Project Name: Minesweeper

Project Description

The Minesweeper game is a single-player puzzle game where the player aims to clear a grid of hidden mines without detonating any of them. The player is provided with a grid where some cells contain mines. The objective is to uncover all cells that do not contain mines. If a player clicks on a cell containing a mine, they lose the game. If the player successfully uncovers all non-mine cells, they win. The game provides three difficulty levels: Easy, Normal, and Hard, each with different grid sizes and mine counts.

Key Features
1. Single-player mode with three difficulty levels.
2. Real-time minefield interaction and cell uncovering.
3. Visual representation of the minefield and discovered cells.
4. Win/loss determination and result announcement.
5. Timer to track the duration of the game.

Functional Requirements (FRs)

FR1: At the start of the game, the player can select a difficulty level (Easy, Normal, Hard).

FR2: After selecting the difficulty level, a grid with the corresponding size and mine count is displayed.

FR3: The player can click on any cell to uncover it.

FR4: If the player clicks on a cell containing a mine, the game is over, and all mines are revealed.

FR5: If the player clicks on a cell that does not contain a mine, the cell is uncovered, showing the number of adjacent mines.

FR6: The player can right-click on a cell to flag or unflag it as a suspected mine.

FR7: The player wins the game if all non-mine cells are uncovered.

FR8: The game provides a visual timer that starts when the first cell is clicked and stops when the game ends.

User Interface Requirements (UIRs)

UIR1: The main menu displays options for selecting difficulty levels (Easy, Normal, Hard).

UIR2: The grid cells are displayed as buttons that can be clicked to uncover or flagged.

UIR3: A label displays the number of mines remaining, updating as the player flags/unflags cells.

UIR4: The timer is displayed at the top of the game screen, updating in real-time.

UIR5: When the player clicks a mine, all mines are revealed, and a "Game Over" message is shown.

UIR6: When the player successfully uncovers all non-mine cells, a "You Win" message is shown.

UIR7: The "Hit" and "Stand" buttons are replaced with "Restart" and "Exit" buttons once the game ends.