

Battleships

Battleships is a classic 2 player game. Each player has a 10 by 10 grid that represents the ocean their fleet is in. Each fleet consists of a number of ships of varying length (specified below). Each player positions their fleet on their own grid - these positions are kept secret. Each player should see two grids, one with their own sheet and where the opponent has fired. The other grid shows what is known so far about the opponent's sheet; that is, where hits and misses have been made so far. The players then take turns to shoot at their opponent's fleet by telling them the grid coordinate they are attacking. An attack results in either a "miss", "hit", or "sunk xxx" (where xxx is the type of ship). A ship is sunk once every space it occupies on the grid has been hit. The game continues until one player's entire fleet has been sunk. Each player has the following 3 ships in their fleet, which take up the specified number of adjacent spaces on the grid:

Minesweeper	2 spaces	<input type="checkbox"/> <input type="checkbox"/>
Destroyers	3 spaces	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Battleship	4 spaces	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Ships can be placed horizontally or vertically on the grid, but not diagonally.

You are part of the team of developers working on this game. The specific task that has been assigned to you is calculating the result of an enemy attack on the fleet. You are given a set of coordinates of the attacked position. You should deduce the result as one of the options:

- MISS
- HIT
- SUNK (and determine the type of ship sunk)
- SURRENDER (all ships have been sunk).

You should present the Java implementation and any UML diagrams you consider significant.

Try to design your code to be flexible so that future changes in the specifications will cause as few changes to the existing code as possible.

To see an example of a similar (but not identical!) game, check out <http://www.miniclip.com/games/battleships/en/>