# **Minesweeper Project**

Estimate Method: Determine task complexity (simple-1pt: 1-3 steps, average-5pts: 3-6 steps, complex-10pts: 6+ steps), scale based on familiarity with necessary knowledge (unfamiliar: 1.2x, familiar: 1x, mastered: 0.8x), multiply by 6 minutes per point

Formula: Time Estimate = Complexity \* Familiarity \* 6 minutes

### **User Story 1 — Game Setup**

**As a user…**  
I want to select a number of mines and press a button to start a game of minesweeper…  
So that I can play a game of minesweeper where the number of mines is determined by my input.

**Task Breakdown:  
Create an HTML input element - (simple)**

**Create a start game button - (simple)**

**Take value from input field when pressing start game - (simple)**

**Create input handler for launching minefield generation on start game button press - (average)**

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| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| **HTML input element** | **Jack Gerety (familiar)** | **1pt \* 1 \* 6 mins = 6 minutes** |
| **Start game button** | **Daniel Butler (familiar)** | **1pt \* 1 \* 6 mins = 6 minutes** |
| **Input value inherited by button** | **Daniel Butler (familiar)** | **1pt \* 1 \* 6min = 6 minutes** |
| **Start game input handler** | **Daniel Butler (familiar)** | **5pts \* 1 \* 6 mins = 30 minutes** |

**User Story 2 — Initial Minefield Generation**

**As a user…**  
I want to see a 10x10 grid with columns labeled A-J and rows labeled 1-10 representing a minefield with randomly generated mine placements in some tiles while the rest are empty…  
So that I can interact with it to play minesweeper, but I do not want the first tile I click to have a mine in it

**Task Breakdown:  
Generate a 10x10 grid - (average)**

**Label the rows and columns - (average)**

**Fill the grid with mines; the first clicked tile will not hold a mine – (complex)**

**Store each tile’s number of adjacent mines – (complex)**

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| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| **10x10 grid generation** | **Daniel Butler (familiar)** | **5pts \* 1 \* 6 mins = 30 minutes** |
| **Row and column labels** | **Daniel Butler (unfamiliar)** | **5pts \* 1.2 \* 6 mins = 36 minutes** |
| **Mine generation** | **Skylar Franz (familiar)** | **10pts \* 1 \* 6 mins = 60 minutes** |
| **Adjacent mine counter** | **Skylar Franz (familiar)** | **10pts \* 1 \* 6 mins = 60 minutes** |

**User Story 3 — Game Interaction 1 (revealing)**

**As a user…**  
I want to click on tiles in the grid…  
So that I can reveal them, and if they are empty, reveal all connected empty tiles if the clicked tile has 0 adjacent mines and show the number of mines adjacent to any tile that has been revealed.

**Task Breakdown:**  
**Create input handler for left-clicking on tiles - (simple)**

**Reveal a clicked tile as empty with the number of adjacent mines or as having a mine - (average)**

**Recursively uncover connected empty tiles - (average)**

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| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| **Left click input handler creation** | **Charley Findling (familiar)** | **1pt \* 1 \* 6 mins = 6 minutes** |
| **Reveal clicked tile** | **Charley Findling (unfamiliar)** | **5pts \* 1.2 \* 6 mins = 36 mins** |
| **Recursively uncover empty tiles** | **Jack Gerety (unfamiliar)** | **5pts \* 1.2 \* 6 mins = 36 minutes** |

**User Story 4 — Game Interaction 2 (flagging)**

**As a user…**  
I want to flag tiles as having a mine…  
So that I can identify tiles possessing a mine without clicking to reveal them and also prevent myself from accidentally clicking and revealing the tile.

**Task Breakdown:  
Create input handler for flagging tiles - (simple)**

**Display flagged status on a tile - (simple)**

**Keep track of the number of flags placed and number of flags remaining - (simple)**

**Prevent flagged tiles from being revealed on left-click - (simple)**

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| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| **Flagging input handler creation** | **Beckett Malinowski (familiar)** | **1pt \* 1 \* 6 mins = 6 minutes** |
| **Flagged tile display** | **Beckett Malinowski (familiar)** | **1pt \* 1 \* 6 mins = 6 minutes** |
| **Track flag counter info** | **Beckett Malinowski (familiar)** | **1pt \* 1 \* 6 mins = 6 minutes** |
| **Disable revealing on flagged tiles** | **Beckett Malinowski, Jack Gerety (familiar)** | **1pt \* 1 \* 6 mins = 6 minutes** |

**User Story 5 — Game Status**

**As a user…**  
I want to see the controls and status of the game I am playing…  
So that I can see how to interact with the game, track how many flags I have placed/are remaining, and whether I have lost or won the game.

**Task Breakdown:  
Create paragraph element explaining controls - (simple)**

**Create element detailing game status - (simple)**

**Create a “game in progress” state - (simple)**

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| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| **Controls paragraph element** | **Daniel Butler (familiar)** | **1pt \* 1 \* 6mins = 6 minutes** |
| **Game status element** | **Charley Findling (familiar)** | **1pts \* 1 \* 6mins = 6 minutes** |
| **Game in progress state** | **Daniel Butler (familiar)** | **1pt \* 1 \* 6mins = 6 minutes** |

**User Story 6 — Win/Loss States**

**As a user…**  
I want the game to end when I reveal a mine or click the last empty tile and reveal all mines if I click one…  
So that I can win or lose the game, see the solution, and maybe move on to the next game.

**Task Breakdown:  
Create loss Condition - (simple)**

**Create victory Condition - (average)**

**Reveal mines - (simple)**

**Prompt new round - (simple)**

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| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| **Loss condition** | **Charley Findling (familiar)** | **1pt \* 1 \* 6 mins = 6 minutes** |
| **Win condition** | **Charley Findling (unfamiliar)** | **5pts \* 1.2 \* 6 mins = 36 minutes** |
| **Reveal mines** | **Charley Findling (familiar)** | **1pt \* 1 \* 6 mins = 6 minutes** |
| **Prompt new round** | **Charley Findling (familiar)** | **1pt \* 1 \* 6 mins = 6 minutes** |