

Estimate of Person-Hour Methodology, P2

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.

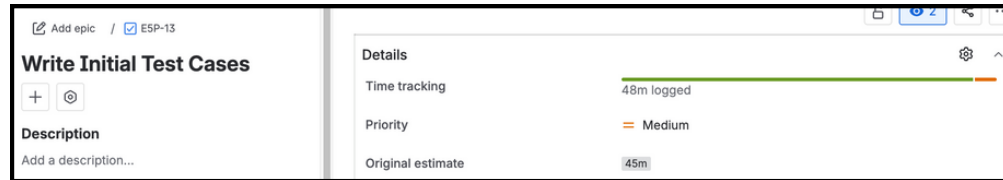


Figure 1: Jira Ticket for Reference Story

```
test/test_sweeper.py
... @@ -0,0 +1,25 @@
1 + from src import main
2 + import pytest
3 +
4 + @pytest.fixture
5 + def fresh_game():
6 +     game = main.GameState()
7 +     print(game)
8 +     return game
9 +
10 + def test_new_game(fresh_game):
11 +     assert fresh_game.game_status == fresh_game.game_statuses[0]
```

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.

Since this project was an extension of our first one and focused on similar technical work within a short time frame, we decided to keep using the same estimation approach from Part 1. The process was already well-suited for our workflow and helped keep our time estimates consistent across both projects.

Project: [EECS 581 Project 2](#)

T	Ticket Key	Summary	Assignee	Reporter	Status	Created Date	Completed Date	Original Estimate	Actual Time Spent
<input checked="" type="checkbox"/>	E5P2-39	Add needed prologue comments	Jack Bauer	Jack Bauer	DONE	04/Oct/25	04/Oct/25	15 minutes	30 minutes
<input checked="" type="checkbox"/>	E5P2-38	Add prologue + comments for ai.py	Blake Carlson	Blake Carlson	DONE	04/Oct/25	04/Oct/25	45 minutes	1 hour, 30 minutes
<input checked="" type="checkbox"/>	E5P2-37	Fix small SFX crash regression	Jack Bauer	Jack Bauer	DONE	02/Oct/25	02/Oct/25	15 minutes	10 minutes
<input checked="" type="checkbox"/>	E5P2-36	Add mute button + now playing	Delroy Wright	Delroy Wright	DONE	02/Oct/25	02/Oct/25	1 hour	1 hour, 15 minutes
<input checked="" type="checkbox"/>	E5P2-35	Make dark-light mode toggle	Nifemi Lawal	Nifemi Lawal	DONE	02/Oct/25	02/Oct/25	1 hour	3 hours
<input checked="" type="checkbox"/>	E5P2-34	Fix Program Stalling in Medium AI Mode	Blake Carlson	Blake Carlson	DONE	02/Oct/25	02/Oct/25	45 minutes	1 hour, 15 minutes
<input checked="" type="checkbox"/>	E5P2-33	Fix AI Medium Difficulty	Blake Carlson	Blake Carlson	DONE	01/Oct/25	02/Oct/25	1 hour, 30 minutes	2 hours, 30 minutes
<input checked="" type="checkbox"/>	E5P2-32	Display Whose Turn (AI mode)	Jack Bauer	Logan Smith	DONE	01/Oct/25	02/Oct/25	30 minutes	15 minutes
<input checked="" type="checkbox"/>	E5P2-31	Fix game loop input blocking	Jack Bauer	Jack Bauer	DONE	01/Oct/25	01/Oct/25	1 hour, 30 minutes	1 hour
<input checked="" type="checkbox"/>	E5P2-30	Solve SFX init failure bug	Jack Bauer	Jack Bauer	DONE	01/Oct/25	01/Oct/25	1 hour	20 minutes

T	Ticket Key	Summary	Assignee	Reporter	Status	Created Date	Completed Date	Original Estimate	Actual Time Spent
<input checked="" type="checkbox"/>	E5P2-29	Display AI game mode on playing screen - NOT IMPLEMENTED	Jack Bauer	Nifemi Lawal	DONE	01/Oct/25	02/Oct/25	45 minutes	10 minutes
<input checked="" type="checkbox"/>	E5P2-28	Make AI Solver Class	Blake Carlson	Blake Carlson	DONE	30/Sep/25	02/Oct/25	30 minutes	45 minutes
<input checked="" type="checkbox"/>	E5P2-27	Get Difficulty linked to AI	Logan Smith	Logan Smith	DONE	30/Sep/25	01/Oct/25	2 hours	2 hours
<input checked="" type="checkbox"/>	E5P2-26	Investigate sfx inconsistency bug	Delroy Wright	Delroy Wright	DONE	30/Sep/25	02/Oct/25	30 minutes	30 minutes
<input checked="" type="checkbox"/>	E5P2-25	Create High Score Functionality	Nifemi Lawal	Nifemi Lawal	DONE	30/Sep/25	30/Sep/25	40 minutes	1 hour
<input checked="" type="checkbox"/>	E5P2-24	Manual player-only mode	Jack Bauer	Jack Bauer	DONE	29/Sep/25	01/Oct/25	1 hour	10 minutes
<input checked="" type="checkbox"/>	E5P2-23	Add backdrop for win/loss screen	Nifemi Lawal	Nifemi Lawal	DONE	29/Sep/25	29/Sep/25	45 minutes	1 hour, 25 minutes
<input checked="" type="checkbox"/>	E5P2-22	Update architecture docs to include AI, custom features & UML diagram	Logan Smith	Jack Bauer	DONE	29/Sep/25	05/Oct/25	1 hour	1 hour
<input checked="" type="checkbox"/>	E5P2-21	Person hours actual & estimate	Nifemi Lawal	Jack Bauer	DONE	29/Sep/25	05/Oct/25	30 minutes	20 minutes
<input checked="" type="checkbox"/>	E5P2-20	Add game timer	Nifemi Lawal	Nifemi Lawal	DONE	29/Sep/25	30/Sep/25	2 hours	3 hours
<input checked="" type="checkbox"/>	E5P2-19	Add SFX	Delroy Wright	Delroy Wright	DONE	29/Sep/25	02/Oct/25	2 hours	3 hours

T	Ticket Key	Summary	Assignee	Reporter	Status	Created Date	Completed Date	Original Estimate	Actual Time Spent
<input checked="" type="checkbox"/>	E5P2-18	Make archive branch	Jack Bauer	Jack Bauer	DONE	28/Sep/25	28/Sep/25	10 minutes	5 minutes
<input checked="" type="checkbox"/>	E5P2-17	Difficulty selection menu	Jack Bauer	Jack Bauer	DONE	28/Sep/25	28/Sep/25	1 hour	1 hour, 1 minute
<input checked="" type="checkbox"/>	E5P2-16	UML Diagram for custom addition	Logan Smith	Jack Bauer	DONE	28/Sep/25	30/Sep/25	1 hour	1 hour
<input checked="" type="checkbox"/>	E5P2-15	AI Hard Difficulty	Blake Carlson	Jack Bauer	DONE	28/Sep/25	01/Oct/25	1 hour	1 hour
<input checked="" type="checkbox"/>	E5P2-14	AI Medium Difficulty	Blake Carlson	Jack Bauer	DONE	28/Sep/25	01/Oct/25	3 hours	3 hours, 30 minutes
<input checked="" type="checkbox"/>	E5P2-13	AI Easy difficulty	Blake Carlson	Jack Bauer	DONE	28/Sep/25	01/Oct/25	1 hour	45 minutes
<input checked="" type="checkbox"/>	E5P2-12	Automatic AI mode	Logan Smith	Jack Bauer	DONE	28/Sep/25	01/Oct/25	1 hour	1 hour
<input checked="" type="checkbox"/>	E5P2-11	Interactive mode	Logan Smith	Jack Bauer	DONE	28/Sep/25	01/Oct/25	1 hour	1 hour
<input checked="" type="checkbox"/>	E5P2-10	Mode selection menu	Jack Bauer	Jack Bauer	DONE	28/Sep/25	29/Sep/25	30 minutes	45 minutes
<input checked="" type="checkbox"/>	E5P2-9	Fix Initial Game State Bug	Nifemi Lawal	Nifemi Lawal	DONE	26/Sep/25	26/Sep/25	30 minutes	25 minutes
<input checked="" type="checkbox"/>	E5P2-8	Add Folders to Repository	Nifemi Lawal	Nifemi Lawal	DONE	25/Sep/25	26/Sep/25	10 minutes	12 minutes

T	Ticket Key	Summary	Assignee	Reporter	Status	Created Date	Completed Date	Original Estimate	Actual Time Spent
<input checked="" type="checkbox"/>	E5P2-7	Create Profile Picture Upload Functionality	Nifemi Lawal	Nifemi Lawal	DONE	25/Sep/25	26/Sep/25	1 hour	2 hours, 20 minutes
<input checked="" type="checkbox"/>	E5P2-5	Create Login/Guest Functionality	Nifemi Lawal	Nifemi Lawal	DONE	25/Sep/25	26/Sep/25	3 hours	3 hours, 18 minutes
<input checked="" type="checkbox"/>	E5P2-3	Code Refactor	Delroy Wright	Delroy Wright	DONE	23/Sep/25	25/Sep/25	30 minutes	45 minutes
<input checked="" type="checkbox"/>	E5P2-2	Connect Jira to Forked GitHub Repo	Nifemi Lawal	Nifemi Lawal	DONE	22/Sep/25	30/Sep/25	30 minutes	45 minutes