

Technical assignment

The purpose of this assignment is to showcase your programming skills. It's not so much about finishing and solving the problem but about delivering a well-designed solution with code that makes you proud. Because we would like to judge your Java skills, we would like you to do this in Java.

The assignment is to develop backend API's for the game using Java, Spring Boot etc.

This application should enable 2 players to play the game.

While making the assignment please take the following points into consideration:

- API design and documentation
- Readability and comprehensibility of the code (Clean code)
- Security and performance
- Testing your solution (e.g Unit testing)
- Conscious design/technical decisions
- Consistent and proper use of programming paradigms (such as object-oriented programming, functional programming)

As the purpose of this exercise is to gain insights into how you approach building software, the application you developed should be something you feel comfortable presenting to us and you should be able to explain the choices you've made along the way.

We hope you will enjoy working on this assignment, and if you have any questions. please do not hesitate to contact us!

Battleship

Battleship is a classic board game where two players compete against each other to sink each other's fleet of ships. Here are the simple rules of Battleship:

1. Game Setup:

- Each player has their own grid board. The grid typically consists of 10x10 cells, labelled by numbers and letters (e.g., A1, B2, C3, etc.).
- Each player arranges their fleet of ships on their own grid board without showing their placement to the opponent.
- The fleet usually consists of the following ships, each occupying a certain number of consecutive cells horizontally or vertically:
 1. Aircraft Carrier (5 cells)
 2. Battleship (4 cells)
 3. Cruiser (3 cells)

4. Submarine (3 cells)
 5. Destroyer (2 cells)
- The ships can be placed either horizontally or vertically, but not diagonally. They should not **overlap or touch each other.**

2. Gameplay:

- Players **take turns to try and guess** the location of their opponent's ships by calling out a cell on the opponent's grid (e.g., **A1**, B2, etc.).
- The opponent responds with "Hit" if the guess hits a ship or "Miss" if the guess does not hit any ship. **The hits and misses are marked on the player's own grid.**
- If a ship is hit but not entirely sunk, the opponent simply says "Hit" without revealing which ship was hit. If a ship is hit and **all its cells are sunk**, the opponent declares **"Sunk"** and the **player marks the ship as sunk on their own grid.**
- Players keep track of their guesses and the hits or misses.

3. Winning the Game:

- The game continues until **one player has successfully sunk all their opponent's ships.**
- The player who sinks all the opponent's ships first is declared the winner.

You can also find some visual explanations of the game rules by running a Google Search for Battleship.

Good luck!!