Object Oriented Programming Report

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Abstract

This report is a summary of the Object Oriented Programming course.

1 Minesweeper — A C++ Implementation

1.1 Introduction

Minesweeper is a logic puzzle video game genre generally played on personal computers. The game features a grid of clickable squares, with hidden "mines" scattered throughout the board. The objective is to clear the board without detonating any mines, with help from clues about the number of neighboring mines in each field.

In this report, we will implement Minesweeper with the help of ncurses[1] and C++.

1.2 The Game

The game is played on a board of tiles, each of which is either a mine or empty. The player is initially presented with a board of all empty tiles, and must use logic to deduce the locations of the mines. The player can click on a tile to reveal it. If the tile is a mine, the player loses. If the tile is empty, the tile will be revealed, and if it has no neighboring mines, all of its neighboring tiles will be revealed as well. If the tile has neighboring mines, the number of neighboring mines will be displayed on the tile. If the player marks all of the mines, the player wins.

1.3 The Implementation

1.3.1 UML

1.3.2 The Board

The board is a 2D array of tiles. The board is initialized with a given number of mines, and the rest of the tiles are empty. The board is displayed using ncurses. The board is updated when the player clicks on a tile.

1.4 The Design

1.5 The Code

1.6 The Results

[1] Ncurses is a programming library providing an application with a terminal-independent screen-painting and keyboard-handling facility in a text-mode environment.