

# PROJECT REPORT

Battleship – The Game



FH JOANNEUM GmbH  
SWENGB

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## Project Team

Our project team consists of four students. Stefan Krasser is our project leader and will plan the project together with the team. He is responsible for the communication between the lecturer and the team. All four team members are involved in the planning and review of the project. We decided to split up our project in the following three main parts: planning, implementation and review. These phases are used for the whole project and for each main task (e.g. EditMode) which must be coordinated by one responsible person.

### Main tasks and responsible persons:

1. Planning (Documentation) → Stefan Krasser
2. startup/welcome Screen/GUI → Miriam Grainer
3. Edit Mode → Christoph Mali
4. Game Mode → Stefan Krasser
5. Highscore → Thomas Ortner

To coordinate and plan upcoming tasks we use the online tool Trello. Trello is connected to our communication messenger Slack. We try to focus on much communication that's why we take use of 3 meetings per week.

## Tasks and Time Estimation

| Title    | Subtask                     | Description  | Due        | Time Estimation |
|----------|-----------------------------|--|------------|-----------------|
| Planning |                             |  |            | =18             |
| Planning | project team                | a description of your project team. it should comprise an explanation of how you partitioned your work. it should answer questions like: Who fulfills which role? Who implements which component? How is the work partitioned? What methodology is used? | 11.01.2018 | 3               |
| Planning | Time estimation             | You have to provide a time estimation which states how long it will take to complete your project. You have to plan your project and give descriptions about the work packages in question.  | 11.01.2018 | 1               |
| Planning | Mockups erstellen für Forms | you have to provide a chapter about your paper mockups of your application. This is part of the first deadline, so be sure you publish a report containing a mockup chapter timely.  | 11.01.2018 | 4               |

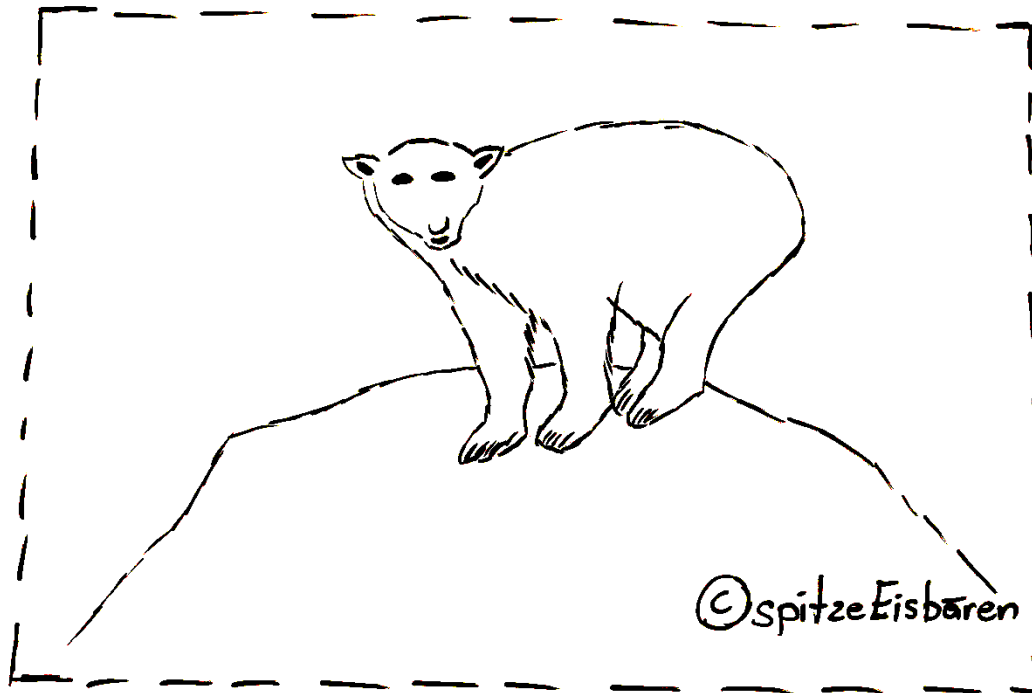
|                         |                             |  |            |     |
|-------------------------|-----------------------------|--|------------|-----|
| Planning                | Project cost estimation     | think about the project as being a software product, how much money would you charge? why? give an explanation about your cost calculation.  | 11.01.2018 | 2   |
| Planning                | Project Presentation        | PDF<br>max 10min<br>Project selling<br>Problems/Features<br>Demo of Project<br>Screenshots<br>no code snippets!  | 26.01.2018 | 3   |
| Planning                | Manual                      | You have to write a manual for your application. This manual should comprise all steps necessary to get and start the application. It should contain a description on how to use your software product, along with screenshots such that it is easy to understand your application.  | 23.01.2018 | 3   |
| Planning                | time expenditure            | your project report has to contain a time expenditure document.<br>it should clearly list all activities along with date, student id and description.  | 25.01.2018 | 2   |
| Startup / Splash Screen |                             | The screen displayed before the welcome screen (image)   |            | =2  |
| Welcome Screen          |                             | After the splash screen the real application site appears. There the user can decide between a "new Game" a highscore list of all played games and a credits page.   |            | =2  |
| GUI NewGame             |                             | This form is displayed a click on the "New Game" button. In this form the generated game name is displayed and the players have to enter their name. With a click on the "Create Game" button the application goes into "Edit Mode".   |            | =2  |
| Edit Mode               |                             | This mode is displayed after a game has been created and the players have been entered. At first player A sets the fleet by selecting the ships from a list and afterwards player B.<br><br>If both players have set their fleet the game can be started by clicking "Start Game". The application then goes into "Game Mode". |            | =16 |
| Edit Mode (12)          | GUI EditMode                |  |            | 4   |
| Edit Mode (12)          | Start Game                  |  |            | 2   |
| Edit Mode (12)          | Place Ship                  |  |            | 8   |
| Edit Mode (12)          | List with ships (available) | check if list empty (all ships are placed)   |            | 2   |
| Game Mode               |                             | This Phase of the game displays the real game. both players have 2 fields displayed (the own field and the opponents field). The players play after each other and click on the opponents field to hit a vessel.   |            | =20 |
| Game Mode (18)          | GUI GameMode                |  |            | 3   |
| Game Mode (18)          | ProtoMessage Logfile        |  |            | 2   |

|                |                                    |   |      |     |
|----------------|------------------------------------|---|------|-----|
| Game Mode (18) | ProtoMessage GameState             |   |      | 2   |
| Game Mode (18) | Game state                         | program logic   |      | 10  |
| Game Mode (18) | Sync game log                      |   |      | 3   |
| High Score     |                                    | there a list of all games is displayed with the number of shots, the winner of the game, the battle name, and the date and a replay button                |      | =18 |
| Highscore (12) | GUI Highscore                      |   |      | 2   |
| Highscore (12) | ProtoMessage Highscore             |   |      | 2   |
| Highscore (12) | Implement number of moves          |   |      | 2   |
| Highscore (12) | Replay                             |   |      | 10  |
| Highscore (12) | GameMode Form Replay (with Slider) |   |      | 2   |
| Tasks creation |                                    | like mentioned in 'time estimation', you have to identify work packages and describe them, along with the estimated time to complete those work packages. |      | =4  |
|                |                                    |   | sum: | =82 |

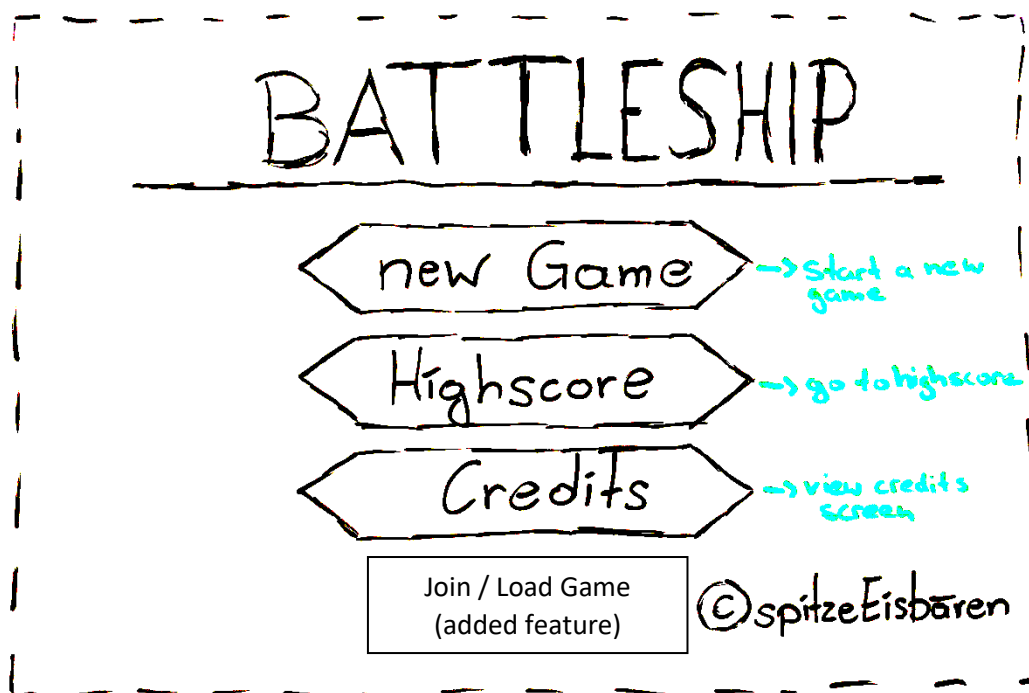
## Project Cost Calculation

|                   |                               |           |              |
|-------------------|-------------------------------|-----------|--------------|
| Planned hours     | 82                            |           |              |
|                   | à 20 € per person (4 persons) |           |              |
| Costs             | € 6 560,00                    |           |              |
| Selling price     | 15 € per unit                 | =6560/15  | 437,33 units |
| Break-even-Point  | 438 units                     |           |              |
| Revenue           | € 14 000,00                   | =14000/15 | 933,33 units |
| Revenue at        | 934 units                     |           |              |
| Profit            | € 7 440,00                    |           |              |
| Profit per person | € 1 860,00                    |           |              |

## Mock Ups



The **splash screen** is shown when the game is started and disappears after a few seconds.



This is the **welcome screen**. From this screen you can start a new game, go to the highscores and view the credits.

The sketch shows a rectangular frame containing the following elements:

- GameName**: A text label followed by a circular arrow icon. A red arrow points from the icon to the text "choose random game name".
- Player A**: A text label followed by an empty rectangular input box.
- Player B**: A text label followed by an empty rectangular input box.
- back**: A rectangular button at the bottom left. A red arrow points from it to the text "back to 'Welcome Screen'".
- next**: A rectangular button at the bottom right. A red arrow points from it to the text "go to 'Edit Screen'".

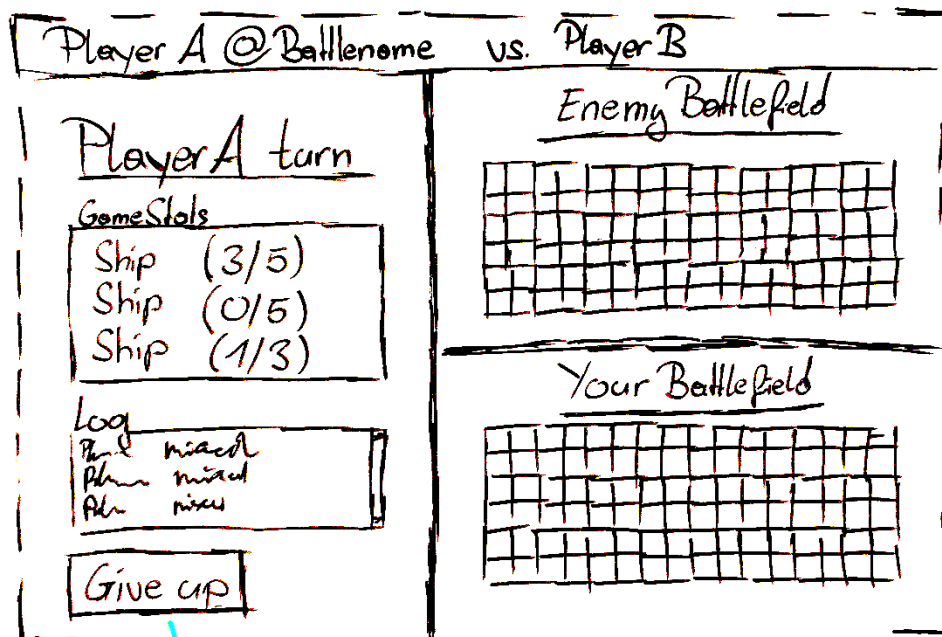
The **new game screen** makes it possible to enter the names of both players, create a new random game name, go to the edit screen or go back to the welcome screen.

The sketch shows a rectangular frame divided into two main sections:

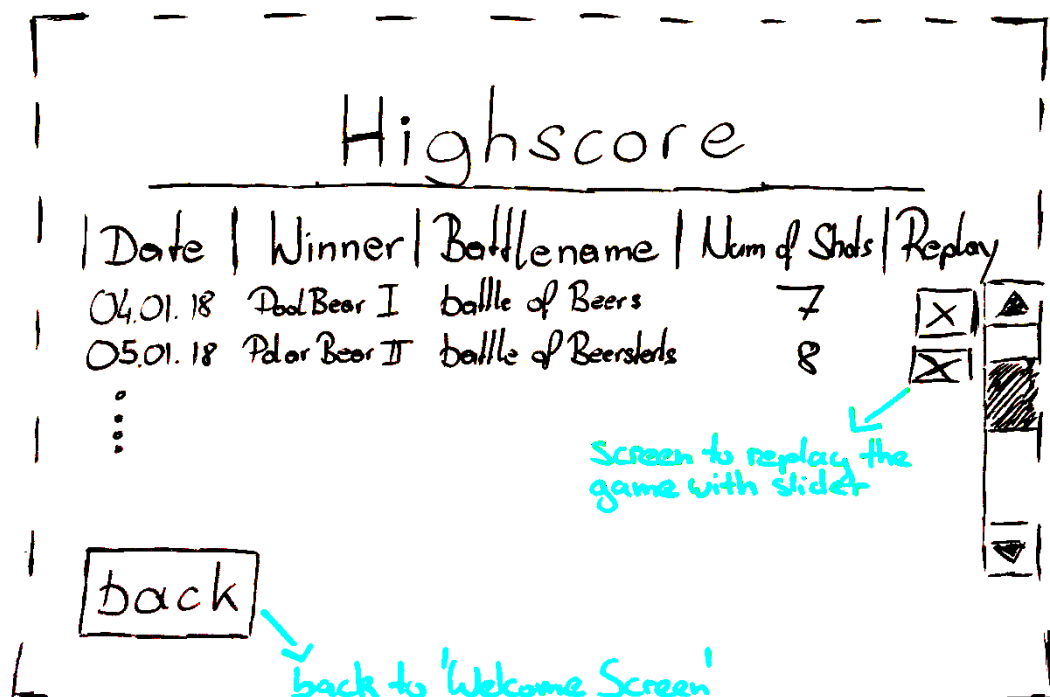
- Left Section (Player A @ Battlename vs. Player B)**:
  - Ships**: A table with 5 rows and 2 columns. The first column is labeled "Ship" and the second is labeled "Length". The rows contain the following data:
 

| Ship | Length |
|------|--------|
| Ship | 1      |
| Ship | 2      |
| Ship | 3      |
| Ship | 4      |
| Ship | 5      |
  - Orientation**: A label "Vertical / Horizontal" with a diagonal line between the two words.
  - StartPos X**: A text label followed by an empty rectangular input box.
  - StartPos Y**: A text label followed by an empty rectangular input box.
  - delete Ship**: A rectangular button.
  - Place Ship**: A rectangular button.
  - back**: A rectangular button at the bottom left. A red arrow points from it to the text "back to 'Welcome Screen'".
- Right Section (Battlefield)**:
  - Battlefield**: A title label above a 10x10 grid of squares.
  - Start Game**: A rectangular button at the bottom right.

In the **edit screen** it is possible to place ships on the battlefield by selecting the desired ship from a list and entering the starting positions and choosing horizontal or vertical. It is also possible to delete a ship by selecting it in the list and clicking the delete button.

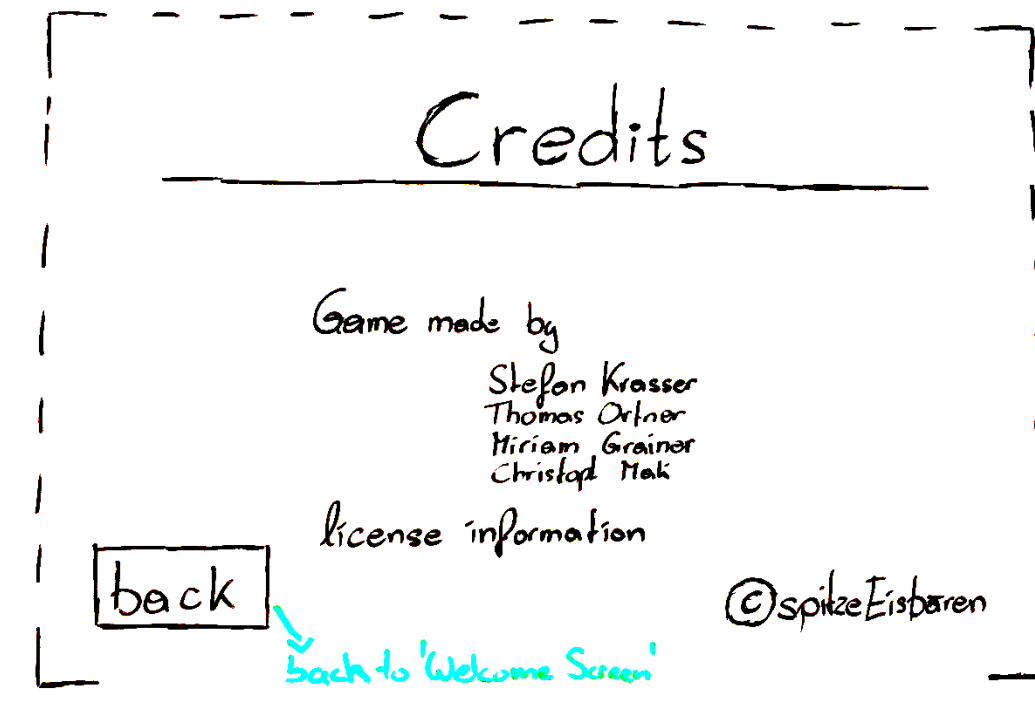


The actual game takes place in the **game screen**. The player whose turn it is has to click onto the enemy battlefield. The own battlefield is only meant to show information about the players own fleet. The game stats on the right show which ships are alive and how often they have been hit. By clicking the give up button the welcome screen is opened and the other player wins the game.



The **highscore screen** shows all the games ordered by the number of shots. By clicking the replay button the game screen opens and the game can be viewed by using the slider.





The **credits screen** shows information about the developers and the license.

Manual

Time Expenditure