Requirements and Analysis Document for Rojarna.

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Author: Oskar Frost, Tobias Foughman Lind
revised by: Tom Dahlen

This version overrides all previous versions.

1 Introduction

This section will provide an overview of the project.

1.1 Purpose of application

The project aims to create a modern version of the classical Microsoft-game minesweeper. This version will include more features than the original, and enhance the user-experience. There should be

1.2 General characteristics of application

The application will be a desktop, standalone (non-networked), multiplayer application with a graphical user interface for the Winds/Mac/Linux platforms.

This adaptation of Minesweeper will include two different game-modes, “Classic” and “Campaign” mode.

The “Classic” mode will have the same functionality as the original, where only the appearence may differ.

The “Campaign” mode will guide the player through a set of stages (where these stages are rounds of the classic minesweeper with predefined sizes and amount of mines), all of which will be needed to complete within a time-limit. During games, the player have the option to buy power-ups to help him clear a stage. The power-ups will be purchased by a time-currency, gained by completing each stage with time left. The more the stages the player completes, the difficulty increases by increasing the grid and mines and decreasing the initial time for each stage.

1.3 Scope of application

The game will not include a multiplayer component in any way. The user will not be able to save the progress made in any of the game-modes, only highscores.

1.4 Objectives and success criteria of the project

1. It should be possible to play a full round of the classic MS-Minesweeper game, using a randomly generated board of mines.
2. A player should be able to play atleast one round of the Campaign game-mode, with atleast 2 powerups functioning.

1.5 Definitions, acronyms and abbreviations

All definitions and terms regarding the core Minesweeper game are as defined in the reference section.

2 Requirements

2.1 Functional requirements

The player should be able to:

- Start a new game of the classic minesweeper.
- Select field-size and amount of mines in a game-session.
- Perform one of these actions:
    - Mark a square with a question-mark or flag.
    - Select a square and reveal its content.
- Complete an entire game of minesweeper.
- Lose a game, if a mine-square is selected.
- Exit the application. No memory of played games will be saved.

2.2 Non-functional requirements

2.2.1 Usability

The application should be easy to learn and quick to use in shorter sessions for both new players and player with previous experience on minesweeper games. The game's UI (user interface) will be very similar for both the "Classic" and "Campaign" mode to spare the user the time to learn the new appearance.

2.2.2 Reliability

There should, under no circumstances, be any crashes or otherwise strange behaviour during a game-session.

2.2.3 Performance

The game should run smoothly and without delay, with exception of the first click on the board which will create the gameboard. Every operation the application performs should not take longer than a few seconds in a worst case scenario.

2.2.4 Supportability

The application should be supported on both windows and any unix operating-system. There should be tests verifying one or more of the usecases.

2.2.5 Implementation

To be able to run this application the user must have JRE installed and configured. The application also needs to be installed on the machine where the application will be ran.

2.2.6 Packaging and installation

The application will be delivered as an zip-archive containing:

1. A file for the application code (a standard Java jar-file).
2. All needed resources, internationalization and localization files, icons e.t.c.
3. Start programs (scripts) to start the game on the different platforms.
4. A README-file documenting installation and start of application.

2.2.7 Legal

There might be legal issues regarding Microsofts rights to the Minesweeper trademark. This is not covered here.

2.3 Application models

2.3.1 Use case model

See APPENDIX for UML diagram and textual descriptions.

Pause
Gameover
New Game (Classic)
New Game (Campaign)
Next Stage
Choose square (Classic)
Choose square (Campagin)
Disable powerup
Powerup clear
Powerup show
Powerup choose safely
Unknown square
Quit Game
Restart game (classic)
Flagged square
Start
Exit program
Time out (Campaign)

2.3.2 Use cases priority

1.start
2.new game (classic)

3.Choose square (classic)
4.flaged square
5.unknown square
6.game over
7.Exit program
8.restart game
9.Quit game
10.new game (campaign)
11.choose square (campaign)
12.powerups (All of them)
13.timeout (campaign)
14.next stage
15.pause

2.3.3 Domain model

See appendix.

2.3.4 User interface

The UI (user interface) strives to be minimalistic and use a very small quantity of buttons. When the application is opened there will be a main menu with three button and a logo/title on the top of the window. The three buttons will be presented in the middle of the window, giving the player options to start a new classic game, start a new campaign or exit the application.

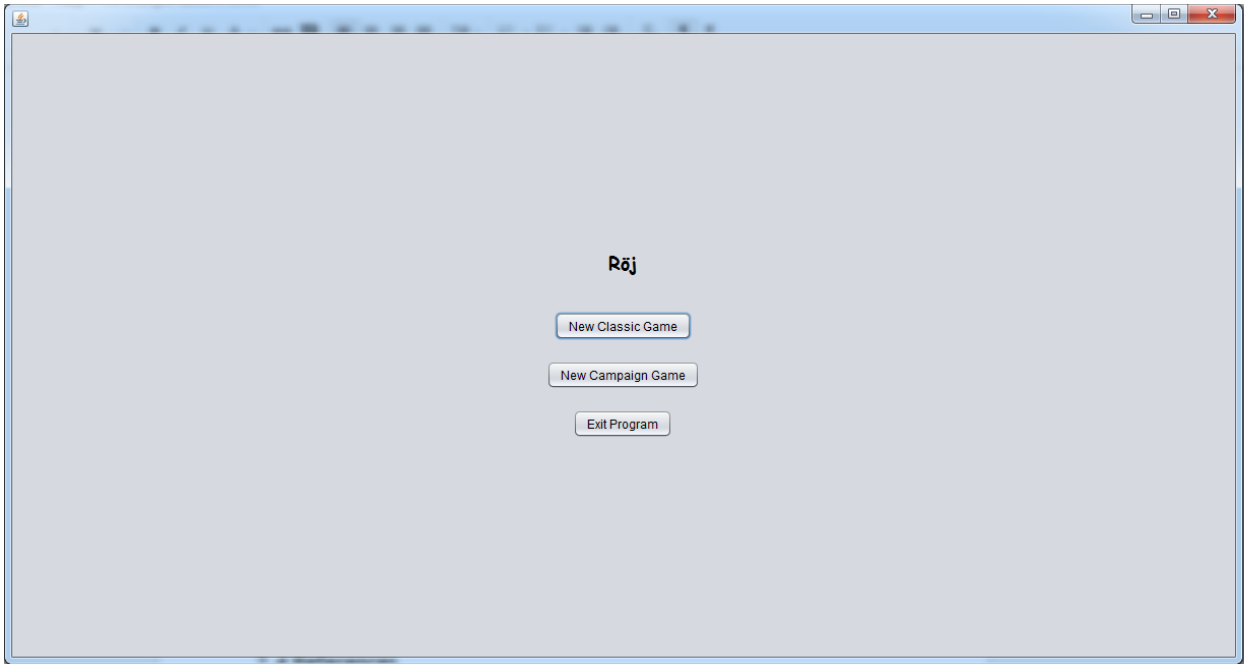


Image 1: Main Menu of the game Röj

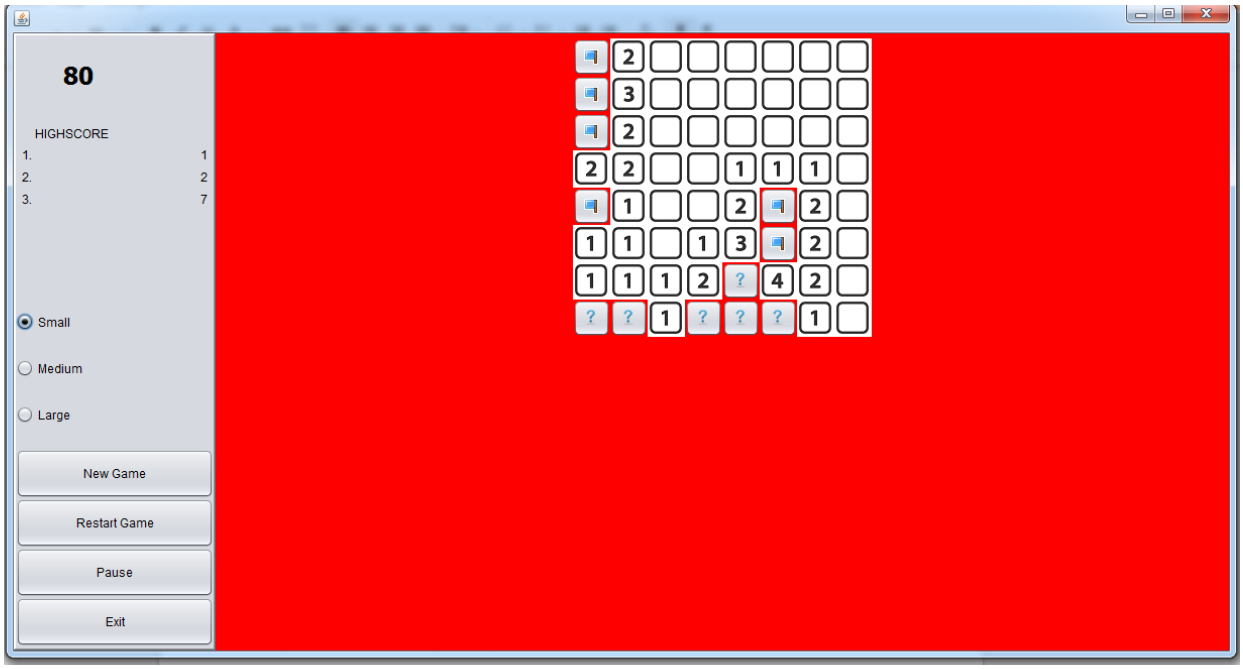


Image 2: The interface for one round of Classic

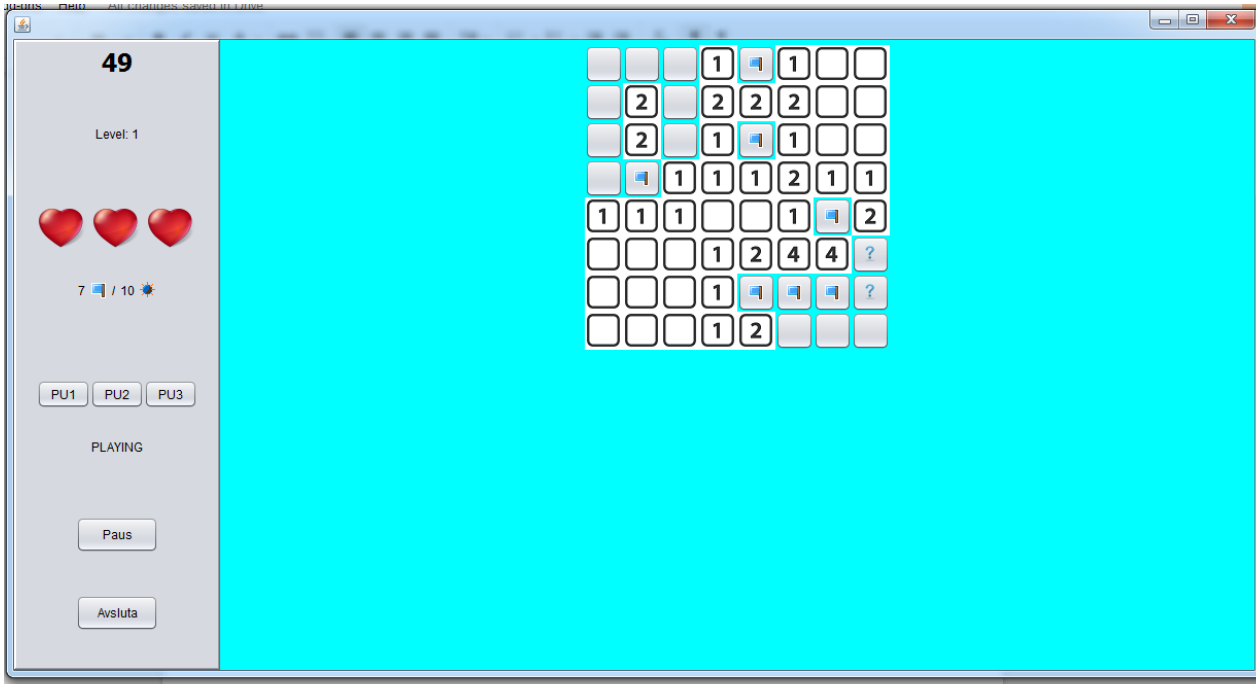
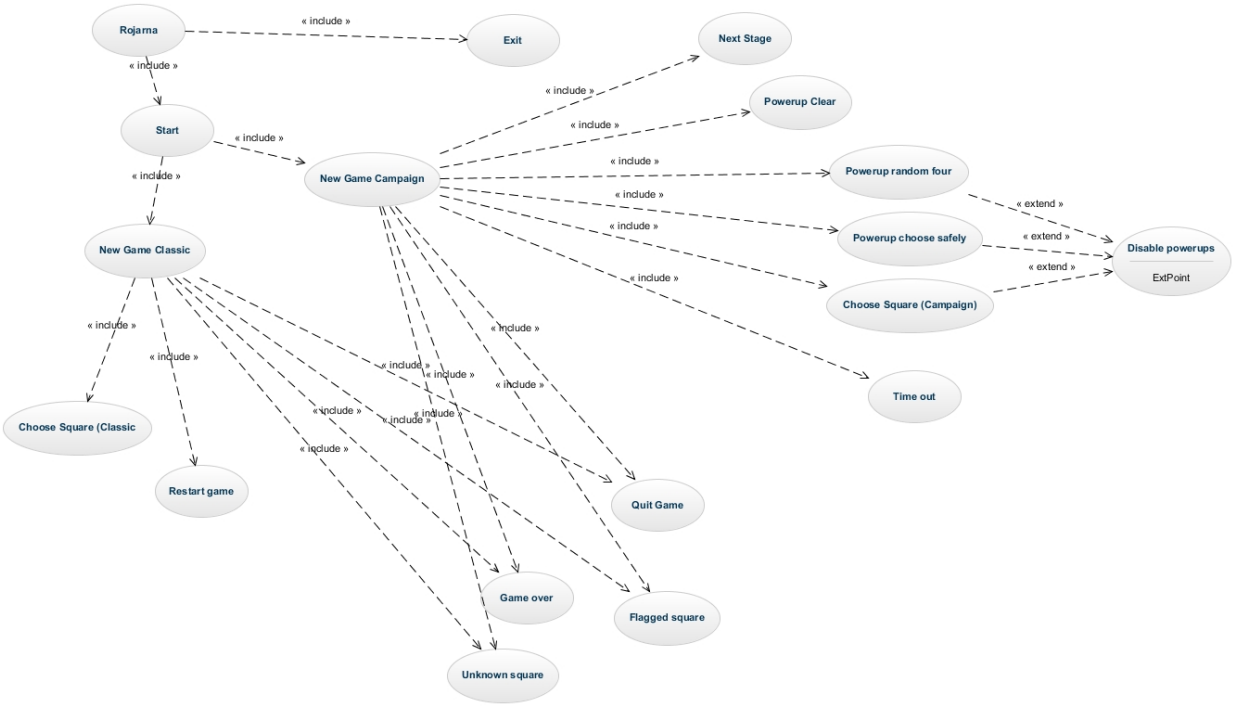


Image 3: The interface for that first round in Campaign

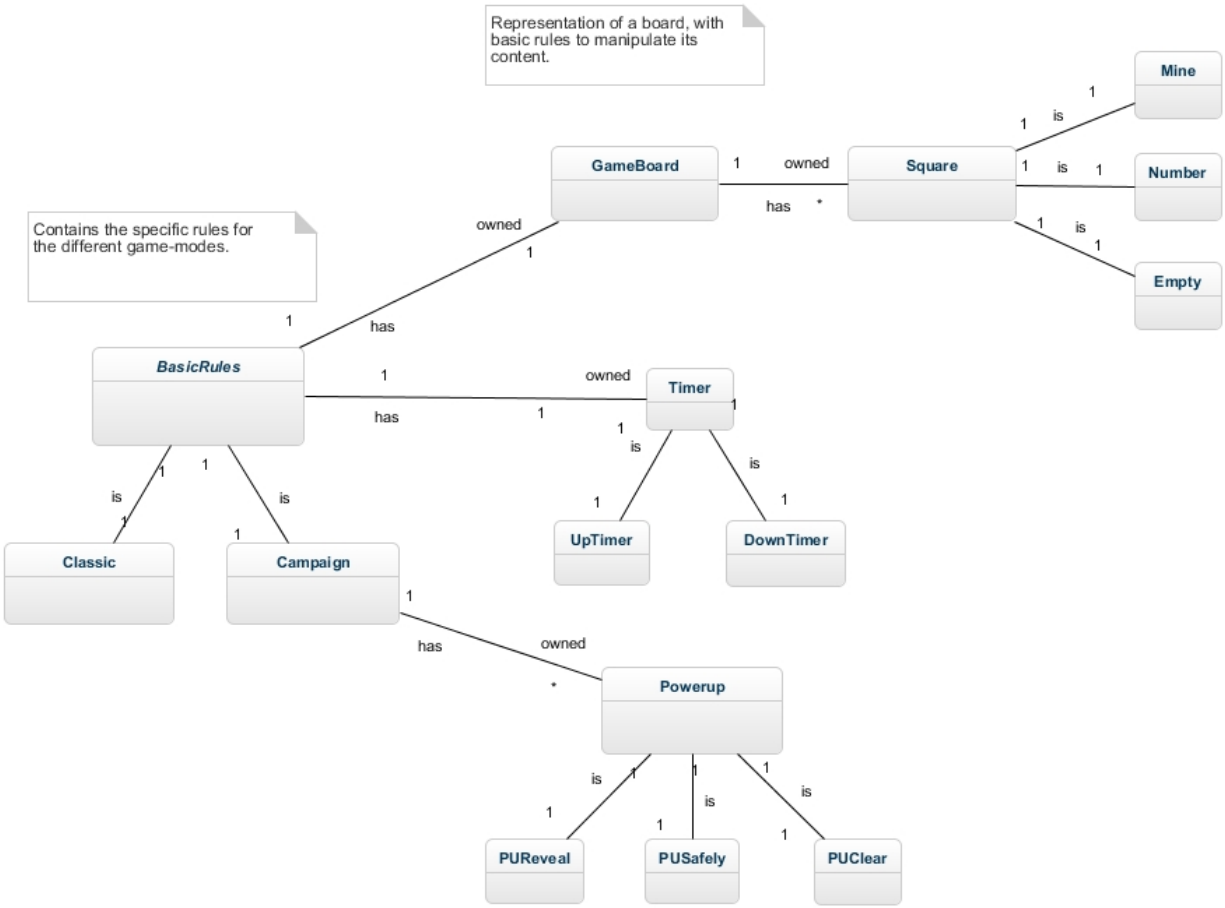
2.4 References

Appendix

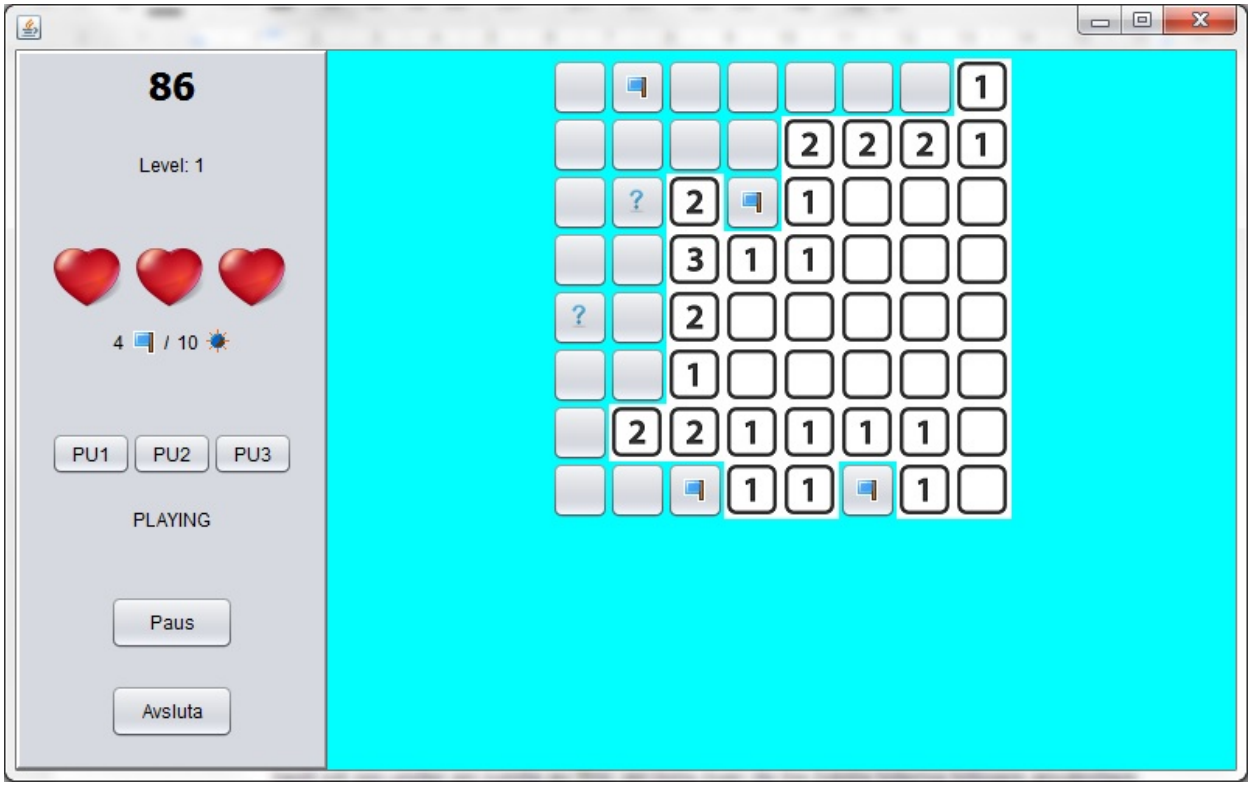
Use cases



Domain model


Representation of a board, with basic rules to manipulate its content.
Contains the specific rules for the different game-modes.
GameBoard
Square
Mine
Number
Empty
BasicRules
Timer
UpTimer
DownTimer
Classic
Campaign
Powerup
PUReveal
PUSafely
PUClear
owned
has
is

GUI


86
Level: 1
4 / 10
PU1
PU2
PU3
PLAYING
Paus
Avsluta