Estimate of Person-Hour Methodology

Early in our project, our team established a reference story as our foundation to provide a basis for our time estimates. Instead of using a spike story, which might have introduced uncertainty due to its non-technical nature, we selected a small, technical, and well-defined piece of work that was simple to implement. This became our model/reference for all further estimation.
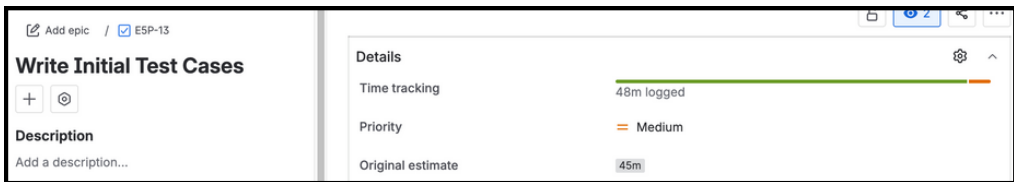

Figure 1: Jira Ticket for Reference Story

Figure 2: Initial Test Case Implementation in Code

The reference story was documented as a ticket (Figure 1) with an estimated length of 45 minutes. The implementation was in code (Figure 2). Because the ticket was simple and quantifiable, it gave us confidence to use it as a standard measuring stick for all other stories.

From then on, every new story we created was time-estimated against this baseline. As an example, if a new story looked to be twice as complex as the baseline, we would estimate it at around 90 minutes. If it was half as complex, we would estimate in the range of 20 minutes. This estimating technique was in line with agile techniques and served to be helpful in giving team consistency.

In addition to the baseline reference, we also used our previous implementation experience and spike research. This provided additional context when evaluating stories that were less familiar or had more unknowns. Combining these two variables, relative estimation against a known base and knowledge from prior experience, enabled us to generate estimates that were reasonable and understandable.

Project: EECS 581 Project

	Ticket Key	Summary	Assignee	Reporter	Status	Created Date	Completed Date	Original Estimate	Actual Time Spent
☑	E5P-9	Explore CI/CD Pipelines	Nifemi Lawal	Nifemi Lawal	DONE	03/Sep/25	04/Sep/25	1 hour	1 hour, 25 minutes
☑	E5P-10	Explore Jira API - Spreadsheet Integration	Nifemi Lawal	Nifemi Lawal	DONE	03/Sep/25	03/Sep/25	1 hour	34 minutes
☑	E5P-11	Create Flowchart	Logan Smith	Nifemi Lawal	DONE	03/Sep/25	21/Sep/25	2 hours	1 hour, 30 minutes
☑	E5P-12	Create Systems Architecture Diagram	Blake Carlson	Nifemi Lawal	DONE	03/Sep/25	21/Sep/25	2 hours	1 hour, 45 minutes
☑	E5P-13	Write Initial Test Cases	Delroy Wright	Nifemi Lawal	DONE	03/Sep/25	21/Sep/25	45 minutes	48 minutes
☑	E5P-14	Start UI	Delroy Wright	Delroy Wright	DONE	03/Sep/25	04/Sep/25	1 hour	47 minutes
☑	E5P-15	Explore Jira x GitHub Integration	Logan Smith	Nifemi Lawal	DONE	03/Sep/25	21/Sep/25	1 hour	30 minutes
☑	E5P-16	Create a main file to start from	Jack Bauer	Jack Bauer	DONE	03/Sep/25	05/Sep/25	2 hours	1 hour
☑	E5P-18	Team Meeting 1 (Non-scrum)	Jack Bauer	Jack Bauer	DONE	03/Sep/25	08/Sep/25	1 hour	2 hours
☑	E5P-19	Add user input processing to UI	Delroy Wright	Delroy Wright	DONE	03/Sep/25	21/Sep/25	30 minutes	30 minutes
☑	E5P-20	Determine Click Requirement	Delroy Wright	Delroy Wright	DONE	04/Sep/25	21/Sep/25	15 minutes	10 minutes

	Ticket Key	Summary	Assignee	Reporter	Status	Created Date	Completed Date	Original Estimate	Actual Time Spent
☑	E5P-21	Configure Jira Board	Blake Carlson	Blake Carlson	DONE	04/Sep/25	21/Sep/25	45 minutes	1 hour
☑	E5P-23	Create Actual & Estimated Person-Hours Document	Nifemi Lawal	Blake Carlson	DONE	04/Sep/25	21/Sep/25	1 hour	30 minutes
☑	E5P-25	Investigate Click Support & Transfer to new Library if needed	Delroy Wright	Delroy Wright	DONE	08/Sep/25	21/Sep/25	30 minutes	30 minutes
☑	E5P-26	Connect GitHub to Jira	Nifemi Lawal	Nifemi Lawal	DONE	08/Sep/25	08/Sep/25	40 minutes	57 minutes
☑	E5P-27	Implement main game loop	Jack Bauer	Blake Carlson	DONE	09/Sep/25	14/Sep/25	1 hour	2 hours
☑	E5P-28	Allow custom mine count	Nifemi Lawal	Blake Carlson	DONE	09/Sep/25	21/Sep/25	30 minutes	25 minutes
☑	E5P-29	Create function to process Cell Array and Display Map	Delroy Wright	Delroy Wright	DONE	11/Sep/25	21/Sep/25	2 hours	2 hours
☑	E5P-30	Create Cell Left Click Function to Update Adjacent Cells	Blake Carlson	Delroy Wright	DONE	11/Sep/25	20/Sep/25	2 hours, 30 minutes	2 hours, 15 minutes
☑	E5P-31	Create function to count & display number of bombs in adjacent cells	Delroy Wright	Delroy Wright	DONE	11/Sep/25	21/Sep/25	30 minutes	1 day, 1 hour, 35 minutes
☑	E5P-32	Create recursive cell triggering function	Blake Carlson	Delroy Wright	DONE	11/Sep/25	21/Sep/25	3 hours	2 hours, 30 minutes
☑	E5P-33	Create Start Screen, allow user to specify # mines,	Nifemi Lawal	Delroy Wright	DONE	11/Sep/25	15/Sep/25	1 hour, 5 minutes	3 hours

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☑	E5P-35	Create Initial Game State	Logan Smith	Delroy Wright	DONE	11/Sep/25	21/Sep/25	1 hour	2 hours
☑	E5P-36	Create function to randomly place mines in the map	Blake Carlson	Delroy Wright	DONE	11/Sep/25	21/Sep/25	30 minutes	45 minutes
☑	E5P-37	Create CheckWin function to check for W/L and Update Game State	Delroy Wright	Delroy Wright	DONE	11/Sep/25	21/Sep/25	30 minutes	15 minutes
☑	E5P-39	Refactor Frontend & GameManager so that frontend own and updates the GameManager	Delroy Wright	Delroy Wright	DONE	11/Sep/25	21/Sep/25	2 hours	1 hour
☑	E5P-40	Create Game Win Screen	Nifemi Lawal	Delroy Wright	DONE	11/Sep/25	16/Sep/25	1 hour, 15 minutes	1 hour, 30 minutes
☑	E5P-41	Create Game Loss Screen	Nifemi Lawal	Delroy Wright	DONE	11/Sep/25	16/Sep/25	1 hour, 15 minutes	30 minutes
☑	E5P-42	Connect frontend and backend	Jack Bauer	Jack Bauer	DONE	14/Sep/25	15/Sep/25	2 hours	2 hours, 30 minutes
☑	E5P-43	Add shell script that wraps the run function so it's easier to launch the game	Jack Bauer	Jack Bauer	DONE	15/Sep/25	18/Sep/25	1 hour	1 hour, 45 minutes
☑	E5P-44	Create Game Start Screen	Delroy Wright	Jack Bauer	DONE	15/Sep/25	19/Sep/25	2 hours	1 hour, 45 minutes
☑	E5P-45	Allow screen resizing	Nifemi Lawal	Jack Bauer	DONE	15/Sep/25	16/Sep/25	30 minutes	40 minutes

	Ticket Key	Summary	Assignee	Reporter	Status	Created Date	Completed Date	Original Estimate	Actual Time Spent
☑	E5P-46	Refine Game Status Indicator - Make One Word	Nifemi Lawal	Jack Bauer	DONE	15/Sep/25	18/Sep/25	30 minutes	5 minutes
☑	E5P-47	Display remaining mines correctly	Blake Carlson	Jack Bauer	DONE	15/Sep/25	20/Sep/25	1 hour	30 minutes
☑	E5P-48	Clicking space does not display as "clicked" in the UI	Jack Bauer	Jack Bauer	DONE	15/Sep/25	18/Sep/25	30 minutes	20 minutes
☑	E5P-49	Pressing "f" to place a flag does not actually place the flag	Nifemi Lawal	Jack Bauer	DONE	15/Sep/25	18/Sep/25	1 hour	3 minutes
☑	E5P-50	Place the correct amount of mines on the board	Blake Carlson	Jack Bauer	DONE	15/Sep/25	20/Sep/25	1 hour	2 hours
☑	E5P-51	Make first click safe	Delroy Wright	Logan Smith	DONE	16/Sep/25	21/Sep/25	1 hour	1 hour
☑	E5P-53	Display the number of remaining flags	Nifemi Lawal	Nifemi Lawal	DONE	18/Sep/25	18/Sep/25	20 minutes	6 minutes
☑	E5P-54	Bugfix: Ensure that right-clicking on a mine to put a flag on it doesn't reveal a mine	Nifemi Lawal	Nifemi Lawal	DONE	18/Sep/25	18/Sep/25	20 minutes	1 hour, 15 minutes
☑	E5P-55	Add check for winning the game	Logan Smith	Blake Carlson	DONE	18/Sep/25	19/Sep/25	1 hour	2 hours
☑	E5P-56	Update Generate_mines to change # of mines specified	Delroy Wright	Delroy Wright	DONE	18/Sep/25	21/Sep/25	30 minutes	30 minutes
☑	E5P-58	Switch columns to index by alphabet and rows to index by number	Jack Bauer	Jack Bauer	DONE	18/Sep/25	18/Sep/25	15 minutes	15 minutes

	Ticket Key	Summary	Assignee	Reporter	Status	Created Date	Completed Date	Original Estimate	Actual Time Spent
☑	E5P-59	Update loss screen to show board, reveal all cells, and no longer take board input	Logan Smith	Logan Smith	DONE	18/Sep/25	21/Sep/25	30 minutes	15 minutes
☑	E5P-60	Too small of a terminal width will stop GameStatus from being displayed.	Delroy Wright	Jack Bauer	DONE	18/Sep/25	21/Sep/25	30 minutes	4 hours, 30 minutes
☑	E5P-61	Limit the possible number of mines to 10-20 & Comment all of 'run_tui.py'	Logan Smith	Jack Bauer	DONE	18/Sep/25	21/Sep/25	3 hours	3 hours
☑	E5P-62	Move status indicator to center top above the minesweeper board and persist it throughout all screens	Delroy Wright	Jack Bauer	DONE	18/Sep/25	21/Sep/25	30 minutes	4 hours, 30 minutes
☑	E5P-63	Fix quit requiring 2 "q" presses.	Logan Smith	Logan Smith	DONE	19/Sep/25	21/Sep/25	1 hour, 30 minutes	1 hour
☑	E5P-64	Update win screen to show board, reveal mines, and no longer take board input	Logan Smith	Logan Smith	DONE	19/Sep/25	21/Sep/25	1 hour, 30 minutes	1 hour
☑	E5P-65	Resizing the terminal causes textual glitches	Jack Bauer	Jack Bauer	DONE	19/Sep/25	21/Sep/25	1 hour	15 minutes
☑	E5P-66	Revise code comments and cleanup dead code	Jack Bauer	Jack Bauer	DONE	19/Sep/25	21/Sep/25	1 hour	1 hour, 30 minutes
☑	E5P-67	Remove all flags on game loss	Delroy Wright	Delroy Wright	DONE	19/Sep/25	21/Sep/25	30 minutes	10 minutes

	Ticket Key	Summary	Assignee	Reporter	Status	Created Date	Completed Date	Original Estimate	Actual Time Spent
☑	E5P-68	Create function to remove all flags when a game is lost	Delroy Wright	Nifemi Lawal	DONE	19/Sep/25	21/Sep/25	1 hour	1 hour
☑	E5P-69	Fix resize crash on win / loss screen	Jack Bauer	Jack Bauer	DONE	19/Sep/25	19/Sep/25	30 minutes	15 minutes
☑	E5P-70	Consolidate Remaining Mine Count and Flag Count displays	Nifemi Lawal	Jack Bauer	DONE	19/Sep/25	20/Sep/25	20 minutes	5 minutes
☑	E5P-71	Fix first-click flag functionality	Blake Carlson	Nifemi Lawal	DONE	19/Sep/25	20/Sep/25	30 minutes	15 minutes
☑	E5P-72	Update Mac Build	Nifemi Lawal	Nifemi Lawal	DONE	20/Sep/25	21/Sep/25	10 minutes	10 minutes
☑	E5P-73	Update Linux and Windows Builds	Jack Bauer	Nifemi Lawal	DONE	20/Sep/25	21/Sep/25	15 minutes	30 minutes
☑	E5P-74	Update UI to reflect mine count limit	Jack Bauer	Jack Bauer	DONE	21/Sep/25	21/Sep/25	15 minutes	30 minutes