Project Summary
csci205_final_project

Project Details

Members

- Brooks Burt
- Connor Vucovich
- Liam Stott

Project Retrospective

What was your initial goal?

Our goal was to create a natural selection simulator.

What did you achieve?

We achieved a simulation of predators and prey, where prey eat food (assumed to be herbivores), and the predators eat the prey. Once they eat, they are allowed to replicate.

What went well in the project?

We ended with a program that is a week or two away from what I personally envisioned it as. I initially had the idea of the program being a Biology major and thought it would be a very cool implementation of some of the things we had been learning, but it may have been a bit more than I bargained for.
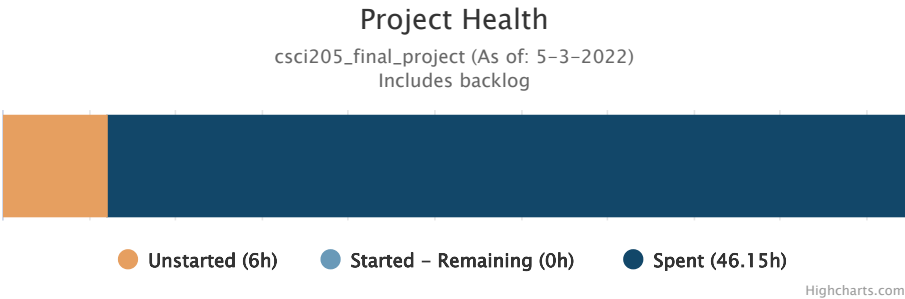
What could be improved?

If we had more knowledge of threading, this project would have seen massive improvements, too many times we were stuck because one or two lines of our threads were causing issues. We decided to shelve a lot of the functionality of the simulation for a working GUI and worked to ensure that the animals moved how we wanted them to move.

What would you change if you did the project again?

I think we would have two people heavily, heavily look into threading, while the other one deals with everything else. Throughout this project, each team member struggled on their own trying to understand and master threading which really just led to three people being incredibly mediocre while nothing else was being completed. Sprints 2+3 saw very little major progress because of this.

Charts

Health Bar

Project Health
csci205_final_project (As of: 5-3-2022)
Includes backlog

● Unstarted (6h)   ● Started – Remaining (0h)   ● Spent (46.15h)
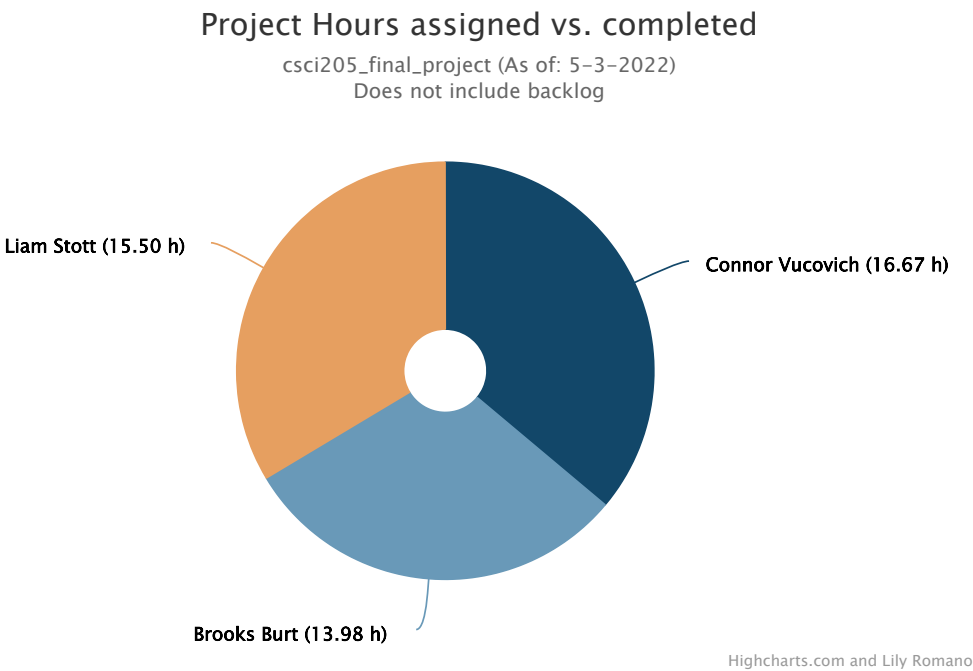
Highcharts.com

The core of our project was successfully completed; the team is very happy about that. Personally, as the initial ambitious designer of what our project would be and look like, I can't help but feel slightly disappointed it did not live up to where I wanted it to go. I think where we are right now was where I wanted to be a week ago in terms of progress. While part of the blame should definitely be directed towards me, we all could have dug a bit deeper towards more ambitious goals. In the end, the project health chart looks good. A few features weren't implemented, yet again the core of our project was achieved and designed properly.

Burndown Chart

Project Burndown Chart
csci205_final_project (As of: 5-3-2022)
Does not include backlog

Date
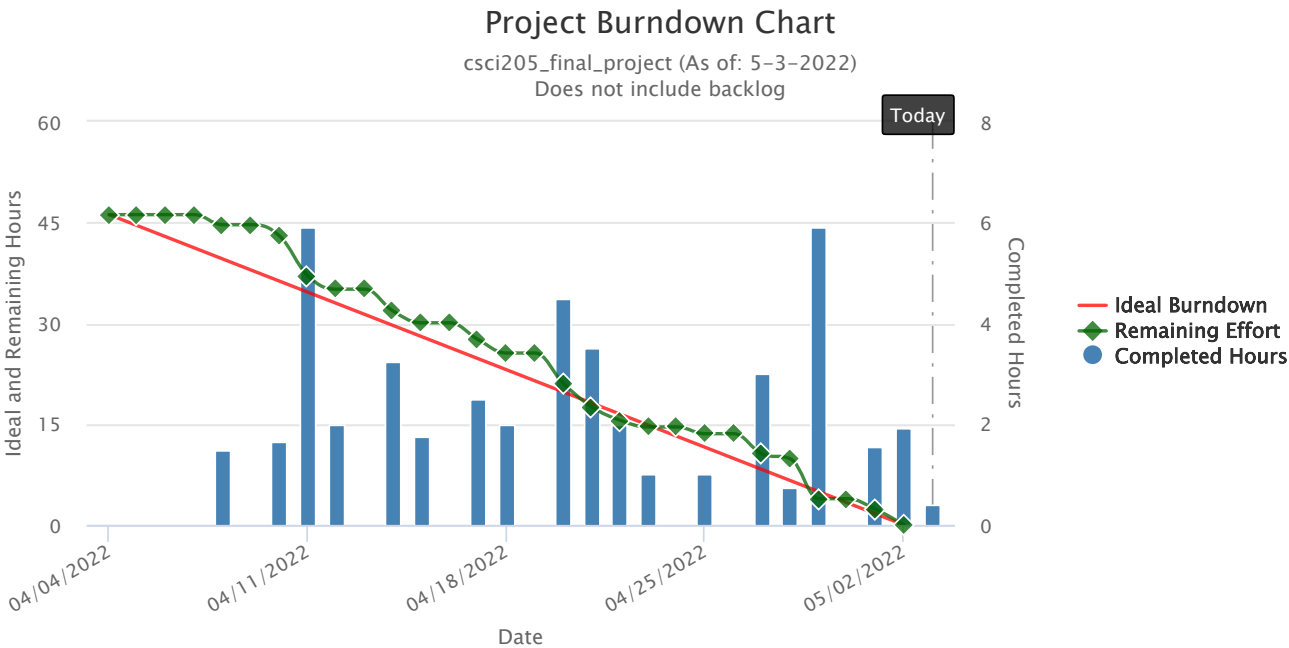
When we needed to catch up, we did so in major ways. At the end that's how this project felt. We were never ahead of where we wanted to be in terms of work done, or features added. We always played catch-up. Should we have tried to stay more on the ideal burndown path, sure, but I think our final product shows we did what we needed to do when we really needed it the most. Having two athletes on the team definitely made doing some of this work harder as schedules were constantly conflicting, and away games made remote work very difficult at times. If I were to redo this project I would like to see more of a consistent and smooth "remaining effort" decline to match the ideal burndown more closely, and maybe even dip below it as we get more ahead.

Assignee Chart

Project Hours assigned vs. completed
csci205_final_project (As of: 5-3-2022)
Does not include backlog

Liam Stott (15.50 h)

Connor Vucovich (16.67 h)

Brooks Burt (13.98 h)

I am happy to see in the end it seems we all pitched in our equal part. I also know as Scrum Master we did not properly assign some tasks and there were many tasks that may have been assigned that everyone spent long hours working on (threading, threading, threading). I think even the total hours spent on this project don't fully take into account the long hours trying and failing at such a frustrating concept.

Name	User Stories	Bugs	Tech. Tasks	Design Tasks	Spikes	Doc.
Brooks Burt	2	0	3	4.98	3.17	0.83
Connor Vucovich	0	0	4	3.5	8	1.17
Liam Stott	2	0	5	3.5	5	0

Sprints

Sprint 1

Dates:

4-4-2022 to 4-13-2022

Description:

Review:

What went well in the sprint?

We have a concrete idea of what we are going to be completing. Sprint 1 for us was very much just a time set aside to plan out what we are going to do, and what incremental steps we are going to take to achieve the goal.


What could be improved?

We could do a better job assigning work to specific team members.

Are you on track? What is your plan if not?

I think so. Sprint 2 will be a huge step in terms of actual coding, we will have a much better feeling of where we are by the end of Sprint 2.

What will you improve on in the next sprint?

Assigning large amounts of coding work to specific individuals in hopes we have some form of a concrete model to look at.

Sprint Burndown Chart

Sprint 1

Highcharts.com and Lily Romano
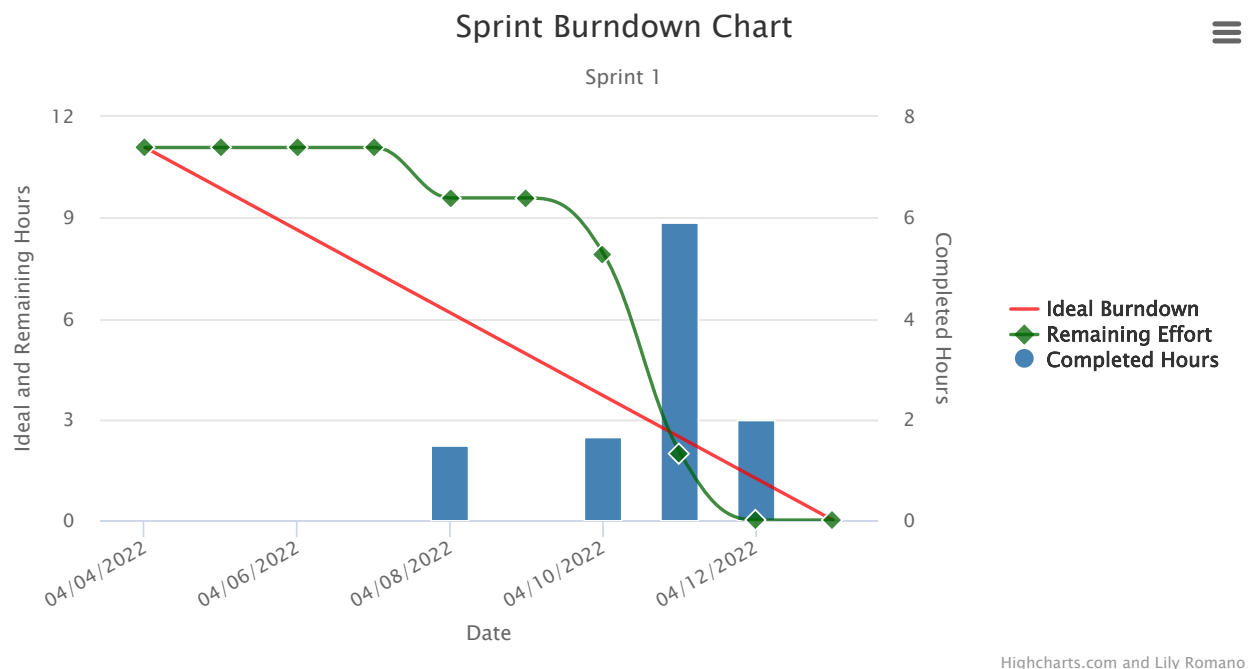
Sprint 2

Dates:

4-13-2022 to 4-18-2022

Review:

What went well in the sprint?

We did a better job assigning work and splitting up tasks to individual people. Those who did not have specific work assigned helped everyone else with their assigned tasks. This was also the first week of actual coding and we did a good job getting a ton of the framework down. I believe it will be exponentially easier to write the rest of our code and walk away with a product similar to what we initially envisioned.


What could be improved?

We could improve on really committing to a goal by the end of this next sprint. We fell a bit short this past sprint and I think it will help to motivate us.

Are you on track? What is your plan if not?

We are on track overall, we fell a bit short this past sprint but we will be where we wanted to be by classtime today by the end of the day. It seems we work best when collaborating together so planning on meeting to make sure all of our code is understandable, readable, and that we all comprehend it is important.

What will you improve on in the next sprint?

We will try to meet more often, be stricter with deadlines, and really try and create a rough draft of our final version by the end of the week to leave the final week for polishing.

Sprint Burndown Chart
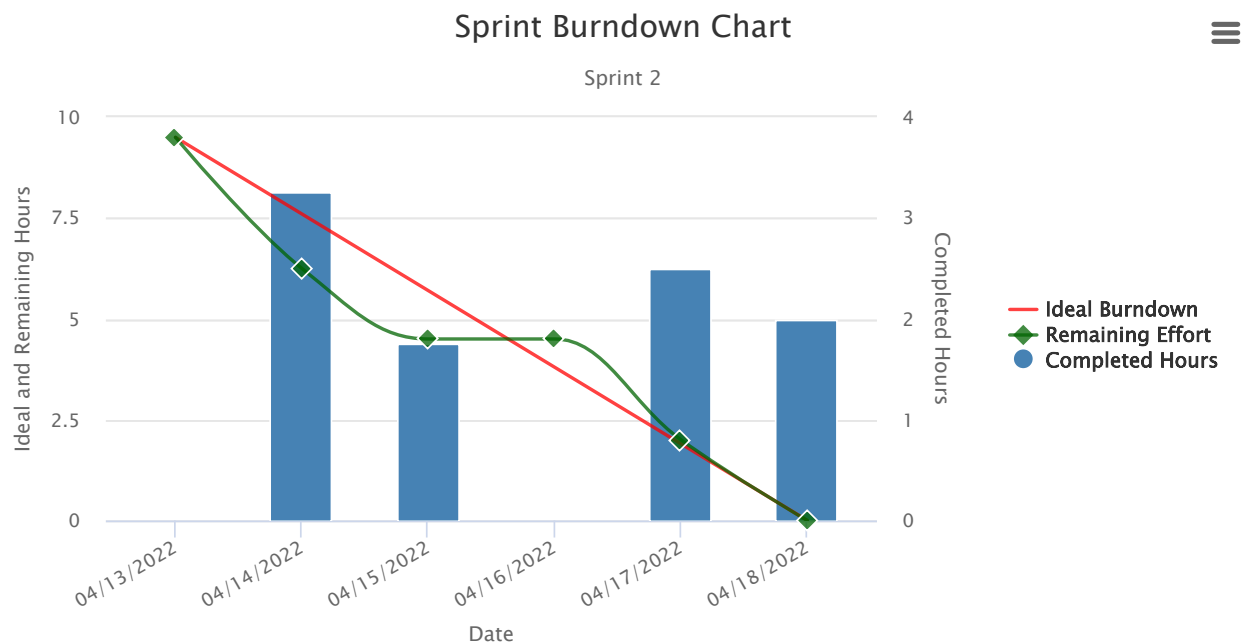
Sprint 2

Highcharts.com and Lily Romano

Sprint 3

Dates:

4-18-2022 to 4-25-2022

Goal:

Ability for species to interact, predators to eat prey, prey to eat food, and all animals to bounce around canvas.

Review:

What went well in the sprint?

We finally made thorough progress in threading and can run multiple animals simultaneously.


What could be improved?

We need to make significant progress in implementing the Predators and making sure the interaction between objects works.

Are you on track? What is your plan if not?

I would say we are definitely a bit behind. Threading set us back quite a ways.

What will you improve on in the next sprint?

Just make sure we finish strong, spend time being productive, and collaborate to make the work easier.

Sprint Burndown Chart

Sprint 3

Highcharts.com and Lily Romano
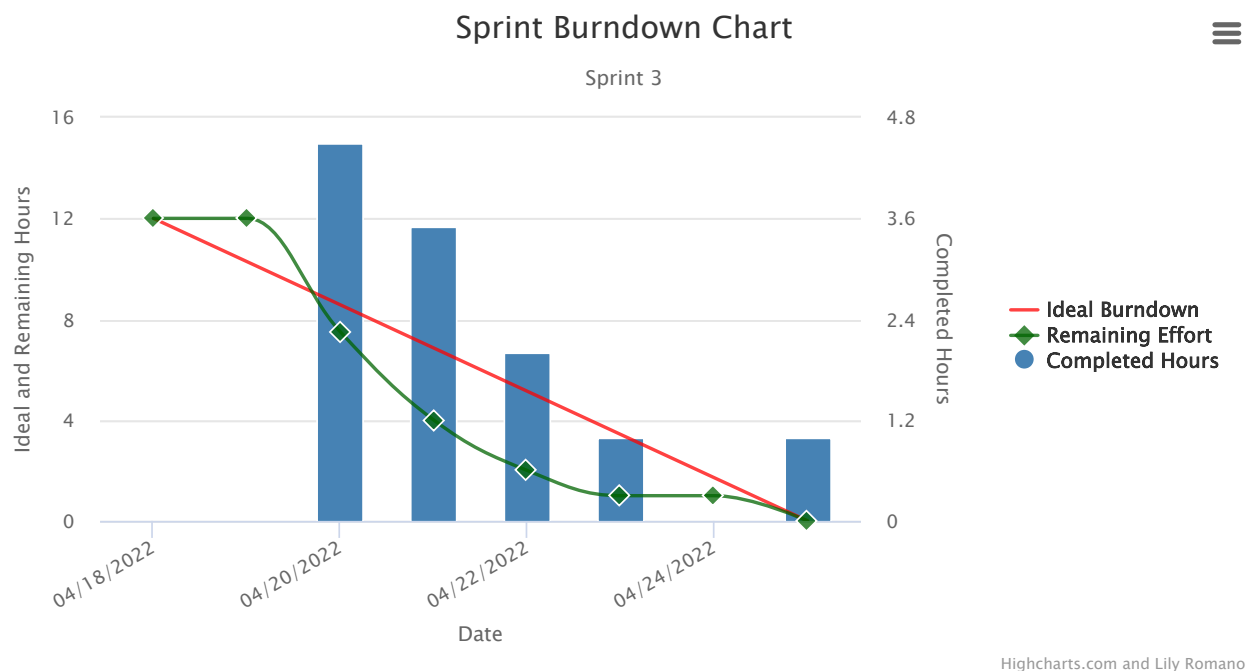
Sprint 4

Dates:

4-25-2022 to 5-2-2022

Goal:

FINISH STRONG

Review:

What went well in the sprint?

We finished the predators which really tied the project together. I think that was something we thought we would have finished much earlier but our struggles with threading made it quite difficult.

What could be improved?

As a team, our communication began to break down as the semester came to a close. I assume this had to do with people beginning to get very busy with work as classes were drawing to a close. It made it difficult to collaborate at times and we began to start having git issues and forgetting to push/pull.

If you were to continue the project, what would you improve on in the next sprint?

I think if we had one more week, one more sprint, we finally could have added some really cool graphics and tidied up some bugs.

Sprint Burndown Chart

Highcharts.com and Lily Romano
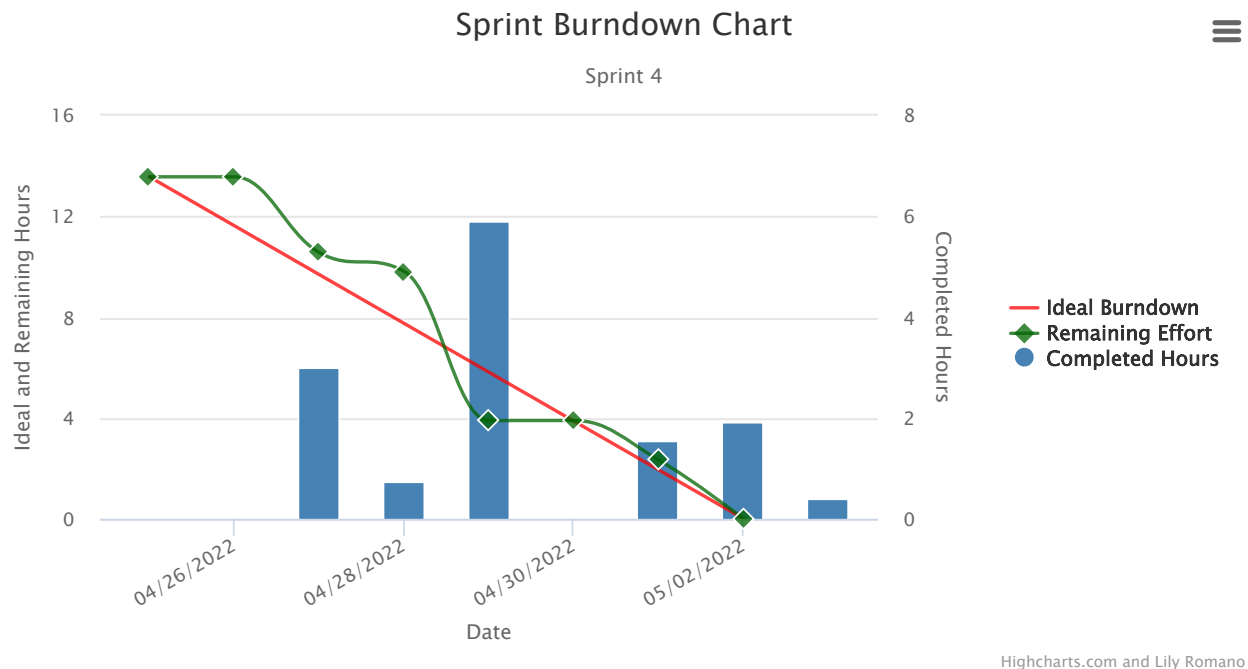
Personas

Justin Ross

Quote

I have started getting into Biology and love scrolling through internet simulations and trying them out.

Narrative

No experience in science or technology. He wants to click run and see the simulation play out for his own enjoyment, with no specific need to change many variables.

Mercedes Alonso

Quote

I look to find games and simulations that are visually appealing so that I can get ideas to incorporate into my own work-life.

Narrative

Mercedes is a Graphic Designer who is very focused on the visual aspect of games and simulations that she runs. She is not so concerned with how the actual simulation works, but rather with how appealing the actual GUI is to a user. Mercedes judges how good a simulation is based on how visually appealing and easy to understand it is.

Ine Mittet

Quote

I want my students to be able to visually see natural selection in action so that they can learn the material. Seeing is learning

Narrative

Ine is searching for a teaching tool to demonstrate the effects of natural

Troy Kim

Quote

Natural selection and evolution occur over incredibly long periods of

selection on a population and to illustrate how evolution, in general, occurs over a number of generations.

time, simulations like this help me to visualize and gather data in a matter of minutes.

Narrative

Wants to use the simulation to gather useful information. Wants to be able to change factors of the species and the outside world and wants to be able to gather data once the simulation has ended.

Table of Work

Search:

Showing 1 to 23 of 23 entries

Title	Type	Est.	Spent
Closed (21)		51 h, 9 m	0
Sprint 1 (4)		11 h, 5 m	11 h, 5 m
Create UML class diagram	Design Need	1 h, 25 m	1 h, 25 m
Finalize idea/simplify Project Idea	Design Need	4 h	4 h
Identifying a network library from similar projects	Spike	1 h	1 h
Learning SceneBuilder	Spike	4 h, 40 m	4 h, 40 m
Sprint 2 (4)		9 h, 30 m	0
Create ability for species to "interact" with other objects	Technical Task	0	0
Create Framework of initial classes	Technical Task	2 h	2 h
Create species that move on GUI	User Story	4 h	4 h
Threading/Multithreading	Spike	3 h, 30 m	3 h, 30 m
Sprint 3 (3)		12 h	12 h
Create ability for species to "interact" with other objects	Technical Task	3 h	3 h
Implement predators ability to eat prey	Design Need	2 h	2 h

Title	Type	Est.	Spent
Threading/Multithreading	Spike	7 h	7 h
Sprint 4 (8)		13 h, 34 m	0
Add ability for species' offspring to generate random attributes	Technical Task	0	0
Add More Controls to GUI and RESET capability	Technical Task	2 h	2 h
Create ability for species to "interact" with other objects	Technical Task	2 h	2 h
Ensure proper documentation	Documentation	2 h	2 h
Implement predators ability to eat prey	Design Need	1 h	1 h
Polish GUI, Differentiate Predators vs Prey	Design Need	2 h	2 h
Polish UML class diagram as we code	Design Need	1 h, 34 m	1 h, 34 m
Predator/Prey Attributes	Technical Task	3 h	3 h
Backlog (2)		5 h	0
Create the initial GUI	User Story	4 h	0
Learn Squashing	Spike	1 h	0
Opened (2)		1 h	0
Backlog (2)		1 h	0
Add ability for species' offspring to generate random attributes	Technical Task	0	0
Add More Controls to GUI and RESET capability	Technical Task	1 h	0

Daily Scrum

Daily Scrum Notes

Monday 11th: This past weekend we have reviewed the scenebuilder lab as we prepare to create our first version of a graphic simulation later this week. In class we began and mostly completed a UML class diagram of our basic classes. We will continue to work on this as we start with our code. We realized it was a bit hard to create classes and specifically to know the interaction between the classes as we haven't even written a single line of code yet. We are trying our best to begin at the smallest possible part of our project and then build it up from there as we know it could get very complicated quite quickly.

Wednesday 13th: We continued to work on completing the scenebuilder lab. There were some issues encountered when walking through the lab that had to be addressed. There issues simply executing the files contained within the lab using Gradle; however, we came to the determination that scene builder will be perfect for running our the GUI for our project. In class we covered our progress on the previous week's sprint and we will continue to work through assigning our work for the next sprint. Our main goals are completing the baseline class code for our animal objects as well as the gui to illustrate the movement of said animal in space. Our challenges are simply getting the project up and running. We have completed most of the actual work involved in designing our solution, learning the necessary coding structures, and planning the structure of the project. Now we simply begin implementing our solution.

Friday 15th: Connor continued to work through creating the skeleton of the classes, mainly the animal and prey/predator subclasses. He is namely focusing on developing the methods to govern the movement and the life/death actions of each animal. He has had success in these methods; however, seeing how they succeed within the GUI will be the final test. Brooks and Liam have both been working on creating the emitter method defined in the sceneBuilder lab to be possible in the regular lab. They want to try and adjust this method to fit the parameters of what we need for our project; however, they first need to get it up and running without any flaws, which has proven to be a challenge. We will all put our heads to together to break through this issues with the scenebuilder GUI.

Monday 18th: Liam and Brooks worked over the weekend to change the project away from the emitter class that implements timelines and into a more simplified way using threads. Connor finished the skeleton of classes and then worked over the weekend to understand and implement threads into our project so that the animal can move around the world and the GUI gets updated continuously. Getting threads to work with our project is proving to be a challenge, but Connor has put in the framework to be able to extend our basic model now to a larger scale project once we do get our project running correctly.

Wednesday 20th: Liam, Brooks, and Connor continued to try implementing threading. Having issues of updating the main canvas and clearing it synchronously.

Friday 22nd: Issues with one "animal" flickering on and off instead of continuous movement. Finally figured it out and moved onto implementing food and collisions.

Monday 25th: We worked through a GUI based issue with threading and eliminating an error in the generation of the animal types. We updated the GUI to make it appear more presentable to a user and increase friendliness.

Wednesday 27th: We worked on eliminated a concurrency error in the food by making the collection synchronous and then began to complete the reproduction method for the animals

Friday 29th: Completed adding slider for the number of prey and predators for the GUI. Connor continued to work on updating the documentation and UML and Liam worked on extending the animal class into the predator class. Brooks continued to update the reset button on the GUI

Monday 2nd: Worked on wrapping up the AIEcode work and completing any outstanding documentation. We began work on the README, various documentation for the project, and the rest of the deliverables