# Programming Test: Battle ships

The purpose of this test is primarily to examine your problem solving skills.

**Please follow this spec carefully**!

You must write the game as a simple application with **web** user interface. In the case of PHP developer should create a index.php file which loads (requires) the appropriate controller and logic.

In addition to working code that follows this spec you are expected to make your code elegant / beautiful and the best you can do, i.e. separation of logic / object oriented abstraction. Comment your code as necessary.

### The Problem

You must create a simple application to allow a single human player to play a **one-sided** **game** of battleships against the computer.

Please see example here <http://www.techhuddle.com/tests/battleships/v4/index.php>

The program should create a 10x10 grid, and place a number of ships on the grid at **random** with the following sizes:

* 1 x Battleship (5 squares)
* 2 x Destroyers (4 squares)

Ships **can touch** but they must **not overlap**.

The application should accept input from the user in the format “A5” to signify a square to target, and feedback to the user whether the shot was success, miss, and additionally **report on the sinking** of any vessels.

. = no shot

- = miss

X = hit

Example output

\*\*\* Miss \*\*\*

1 2 3 4 5 6 7 8 9 10

A - . . . . . . . . .

B . . . . . . . . . .

C . . . . . . . . . .

D . . . . . . . . . .

E . . . . . . . . . .

F . . . . . . . . . .

G . . . . . . . . . .

H . . . . . . . . . .

I . . . . . . . . . .

J . . . . . . . . . .

Enter coordinates (row, col), e.g. A5 <input field> <Submit button>

You must report when a ship is sunk

\*\*\* Sunk \*\*\*

1 2 3 4 5 6 7 8 9 10

A . . . . . . . . . .

B . . . . . . . . . .

C . . X . . . . . . .

D . . X . . . . . . .

E . . X . . . . . . .

F . . X . . . . . . .

G . . . . . . . . . .

H . . . . . . . . . .

I . . . . . . . . . .

J . . . . . . . . . .

Enter coordinates (row, col), e.g. A5 <input field> <Submit button>

You must report errors as follows

\*\*\* Error \*\*\*

1 2 3 4 5 6 7 8 9 10

A . . . . . . . . . .

B . . . . . . . . . .

C . . X . . . . . . .

D . . X . . . . . . .

E . . X . . . . . . .

F . . X . . . . . . .

G . . . . . . . . . .

H . . . . . . . . . .

I . . . . . . . . . .

J . . . . . . . . . .

Enter coordinates (row, col), e.g. A5 <input field> <Submit button>

You should implement a **reset** command to restart the game.

You should implement a **show** command to aid debugging and backdoor cheat.

Example output after entering **show**

1 2 3 4 5 6 7 8 9 10

A X

B X

C X

D X X

E X X

F X

G

H

I X X X X

J

Enter coordinates (row, col), e.g. A5 <input field> <Submit button>

Please report the number of shots taken once game complete, e.g.

Well done! You completed the game in 13 shots

Play again?