

# Final Project: JavaScript Minesweeper Game

**Duration:** ~ 12 hours

## Project Overview

In this final project, you will consolidate and apply all the JavaScript skills learned from beginner to advanced levels, including DOM manipulation, asynchronous JavaScript (Promises, async/await), CSS animations, JavaScript animations, and advanced logic handling. Your task is to implement a fully functional Minesweeper game.

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## Objectives

- Utilize modular JavaScript files to manage project complexity.
  - Implement game logic using classes, functions, and DOM interactions.
  - Handle asynchronous operations and user interactions effectively.
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## Project Structure

The project consists of four JavaScript files:

1. `utils.js`
  2. `classes.js`
  3. `DOM_element.js`
  4. `main.js`
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## Tasks and Recommended Workflow

### Step 1: Complete `utils.js`

- Implement the `shuffle` function.
  - Ensure the array elements are randomly shuffled each time.

### Step 2: Implement Classes ( `classes.js` )

- Finish the methods marked with `TODO` in the `Cell` and `Minesweeper` classes.
- Understand how each method affects game behavior and UI.

### Step 3: Main Game Logic ( `main.js` )

- Implement the main game setup and logic including:
    - Fetching game configuration asynchronously.
      - Note: The configuration file is name by `config.json`
    - Setting up timers, buttons, and event listeners.
    - Handling left-click (cell reveal) and right-click (flag placement/removal).
    - Updating the game state based on player actions.
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## DOM Interactions

- All required DOM elements have been preselected in `DOM_element.js`.
  - Use provided DOM variables to interact with the game interface:
    - Example: `startBtn`, `mineField`, `timer`, `flagCounter`, etc.
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## Points to Consider

- Answers and implementations may vary.
  - Aim for functional, readable, and maintainable code.
  - Ensure proper error handling.
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## Submission Guidelines

- Implement all function that marked as `TODO`.
  - Submit completed `utils.js`, `classes.js`, and `main.js` files.
  - Ensure your code includes clear and concise comments.
  - Include a brief explanation ([README.md](#)) of your implementation approach and challenges faced.
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# Evaluation Criteria

- Correct implementation of game logic and functionality.
- Effective use of JavaScript concepts (DOM manipulation, classes, asynchronous code).
- User interface responsiveness and accuracy.
- Clean, commented, and maintainable code structure.

Good luck, and enjoy building your Minesweeper game!