# **Minesweeper Application – Design and Usage**

## **Design Overview**

* The application is a console-based Minesweeper game implemented in Java 21.
* It follows clean code principles, with a modular design separating the game logic (Board, Cell) from user interaction (Game).
* Mines are randomly placed on the board after the first user move, guaranteeing the first selected cell and its neighbors are mine-free.
* The game supports customizable grid size (minimum 4x4) and mine count (maximum 35% of total cells minus a safe zone).
* User inputs are validated to ensure correct coordinates are entered.
* The board reveals adjacent empty cells automatically, mimicking standard Minesweeper behavior.
* The game loop continues until the player either uncovers a mine (loses), reveals all safe cells (wins), or chooses to exit.

## **Assumptions**

* The game runs in a terminal/command line interface.
* The minimum grid size is 4 to allow a safe zone around the first move.
* The maximum number of mines is capped at 35% of total cells, adjusted to preserve the safe zone.
* User input for moves follows the format <RowLetter><ColumnNumber>, e.g., A1.
* The environment running the game has Java 21 installed.

## **Environment**

* Developed and tested on Windows OS.
* Requires Java 21 or later installed and properly configured in the system PATH.

## **How to Run**

1. Extract the attached zip file containing source code if needed.
2. To run the game using the provided JAR file, open a terminal and navigate to the directory containing the JAR.
3. Execute the following command:  
    java -jar Minesweeper-1.jar
4. Follow the on-screen prompts to input grid size, number of mines, and select squares to reveal.
5. To exit the game at any prompt, enter e.