# **Minesweeper Project P2**

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 — Sound Effects**

**As a player…**I want to hear sound effects while playing the game  
So that I can be more engaged in the action.

**Task Breakdown:**

**Create and include unflag sound (simple)**

**Create and include cell click sound (simple)**

**Create and include mine click sound (simple)**

**Create and include flag sound effect (simple)**

| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| --- | --- | --- |
| **Unflag Sound** | **Charley Findling (unfamiliar)** | **1pt \* 1.2 \* 6 mins = 7.2 minutes** |
| **Click Sound** | **Daniel Butler (unfamiliar)** | **1pt \* 1.2 \* 6mins = 7.2 minutes** |
| **Mine Sound** | **Beckett Malinowski (unfamiliar)** | **1pt \* 1.2 \* 6mins = 7.2 minutes** |
| **Flag Sound** | **Jack Gerety (unfamiliar)** | **1pt \* 1.2 \* 6min = 7.2 minutes** |

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### **User Story 2 — Easy Mode Bot**

**As a player…**I want to play with an easy mode bot  
So that I can face an extra challenge with a teammate that picks random squares to mine.

**Task Breakdown:  
Randomly select a tile to reveal (simple)**

| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| --- | --- | --- |
| **Randomly Select a tile to reveal** | **Beckett Malinowski (unfamiliar)** | **1pt \* 1.2 \* 6 mins = 7.2 minutes** |

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### **User Story 3 — Medium Mode Bot**

**As a user…**I want to play with a medium mode bot  
So that I can get some help, but not too much.

**Task Breakdown:**

**Inspect each tile (average)**

**Apply rule 1 (complex): If the number of hidden neighbors of a revealed cell equals that cell’s number, the AI should flag all hidden neighbors**

**Apply rule 2 (complex): If the number of flagged neighbors of a revealed cell equals that cell’s number, the AI should open all other hidden neighbors**

| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| --- | --- | --- |
| **Inspect each tile** | **Skylar Franz (unfamiliar)** | **10pts \* 1.2 \* 6mins = 72 minutes** |
| **Apply rule 1** | **Skylar Franz (unfamiliar)** | **10pts \* 1.2 \* 6mins = 72 minutes** |
| **Apply rule 2** | **Skylar Franz (unfamiliar)** | **10pts \* 1.2 \* 6mins = 72 minutes** |

**User Story 4 — Hard Mode Bot**

**As a user…**I want to play with a hard mode bot  
So that I can get help by a strong bot that will flag more cells for me.

**Task Breakdown:**

**Inspect each tile (average)**

**Apply rule 1 (complex)**

**Apply rule 2 (complex)**

**Apply 121 rule (complex)**

| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| --- | --- | --- |
| **Inspect each tile** | **Daniel Butler (unfamiliar)** | **5pts \* 1.2 \* 6mins = 36 minutes** |
| **Apply rule 1** | **Daniel Butler (unfamiliar)** | **10pts \* 1.2 \* 6mins = 72 minutes** |
| **Apply rule 2** | **Daniel Butler (unfamiliar)** | **10pts \* 1.2 \* 6mins = 72 minutes** |
| **Apply 121 rule** | **Daniel Butler (unfamiliar)** | **10pts \* 1.2 \* 6mins = 72 minutes** |
| **121 rule bugfix** | **Charley Findling (unfamiliar)** | **5pts \* 1.2 \* 6 mins = 36 minutes** |

### **User Story 5 — Bot Game State**

**As a user…**I want to choose to have a bot play automatically or interactively or not at all  
So that I can play against it, play with me or by itself, or play by myself

**Task Breakdown:**

**Choose between auto, interactive, or no bot (average)**

**Turn taking state in the case of interactive mode (average)**

**Determine a winner in the case of interactive mode (simple)**

| **Tasks** | **Assigned To + Familiarity** | **Time Estimate** |
| --- | --- | --- |
| **Auto/Interactive/None choice** | **Beckett Malinowski (unfamiliar)** | **5pts \* 1.2 \* 6min = 36 minutes** |
| **Turn taking state** | **Beckett Malinowski (unfamiliar)** | **5pts \* 1.2 \* 6mins = 36 minutes** |
| **Bot win state** | **Daniel Butler (familiar)** | **1pts \* 1 \* 6min = 6 minutes** |