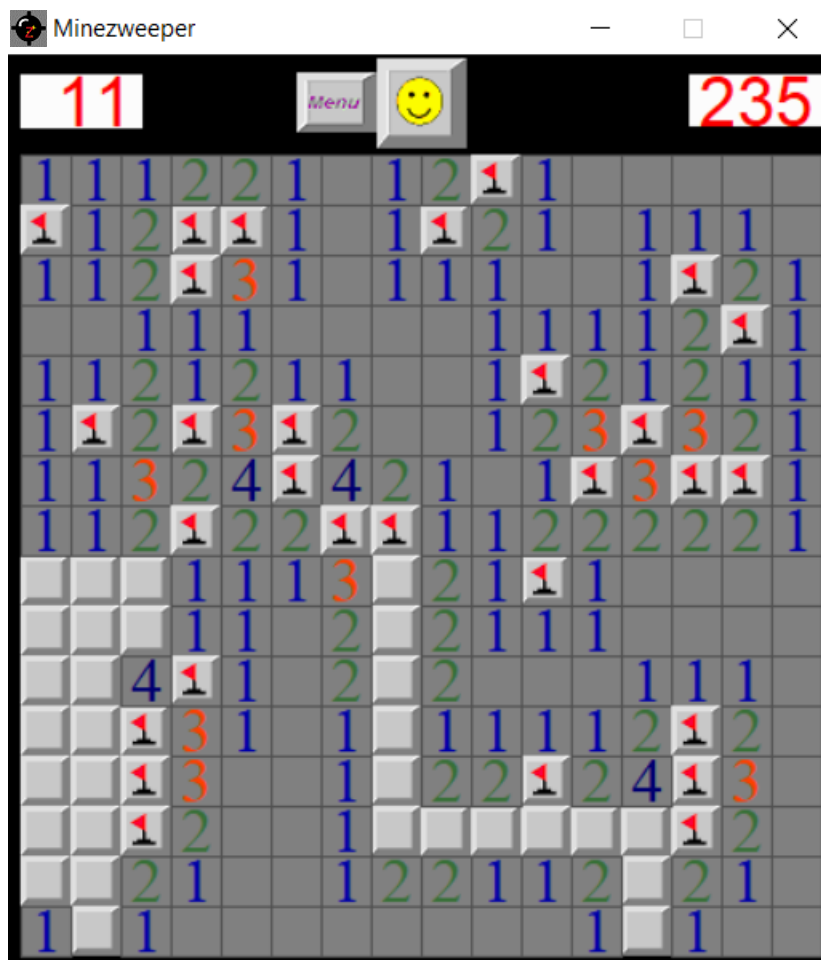# User's Documentation

MineZweeper

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Programování I.

Contents

Abstract

MineZweeper is a modified implementation of the classical game MineSweeper in Pascal, which is a single-player puzzle video game. Due to its simple rules it's suitable for players of all ages.

How to run it

For executing the program use **Into1.exe**, other parts are accessible from there. Another option is to install Free Pascal compiler, open the code in a text editor or IDE (integrated development environment) and compile it.

The environment it was developed and successfully compiled in:

Operating System   Windows 10 Home, 64-bit, x64-based processor

Compiler   Free Pascal, fpc 3.0.4 (latest stable version)

Lazarus IDE   version 1.8.4, add-on cross platform win32 (for 32bit Windows too)

List of necessary files

- back.bmp
- bombface.bmp
- flag.bmp
- grid.bmp
- grid10x10.bmp
- grid16x16.bmp
- icon.bmp
- menu.bmp
- mine.bmp
- MINEZWEEPER-uvod.txt
- Highscore.txt
- Instructions.txt
- MenuResolution.txt
- mineA.bmp
- smileyface.bmp
- square02.bmp
- surface.bmp
- wonface.bmp

For successful compilation files **wincrt.pas**, **wingraph.pas** and **winmouse.pas** must be also included in project folder.

User stages

Menu

The program starts in fixed size graphical window. The first thing a user will encounter is a game's main menu leading to several other scenarios such as instructions, where instructions and game rules are displayed, game difficulty selection, changing the amount of mines and size of the grid depending on the user's choice (beginner, intermediate, expert), high scores, displaying player's nickname and the shortest time achieved yet in every possible difficulty and game start, which leads player to the game.

Menu is functional and controllable solely through mouse clicking. For choosing the scenario left click on the named button. It will press to affirm the choice. Afterward user can go back to main menu by left clicking the back icon in the left upper corner or in difficulty settings by choosing the difficulty (clicking one of the buttons).

Difficulty set game specification to these options:

Beginner   10x10 game grid and 10 mines

Intermediate   16x16 game grid and 40 mines

Expert   25x17 game grid and 90 mines

Game

User is presented with a board of squares (grid), sized according to chosen difficulty, on which can be seen the mouse cursor and movement above individual squares is possible only through mouse movements. As well as clicking on the left mouse button will reveal an empty square, clicking on the right mouse button will flag an empty square. If a flaged square is right clicked again it will unflag.

If you open a square with 0 neighboring bombs, all its neighbors will automatically open. This can cause a large area to automatically open.

Mines are distributed randomly (with specified quantity) over the grip every game and it depends on the user's discretion and usage of hints from the displayed numbers of neighbouring squares containing mines for flaging all the empty squares with mines underneath correctly.

Incorrect marking of the squares doesn't stop the game but can lead to mistakes ending in losing the game.

A squares "neighbours" are the squares adjacent above, below, left, right and all 4 diagonals.

Above the grid are placed two counters, one for the quantity of mines, which is decreasing with every used flag and the other for the increasing time, counted in seconds. Player's goal is to win the game besides he can try to achieve it in the shortest time possible to overwrite old highest score with his score and nickname.

Between the counters, there are two buttons with images for going back to the menu or restarting the game – this one also serves as an indicator of winning or losing the game by emoji expression changing.

After the user came across the mine, the game freezes and all the other mines are displayed. In the case of winning, the game also freezes, if not and mine counter shows zero, mines aren't flaged correctly.

Game statuses explained

Displayed throughout the played game.
Meaning normal game progress.

Displayed for a brief moment when manipulating with squares, which can lead to losing. Also, it's purposely displaying when left click happens anywhere in the game window.

Indicating successfully won game.

Indicating lost game.