Project 1 User Stories (Estimates Included)

Anchor Story(Used for User Story Estimations):

- **Hint Message Printing is worth 1 Story Point.**
- Rationale: Adding a print() statement is relatively simple, and every teammate has had to complete an action like this before.
- We concluded that implementing a print statement would take at most **3 minutes (0.05 hours) for estimation purposes.**

Methodology:

- The team forms estimations using the planning poker process, using the **Anchor Story** as a reference for story point assignment.

Game Grid Generation

User Stories:

- (1.1) **"As a player, I want the game to generate a 10 by 10 grid containing 10 to 20 mines as I specify, so I can control the difficulty of the game."**
    - **Story Points: 8 → 0.4 hours**
- (1.2) **"As a player, I want the mine generation to not place a mine on the first cell I select, so that the game does not end immediately after one move."**
    - **Story Points: 5 → 0.25 hours**

Cell Selection/Grid Update

User Stories:

- (2.1) **"As a player, I want the game to reveal the number of adjacent mines if I select a covered cell with adjacent mines, so I can have hints about mine locations."**
    - **Story Points: 1 → 0.05 hours**
- (2.2) **"As a player, I want the game to recursively uncover adjacent cells when I uncover a non-mined cell with no adjacent mines, so that I can finish the game faster."**
    - **Story Points: 3 → 0.15 hours**
- (2.3) **"As a player, I want the game to reveal all mines and end with a 'Game Over' status if I select a cell with a mine, so that there is a risk of failure in the game."**
    - **Story Points: 2 → 0.1 hours**

- ○ **(2.4) "As a player, I want the game to end with a status of 'Victory' if I uncover all non-mine cells so that I can complete the game."**
  - ■ **Story Points: 2 → 0.1 hours**
- ○ **(2.5) "As a player, I want quality of life improvement such as using emojis instead of * and F"**
  - ■ **Story Points: 2 → 0.1 hours**

Flagging/Unflagging Suspected Mines

User Stories:

- ○ **(3.1) "As a player, I want to be able to flag a <u>covered</u> cell that I suspect contains a mine, so that I don't accidentally uncover it while playing."**
  - ■ **Story Points: 2 → 0.1 hours**
- ○ **(3.2) "As a player, I want to be able to unflag a flagged cell, so that I can use that flag on another cell."**
  - ■ **Story Points: 1 → 0.05 hours**

Game Status Tracking/Display

User Stories:

- ○ **(4.1) "As a player, I want to see the current state of the grid and the number of remaining mines, flags, and the game status (Playing, Victory, Game Over), so that I know where I stand in the game."**
  - ■ **Story Points: 2 → 0.1 hours**
- ○ **(4.2) "As a player, I want to see the current amount of time that has elapsed since starting the game so I can monitor how fast or slow I am playing the game."**
 - ■ **Story Points: 5 → 0.25 hours**

Initial Game Instructions

User Stories:

- ○ **(5.1) "As a player, I would like to see an instruction message explaining controls so I can quickly understand the game."**
  - ■ **Story Points: 1 → 0.05 hours**
- ○ **(5.2) "As a player who has never played Minesweeper before, I want the program to display an introductory message before the game."**
  - ■ **Story Points: 1 → 0.05 hours**

Estimated Time vs Actual Time

Estimated Time and Actual Time

■ Estimated Time   ■ Actual Time
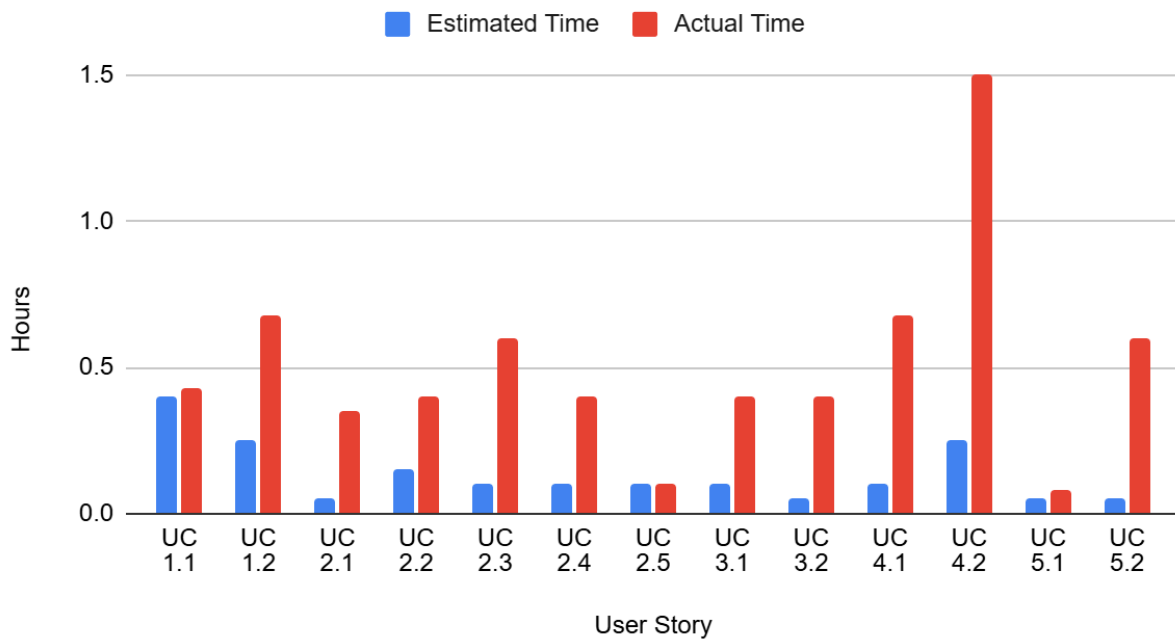
Our estimates were generally far lower than the actual effort. Future estimates could use a more helpful reference story.