

Program Description

You will be writing a program to simulate the game of battleship. This is a 1-player game. The 5 ships will be randomly placed by the computer in the game board. The player will fire missiles until all 5 ships have been sunk.

The player who sinks all 5 ships using the least amount of missiles would be the winner or the top player.

The 5 Ship Names: (Basic, Sweet, **Ranger**, Victory, and **Gong**)

Baby Ship (this ship will sink if it is hit twice, it has a length of 2)

Simple Ship (this ship will sink if it is hit three times, it has a length of 3)

Rugged Ship (this ship will sink if it is hit three times, it has a length of 3)

Valencia Ship (this ship will sink if it is hit four times, it has a length of 4)

Giant Ship (this ship will sink if it is hit five times, it has a length of 5)

You can refer to the ships by their first letter: B, S, R, V, and G.

EXAMPLE GAME BOARD

	0	1	2	3	4	5	6	7	8	9
A
B
C
D
E
F
G
H
I
J

Baby Ship Floating
 Simple Ship Floating
 Rugged Ship Floating
 Valencia Ship Floating
 Giant Ship Floating

Missiles Fired 0

EXAMPLE GAME BOARD

	0	1	2	3	4	5	6	7	8	9
A
B	.	M	.	.	.	.	.	.	.	.
C	.	.	.	V	V	V	V	V	.	.
D
E	.	.	M	.	.	.	.	.	.	.
F	M	.	.	.
G	H	.	.	.
H	H	.	.	M
I	.	.	.	M	.	.	.	.	.	.
J

Baby Ship
 Simple Ship
 Rugged Ship
 Valencia Ship
 Giant Ship

Floating
 Floating
 Floating
 Sunk
 Floating

Missiles Fired

12

Firing a Missile

User enters the row letter and the column number: **F7** or **QQ** to quit

Program responses with **H**IT or **M**ISS

If no ship was hit the letter **M** will be placed where the missile was fired.

If a ship was hit the letter **H** will be placed where the missile was fired.

If a hit ship was sunk, the letter representing the ship will be shown for the ship's location.

After each firing of a missile the program will update the screen (**H**, **M**, or you sink the ship) and the Floating - Sunk area along with the missile count.

If QQ was selected by the user/player

Everything will be saved and the program will exit.

Everytime the player/user opens the program the program will check to see if a previous game was being played. If so, the program will allow the user to continue that game or begin a new game.

Winning (ending) the game

1. All 5 ships have been sunk.
2. The program will display some type of winning message.
3. The program will allow the player to exit or begin a new game.

Rules

Firing of a missile requires the entering of a **letter + a number then enter**. Not a letter then enter followed by a number then enter.

The program will validate that the letter is between A and J and the number is between 0 and 9.

The ships will be randomly placed by the computer. The location and orientation (horizontal or vertical) will be randomly determined.

A really good design tool is required.

Structs are not required but are permitted.

No goto or global variables

Everything should exist in functions as much as possible.

Submission

ONE MEMBER OF YOUR GROUP will submit for the entire group.

- ***.C** document(s)
- ***.h** document(s)
- Professional machine generated **design tool**
- Within each function will be a **brief header or comment** that states who wrote the function.