winning the game.

One of the major new additions is virtual currency. Currency will be generated and spent using various methods. A certain amount will be given to each player in the beginning of the game. The player can generate more money by purchasing ore refineries or by hitting and sinking ships. Ore refineries will act as a money making engine which generates a continuous income for a player on each turn he/she takes. The money generated can be spent on purchasing new weapons (bombs, homing missiles, radars). The cost of each item will be determined by the effectiveness of each weapon. Offense will not be the only part of this game. The money can also be used to move player's ships or skip opponent's turn.

The type of attack weapons we have decided to add are Giga bombs, Mega bombs, homing missiles, and radars. With the Giga bombs, user will be able to select one grid space, and if it is a HIT, the whole ship will sink. With Mega bombs, it will explode within a 3x3 grid space and if any ship is in range will hit it. Player will be notified if it is a HIT or a MISS. Homing missiles will be used by selecting a 3x3 grid space and will hit only one section of a ship if it is in range. With the homing missile, the player will only be notified if it is a HIT or a full MISS. The radar will also be a 3x3 grid space in which it will notify the player of the ships in that area. With these additional features there will be more strategy than guessing.

The game also supports three defensive strategies to forestall the opponent's attack. First, when the opponent uses the radar and finds the player's ship, then the player can purchase "moves" to move their undamaged ship to a location that was not attacked (excluding radar) by their opponent. Second simple defense method we have decided to add is skipping the opponent's turn so the player can get another attack in if they MISS. Third, the player can use the "shield" to remain undetected by the opponent's homing missile attack.

Battleship Extreme is built as a server-end application and clients communicate to it using their respective web browser. Three-tier architecture is a client–server architecture in which the user interface, functional process logic, computer data storage and data access are developed and maintained as independent modules. The three-tier architecture is intended to allow any of the three tiers to be upgraded or replaced independently in response to changes in requirements or technology. Battleship Extreme is a web-application game comprising of 3-tiers like presentation tier, application logic tier and data tier. Hence, three-tier architecture is the most suitable architecture to follow in respect to our game ‘Battleship Extreme’. The system is decomposed with high cohesion and low coupling.

We have created a comprehensive testing plan for the Battleship Extreme. During Testing, faults are detected using technique that tries to create failures or erroneous states in a planned way. Our tests will test all possible scenarios regarding our requirements. Also, due to the relative complexity of our game, it will be conducted during two releases as unit testing. This will allow basic elements of the game to be perfected before starting the more complex parts. After the individual components are ready, we will do integration testing followed by regression testing in order to fine-tune the game and grasp the complete flavor of the fully functional and complete game. After the regression testing, system testing is conducted and the game can be given to the client for user acceptance testing. After the game is successfully accepted, they can integrate the game with the social networking website.

The software development method to be used in this game is Agile Software Development based on iterative and incremental development, where requirements and solutions evolve through collaboration between self-organizing, cross-functional teams. The development team could be made up of four people. The team shouldn’t have any hierarchical order, as that is one of the basic principles of agile methodology. The team should plan on developing the work in sprints and dividing the work into two releases comprising of two 4-week sprints. The team should be divided into two teams called “scrum” teams and plan to follow the “Pair programming” technique of Agile Software Development in which two programmers work together at one workstation. The team can rely on collaborative tools like GroupMe, WhatsApp, Git, IceScrum, Google Hangouts or Google docs for meeting and coordinating purposes.

The game is a social network game and will run on a browser through social networking sites like Facebook and MySpace. Battleship Extreme will give a new dimension to the board games with its unique style of play, and we feel that game vendors like Zynga will support this game to intrigue the board game lovers in the near future. This game will keep the spirit of board games alive in the fast moving digital age.