Documentation of Work:

9/20: First Team Meeting (4:50 - 6pm) - All members

- Looked at project requirements, deadlines, team roles
    - Inherited Team 14's project: https://github.com/micahborg/eecs581project1
    - Sent our project to team 42
- Discussed member performance
    - How well did each member perform in their respective roles
    - If they want to switch their role for Project 2
        - Decided that everyone was happy with the role they had, and want to do the same role for project 2
- Designated roles to each team member
    - Priyatam - Scrum Master/ Team Leader
    - Abinav - Main Developer
    - Ojas - Assistant Developer
    - Liv - Tester
    - Ansh - Documentation / Commenting
- Figured out meeting times for every day this week using last week's schedule
- Looked over Team 14's repository documentation
- Made rough outline on how we could refactor the code so that we can create AI opponent and custom feature
- Below each day of documentation, a spreadsheet of each person's total hours for that day will show:

	Friday (9/20)
Ansh	1
Abinav	1
Liv	1
Priyatam	1
Ojas	1

9/23 Team 14 Project Analysis and Fixing Errors (3-6pm) - Abinav, Priyatam, Ansh, Liv

- Abinav, Priyatam, Ansh, Liv met up to start project 2 at 3:00 PM
    - Liv, Abinav, and Ansh firstly looked at team 14's code
        - Ran the code and compared output to Project 1 requirements (3-4pm)
    - Liv, Priyatam, and Ansh worked on a ship placement error (4-5:10pm)
    - Priyatam wrote down notes about team 14's code and what exactly they did not accomplish (5-6pm)
        - Liv helped in finding discrepancies in team 14's code (5:10-6pm)
        - i.e. If a ship was placed incorrectly, the program would keep going and didn't have a clause where you must place a ship in a correct position (other clause errors existed too)

	Monday (9/23)
Ansh	2
Abinav	1
Liv	3
Priyatam	2
Ojas	0

9/24 Fixing Errors (4-6pm) - Abinav, Liv, Priyatam, Ojas

- Abinav and Ojas spent two hours with Liv's help to fix the errors and get all required functionality from Project 1 working. (4:00 - 6:00 PM)
- After a few hours of trial and error, the finished code was given to Ojas for testing purposes.
- Ojas found a couple minor errors and made some quick changes.
- Priyatam monitored the whole process, adding comments when needed and documenting everything.
- Ojas then uploaded the updated code

	Tuesday (9/24)
Ansh	0
Abinav	2
Liv	1.5
Priyatam	1
Ojas	2

9/25 AI Opponent (7-10pm) - Ansh, Priyatam, Ojas

- Ansh and Priyatam started work on the easy difficulty of the AI opponent (7-7:30pm)
    - Ojas helped in coding and testing phases of this part of the AI opponent
- Ojas tested the easy difficulty (7:30-7:45pm)
    - He found a few errors, so Ansh fixed them fairly easily and got it working correctly (Ojas tested again and it worked correctly). Below are the bugs found during the testing process:
        - AI would skip turns if a hit occurred on the last cell of the grid.
        - Placement algorithms occasionally placed ships out of bounds despite passing validation checks.
- Ansh, Ojas and Priyatam moved on to the medium difficulty (8pm-9:00pm)
- Ojas tested the medium difficulty and found quite a few errors (9:10-9:25pm)
- Ansh, Ojas, and Priyatam made some progress on the errors, but did not get the medium difficulty working correctly (9:30-10pm)

	Wednesday (9/25)
Ansh	2
Abinav	0
Liv	0
Priyatam	2
Ojas	2.5

9/26 AI Opponent (12pm-5:30pm) - All Members

- Abinav and Liv spent time adjusting the AI's medium fire sequence logic (12-2pm)
- Ojas and Priyatam started on the hard difficulty of the AI opponent (12-2pm)
    - Priyatam fixed one problem and Ojas tested it, but found a new problem to be fixed
- Priyatam continued working on the hard difficulty of the AI opponent, and Ansh helped too (2-2:50pm)
    - Finished the hard difficulty, awaiting testing by Ojas
- Ojas and Abinav tested fire sequence logic of medium difficulty, and found that the AI wouldn't fire in orthogonal directions (2-2:30pm)
- Ojas, Ansh and Abinav continue working on this issue for the rest of the day (3-4:30pm)
    - Finished the medium difficulty, awaiting testing by Ojas
- Ansh continued updating comments in the code and documented the changes made during the session (4:30-5:30pm)
- The session ended with Ojas running tests on all the AI difficulties, which passed all basic tests for Easy, Medium, and Hard difficulty (4:30-5:20pm)

	Thursday (9/26)
Ansh	3.5
Abinav	4
Liv	2
Priyatam	3
Ojas	5

9/27 Custom Feature and Code Organization (6pm-12am) - All Members

- The entire team brainstormed a custom feature to do (6-7:00pm)
    - Custom feature ideas: sound effects, 3x3 bombs, animations, being able to rotate ships after placement, take out a whole row
    - The custom feature we decided on doing was that after one player gets a ‘hit’ on three straight turns, they can place a hit on an entire row of their choosing, i.e. fire at row 4, and all the dots in row 4 are fired at
- Priyatam started on readme file (7-8:20pm)
- Abinav and Ojas startedworking on custom feature, which is a function called airstrike (7-9:00pm)
    - Ojas prepared test cases to evaluate the custom feature (9-9:30pm)
        - Found an error where if there were three hits in a row (one by player 1, then one by player two, then one by player one again) instead of three in a row by just one player, it would give the airstrike feature to player one
        - More errors occurred as well
- Abinav, Liv, and Ansh worked on fixing custom feature errors and enhancing the UI for when the airstrike feature pops up (9-11:00pm)
    - Ansh continued documenting the development process, and made suggestions on code readability based on his observations.
        - He said to split up the code into multiple python files, so the code was committed with AI, board, game, main, ships, switch_players, and utilities files instead of one big file
- Ojas ran his test cases on the custom feature and it ran with zero errors (11-12:00am)

	Friday (9/27)
Ansh	3
Abinav	5
Liv	3
Priyatam	2.5
Ojas	4

9/29 Readme File and Testing (7-9:20pm) - Abinav, Ojas, Liv, Priyatam

- Ojas tested entire project 2 (7-8:10pm)
    - AI Opponent (all difficulties) - **PASSED WITH ZERO ERRORS**
    - Custom feature - **PASSED WITH ZERO ERRORS**
    - Other discrepancies from original team's code - **PASSED WITH ZERO ERRORS**
- Abinav, Liv, and Priyatam worked on readme file, ensuring all requirements that were given to us by the GTA were met (7-8:00pm)
    - System requirements - Done
    - How to Run - Done
    - Program Structure - Done
    - Game Setup - Done
    - Gameplay - Done
    - Custom Feature - Done
- Abinav, Liv, and Priyatam worked on the UML case diagram (8-9:00pm)
- Readme file and UML case diagram pdf were committed to the main branch, along with the documentation that Ansh finished (9:05pm)

	Sunday (9/29)
Ansh	0
Abinav	2
Liv	2
Priyatam	2
Ojas	1

Below is the full spreadsheet with all the days worked, with hours for each day, and total hours for each team member:

	Friday (9/20)	Monday (9/23)	Tuesday (9/24)	Wednesday (9/25)	Thursday (9/26)	Friday (9/27)	Sunday (9/29)	Total Hours
Ansh	1	2	0	2	3.5	3	0	11.5
Abinav	1	1	2	0	4	5	2	15
Liv	1	3	1.5	0	2	3	2	12.5
Priyatam	1	2	1	2	3	2.5	2	13.5
Ojas	1	0	2	2.5	5	4	1	15.5

Estimate Hours:

Priyatam: 10 hours

- Preparations for meetings (15 minutes per meeting)
    - I need to look at the project requirements, rubric, and plan on what we are going to talk about in each meeting, having a list of talking points
    - I need to figure out a time that we are all free to meet for each meeting
- Lead Meetings (around 30 minutes per meeting)
    - I will direct the meeting through each of the talking points and make sure everyone is on the same page
- Mini Meetings (15 minutes per meeting)
    - I will need to have a small meeting whenever there is a substantial update on the project, such as code development, testing, commenting, etc
- Development (6-8 hours)
    - I will definitely need to help in code development this time around because the requirements are longer than Project 1
    - I will need to help with coding, testing, commenting, and even documentation

Abinav: 10-12 hours

- Product Development (8-10 hours)
    - I am the main developer so I will be programming the majority of the project
    - This will take multiple sessions, and after making a skeleton code, I estimate the amount of code written in this project will be at least twice the amount as last project
    - So I think coding will take around 10-13 hours
- Communication
    - I have to communicate with Liv for development, and Priyatam for updates
    - With these tasks, I think it will take around 1-2 hours total

Liv: 10-12 hours

- Product Development (8-10 hours)
    - I'm the secondary developer, so I will be coding with Abi
    - I will clean up errors that come with coding, as well as errors that Ojas finds during testing
    - I think this will take around 8-10 hours

- Communication
    - I will be in constant communication with Abi, but also have to talk with Ojas if he finds errors
    - I believe this communication will probably take around a couple hours

Ansh: 10 hours

- Documentation
    - I will provide documentation for each meeting and be responsible for putting together the final write-up.
    - I will also be in charge of commenting on the program.
    - This will take around 4 hours due to the 3 meetings and an extra hour for commenting on the code.
- Developing
    - I will need to help with developing during this project because there is more to do
    - Therefore, helping in development will take around 5-6 hours

Ojas: 10-12 horus

- Testing
    - I will be helping Abi and Liv with the code by thoroughly testing it through all base cases.
    - I think this will take me around 4-5 hours but it depends on how many times they ask me to test for them.
- Developing
    - Since there is a lot to do, I will be helping with development, commenting, and suggesting ideas on how to fix errors that I find
    - I think this will take 5-6 hours