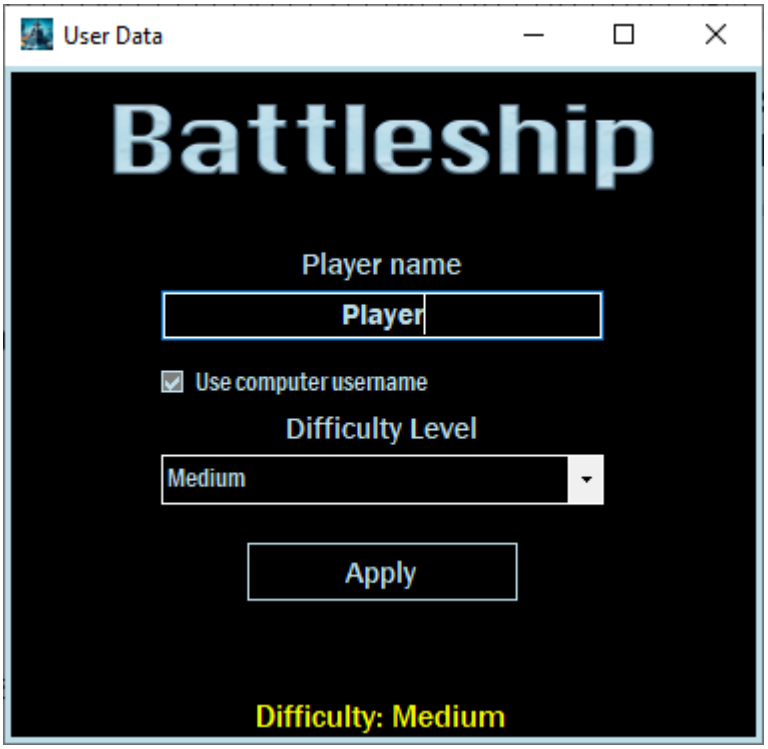
“Battleship” Game Manual

1) ABOUT

The game "Battleship" is a simple sea battle game. The game was created using **Microsoft Visual Studio 2022**. The game is written in **C#** on the "**.Net Framework 4.8**" platform. The goal of the game is to destroy all enemy ships while at least one of your own ships should not be destroyed, although there may be damage.



The game has 4 difficulty levels.

1) Easy
2) Medium
3) Hard
4) Extremal

The difficulty level can be selected at the beginning of the game. Once selected, the difficulty cannot be changed during the game. The difficulty level affects how effective enemy attacks will be in single player games. The difficulty of the game also affects the score modifier during the game.

2) SHIPS & MAP

There are 4 types of boats.

1) **Frigates:**

The ship is **1 by 1** in size. A maximum of **4** Frigate type ships can be placed on the map.

2) **Destroyers**

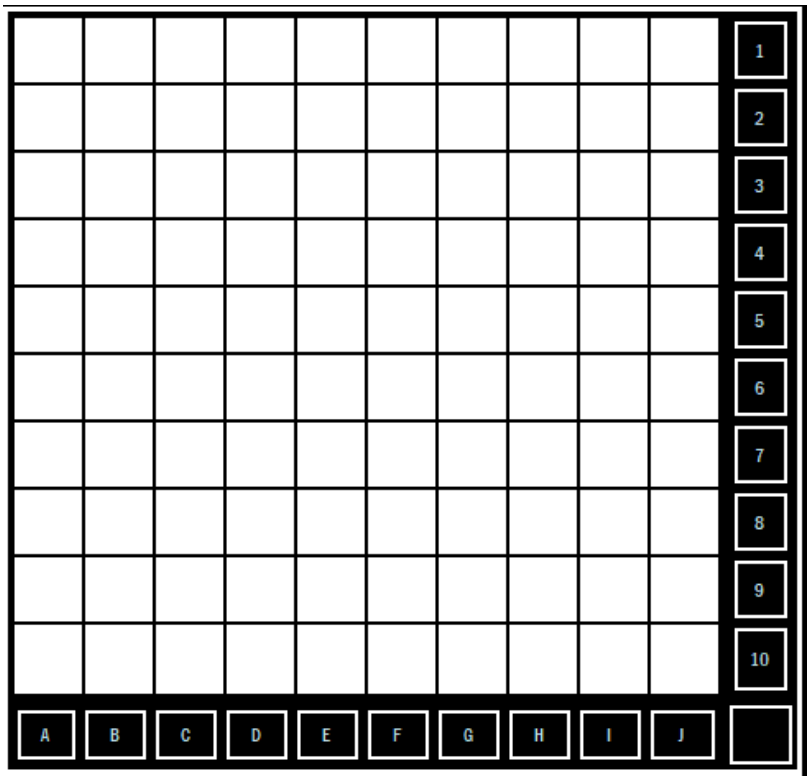
The ship is **2 by 1** in size. A maximum of **3 Destroyer**-type ships can be placed on the map. Can be placed both **vertically** and **horizontally**. In this case, the cells of the boxes must be located on the same line.

3) **Cruisers**

The ship is **3 by 1** in size. You can place a maximum of **2 Cruiser** type ships on the map. Can be placed both **vertically** and **horizontally**. In this case, the cells of the boxes must be located on the same line.

4) **Battleships**

The ship is **4 by 1** in size. Only **1** ship of the **Battleship** type can be placed on the map. Can be placed both **vertically** and **horizontally**. In this case, the cells of the boxes must be located on the same line. Between the cells of two ships there must be a distance of at least 1 cell.



You can place your ships on a map of **10 by 10** cells.

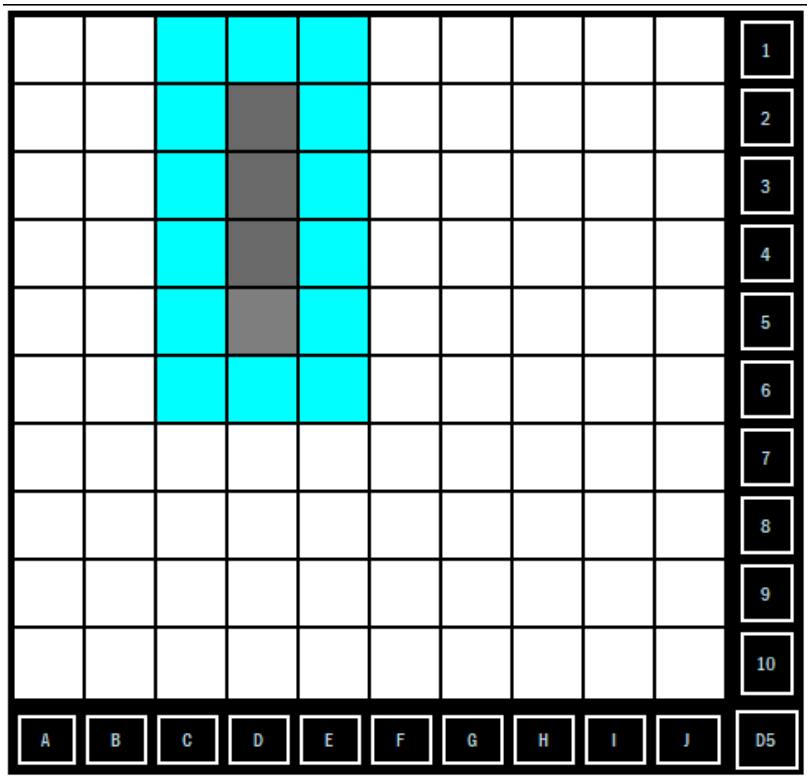
The game map is a field of 10 by 10 cells. Each cell has an unique coordinate consisting of one letter (from A to J) and a number (from 1 to 10).

Examples of coordinates: (A7, J7, D10, etc.).

The coordinate markings are located on the bottom side of the card (letters from left to right starting with letter A) and on the right side of the card (numbers from top to bottom starting from number 1)

3) RULES

A distance of one cell must be maintained between two different ships. Also, all boxes that are longer than 1 cell can be located exclusively on one line of cells. For example, there is a ship of the Cruiser type, if the first part of the ship is located on cell **F7**, then the next part can be located on cells **G7** or **F6**. If the second part of the ship is located on cell **G7**, then the last part must be located on cell **H7**. If the second part of the cow is on cell **F6**, then the last part of the box will definitely be on cell **F5**. Also, boxes cannot be placed along the contour of a located box with a radius of **1** cell. These cells contain **so-called mines**.



Let's look at an example:
There is a ship of the Battleship type which is located at coordinates (**D5:D2**) 4 cells in a vertical position starting from cell **D5**. In this example, cells with coordinates (**C6, D6, E6, E5, E4, E3, E2, E1, D1, C1, C2, C3, C4, C5**) become **mined,** and ships can no longer be placed on them.

Players take turns making moves (**Shots**). If, as a result of one of the players' moves, the player hits one of the ships, then the turn order does not change and the player can make the next move. If, as a result of a move, the player misses, then the turn of the move goes to the opponent.

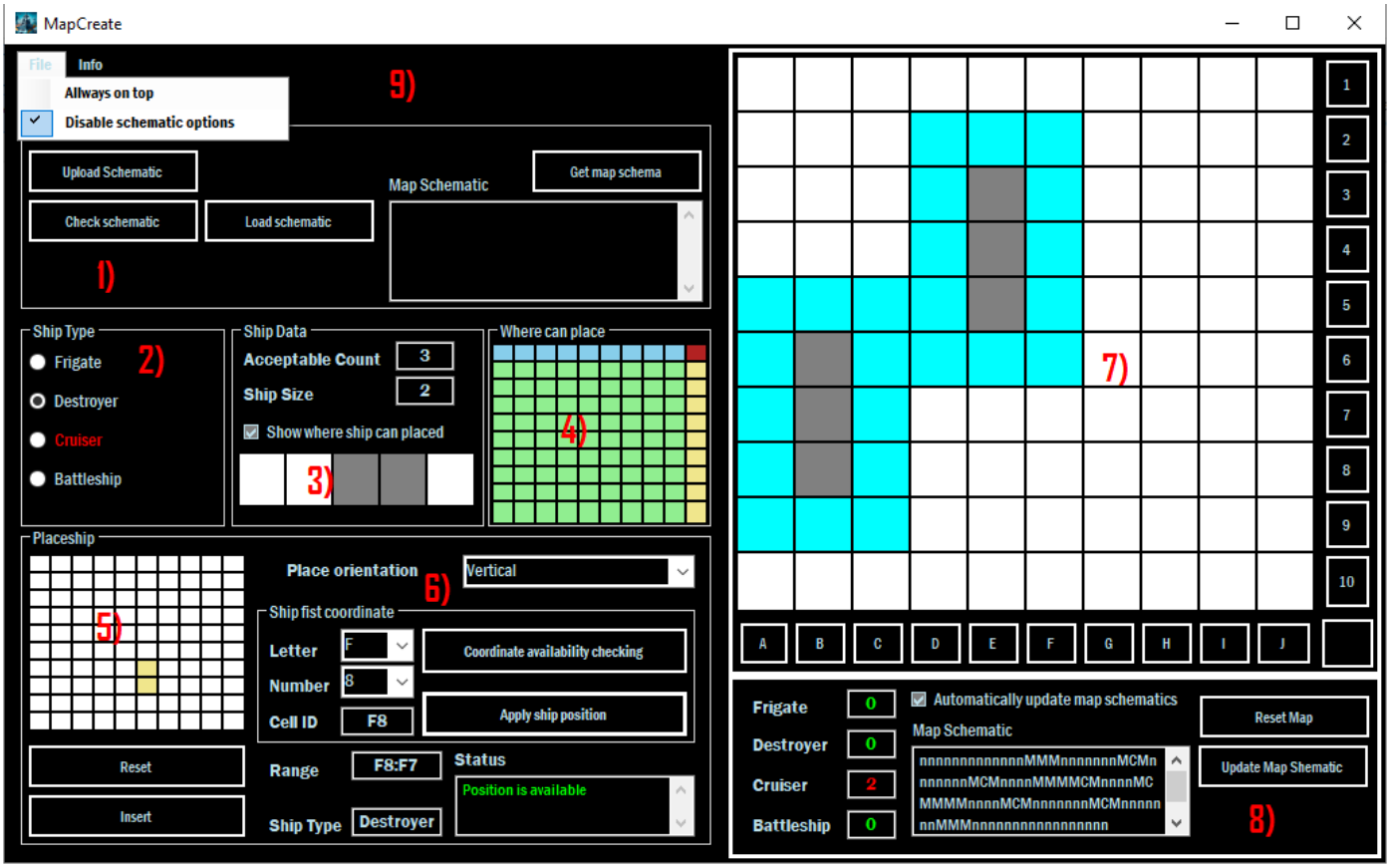
*The game ends if one of the players destroys all the opponent's ships. According to the rules of the game, the outcome is a **draw** is not possible.*

3) MAP EDITOR

In the program, when you start a game in single player mode, the opponent's map is generated randomly, according to the above-mentioned game rules. However, the player also needs to have his own map to play. The program gives 2 different ways to create a map.

1) The map is generated in the same way as the opponent's card (randomly, but the card will not repeat the opponent's card.

2) The player can use the "Map Editor" tool installed in the program.



MAP EDITOR PARTS

1) Map Schematic file Upload / Save Tool
2) Ship Type controller
3) Selected ship type data
4) Where ship can be placed
5) Ship place preview
6) Ship place options
7) Player map view
8) Map Schematic creator
9) Menu bar

1) Map Schematic file Upload / Save Tool

In this section you can save and load a schematic map.
The schematic map is saved as a team file **example.msch**.
After loading the schematic, the program checks the file and generates a map according to the schematic.
Schematics are needed to save cards you like for future use.

Button (**Upload Schematic**) loads the schematic from the computer.
Button (**Get map schema**) receives and verifies the schematic from section 8).
Button (**Check Schematic**) checks the schematic downloaded from the computer
Button (**Save Schematic**) saves the schematic to the computer
Button (**Load Schematic**) creates a map based on the schematic example.

Field (**Map Schematic**) shows the current schematic.

If the color of the schematic is not green, it means there are errors in it, for example, not all ships were installed.

2) Ship type controller

In this section you can choose what type of ship will be installed.
Please note that ship selection is active if the number of ships installed on the field is less than the maximum number of ships.

You can change the appearance of the ship by pressing the buttons (from **1** to **4**)
Button 1 - Frigate
Button 2 - Destroyer
Button 3 - Cruiser
Button 4 - Battleship

Frigates - 4
Destroyers - 3
Cruisers - 2
Battleship – 1

After the maximum number of ships of one type has been set on the map, the color of the selection button turns red, after which this type of ship cannot be selected

3) Selected ship type data

This section shows how many ships of a given type can be placed on the map.
If you check the box (**Show where ship can be placed**) it shows where you can place this type of ship and in what position (**Section 4**)

4) Where ship can be placed

In this section you can see where this type of box can be installed. Cells can be painted in 4 different colors.

1) **Light Green** - The ship can be installed both in a vertical position and in a horizontal position.
2) **Sky Blue** - The ship can only be installed in a horizontal position.
3) **Khaki** - The ship can only be installed in a vertical position.
4) **Red** - The ship cannot be placed in any position.

5) Ship place preview

In this section you can see exactly where the ship will be placed on the map. This **10 by 10** field is the same as the main field (**section 7**).
It is necessary to check and change if you made a mistake. Those cells on which the ship will be installed are painted **Khaki**.

6) Ship place options

In this section you can set the parameters by which the ship will be placed.
1) (**Place orientation**) changes the position of the ship from vertical to horizontal.

(When selecting the Frigate ship type, only one position is available "None" since the Frigate has a size of 1 by 1 cell)

The position of the ship can be selected manually or by pressing the button (**Numpad /).**
2) In the group (**Ship first coordinates**) you can select the coordinates of the first cell.
In (**Letter**) you can select a letter.
In (**Number**) you can select a number
In (**Cell ID**) allows the coordinate of the first cell
3) The (**Coordinate availability checking**) button checks whether it is possible to position the ship on these coordinates.
4) The (**Apply ship position**) button displays an example of where the ship will be located (Section 5).
5) The (**Reset**) button clears the example map and also resets all ship settings.
6) The (**Insert**) button sets the ship to the selected position.
This action can also be done by clicking on the (**Insert**) button.
7) In (**Range**) the range where the ship will be located is displayed.
8) In (**Ship Type**) the type of ship that will be located is displayed.
9) In (**Status**) the status of the possibility of the location of the ship is displayed.

7) Player map view

This section is a field of 10 by 10 cells. Where all installed ships will be displayed, the cells can have **6** different colors.
1) Color - **Silver** (Cell corresponds to **Frigate**)
2) Color - **Light gray** (The cell corresponds to the **Destroyer**)
3) Color - **Gray** (Cell corresponds to **Cruiser**)
4) Color - **Dark gray** (The cell corresponds to the **Battleship**)
5) Color - **White** - (Cell is **Empty**)
6) Color - **Cyan** (The cell corresponds to the **Mine**)

8) Map Schematic creator

In this section, schematics are generated based on the map (**section 7**).
1) On (**Frigate**) the current number of Frigates is displayed
2) On (**Destroyer**) the current number of Destroyers
3) On (**Cruiser**) the current number of Cruisers is displayed
4) On (**Battleship**) the current number of Battleships is displayed

The number of boxes changes as they are placed on the field. If the number of boxes of the same type reaches the maximum, the color changes to red, the rest of the time the color is displayed in green.

5) When you check the box (**Automatically update map schematic**), the map schematic is automatically updated every time the field map is changed.
6) In (**Map Schematic**) the current schematic diagram of the map is displayed.
7) The (**Reset Map**) button resets the data of ships and fields.
8) The (**Update Map Schematic**) button displays a schematic diagram of the current map.
When all boxes are fully installed, the button (**Apply Map**) is displayed. By clicking on it, the program checks the schematic and saves it in memory, which can later be used to generate a map.

9) Menu Bar

1) In the (**File**) section, by checking the (**Always on top**) section, the Editor window will **always be on top of other windows**.
2) In section (**File**) checking the box in section (**Disable schematic options**), will display tools for loading and saving schematics (**enabled by default**) (**Section 1**).
3) In section (**Info**), clicking on section (**Open manual**) displays the instruction window for the program.