

Requirements Document

Target release	September 21, 2025
Document status	COMPLETED
Document owner	Cole Charpentier

Objective

The purpose of this project is to design and implement a fully functioning Minesweeper clone. This project will provide hands-on practice with Agile design and development with sprint-based progress and feedback.

Success metrics

Goal	Metric
Functional Accuracy	The game correctly places 10-20 mines randomly, the first click is guaranteed to not be a mine
Usability	There is a clear visual representation of the board state, the number of remaining mines is displayed and updates correctly, the status of the game updates appropriately
Reliability	There should be no crashes or infinite loops during gameplay, all edge cases such as maximum/minimum mines and clicking border cells should be handled gracefully
Performance	Game responds to user interaction quickly

🤔 Assumptions


- The users are familiar with the basic rules of Minesweeper
- The users will interact with the game through a GUI with mouse clicks
- The game must run on the lab computers

📋 Requirements

Requirement	User Story	Importance	Notes
Board setup (10x10 grid with columns labeled A-J and rows numbered 1-10 with 10-20 mines randomly dispersed)	John wants a 10x10 grid with 10-20 mines so he can play Minesweeper	High	The mine count is entered at the start of the game
Safe first click	Sally wants her first click to be safe so she can start the game fairly	High	Adjacent cells may also be guaranteed safe
Cell uncovering	Mark wants to uncover a cell and see a number, empty space, or mine so he can play strategically	High	Numbers will show 0-8 adjacent mines
Recursive expansion	Blake wants cells with no adjacent mines to be automatically expand so he doesn't have to click every cell	Medium	
Cell flagging	Cole wants to be able to flag cells he thinks contain a mine so he can avoid clicking them	High	
Mine counter	Michael wants to be able to see how many	Medium	

	mines are left unflagged so he can track his progress		
Status indicator	Delaney wants to know whether she is still playing, has lost, or has won so she understands the game state	Medium	
Game over behavior	Chris wants all the mines to be revealed on a loss to understand what went wrong.	Medium	

🎮 User interaction and design

- There is a 10x10 grid with visually distinct cell states (covered = blank, flagged = , and uncovered = number or empty)
- There is a numerical display showing the number of mines at the top of the UI
- There is a status indicator showing the game state
- The users can uncover a cell with left-click and place a flag with right-click

⚠️ Out of Scope

- Timer for game duration with high-score tracking
- Hint system for revealing a safe cell (limited uses)
- Sound effects or animations for uncovering/mines
- Difficulty levels adjusting mine density or grid size
- Multiplayer mode for alternating turns