# DAY 01: 16/01/2022

Developed a problem description for each class, a class diagram, and created a github for the project. Next step: Write pseudocode.

# DAY 02 17/01/2022

Started working on pseudocode. Good progress.

Re-structured the Simulation class and added some ideas for generating limbs based on the parent creatures.

Jumping power of the creature is a random number between the creature’s parents’ jumping power.

For each limb, the creature has higher probability(80%) of generating the same limb type as the parents if they both have the same limb type, otherwise the limb generation is random.

Other creature characteristics will be calculated smiarly

All of this is not final and I will have to perform tests and check if this approach succeeds in generating successful creatures.

Other limb, wheel and leg characteristics will be simulated similarly.

# DAY 03:

Pseudocode is good. Review it and see if anymore progress is needed. If not, START UP UNITY!

Started working a bit more on pseudocde. Mind is unclear so I will stop here, I believe most of my code is straight bs so I’ll do it with a clear head.

# DAY04(02/02/23) Continued pseudocode.

Completed pseudocde for back end: Leg and Wheel class completed. Also fixed up Simulatin class

Added mutations in the Creature class where the creature has a 20% chance of not following the parents’ path.(This is simply done using Math.rand and the value can easily be changed). Decided hat it is not necessary to have this on the lower classes as well

Next time: Start working on Unity. Must have Stuart something t show by next week!!!

# DAY05(06/02/23)

Palayed around with Unity a bit. Made a simple platform and saw how wheels can work. But didn’t get much done tbh.

Next time:

* Find ou how creatures can actually move
* Backup my shit

NEXT NEXT TIME:

* Start generating creatures

Unity to do list:

To do:

- Make very simple environment DONE

- Find out how to simply generate a single creature. Maybe using scripts too DONE

- Find out how to generate multiple creatures that dont interact...

- Make creatures actually move( legs move, wheels move)

- Find out how to pass on data from generation go generation(scene to scene?)

-probaly like you would do on eg a mario game

- How do we follow the best creture?

# Day06(12/02/2023)

Lots have changed. Have figured out how to implemented movement in Unity. With cars its actually not that bad. There is a txt file for some notes.

I will now focus souly on cars, and will need to create a new environment for testing. Genetical aglrotihms will:

* Change speed? But MUST have a max
* Change wheel size? But must have a max
* Change wheel location? But need to figure out some values, eg transform and wheel joint connected anchor
* Change wheel number? But will have a max

Next time:

* Create a simple environment
* Figure out transform and stuff
* Generate a SINGLE creature with random values

# DAY07 (14-02-2023)

Did simple research ons cirpt. It’s actually not that hard to generate things. Just need to figure out the sprite editor. Not much done cuz no time( Airport)

# DAY08(16-02-2023)

Figured out how to summon the car body with a lot of assets! Next up is summoning the wheels. I NEED to do this before I leave Amsterdam. Also, focus on your report that it took you some time to get around Unity

# DAY09(22-02-2023)

Progress on the creature generator. I can generate a fully functioninig creature.

Now need to add in a few things to change the size, and also make sure the creature generates properly.

General to-dos:

* fully generate a car
* Generate a car with selected assets
  + generate with random assets. But need to come up with restrictions
  + like where in the body the wheel can generate, max size of the wheel etc.
* -Build the simulation
  + Follow the best car
  + Cars don’t interact
  + See which car made it further
  + Pass data from generation to generation

# Day10(13-03-2023)

Creatures don’t collide. Add creature layer, then set up in the project settings that creatures with the creature layer don’t inetrect.

1. Create a new layer for your creatures. In the Unity Editor, go to Edit -> Project Settings -> Tags and Layers, and click the "Add Layer" button. Name the new layer "Creature".
2. Assign the "Creature" layer to your creature objects. Select a creature object in the Unity Editor, and in the Inspector window, set the "Layer" property to "Creature".
3. Modify the physics collision matrix to disable collisions between objects in the "Creature" layer. In the Unity Editor, go to Edit -> Project Settings -> Physics 2D. Find the row for "Creature" and uncheck all of the boxes in the "Collide With" column, except for the "Default" layer.

Next to do:

Creatures generated all at once( I think they are)

Follow creatures

Assign them different speeds

# DAY 11(15/03/2023

* Fixed issue where creatures spawned wonky( have great detail abnd videos of this, use it to demonstrate your debugging)
* Added scripts in
* Generated creatures with random speeds and wheel sizes
* Gave slight colors to creatures

Tommorow’s to do:

* Follow best creature
* Count how far a creature has made it
* Good arena

Next Day’s to do:

* Genetic Algoriths

Next Next day,

* Make creatures a bit more complicated. Eg maybe give them different body shapes? Wheel typeS? Legs? I have ad oc somewhere with ideas go find it.

Fixing issue: Creature spawn like this lol

Diagram

Description automatically generated

After checking code, it seemed that the wheels generating pose a problem. If only the body itself generates then its fine.

A picture containing diagram

Description automatically generated

Made changes to code. On the wheel generator, the wheelJoint2D had an issue when adding the conenctedAnchor. The vector we were creating would move the wheel at the wrong spot, and that isbecause we had wrong x value. It is fixed now and we can move on

I recorded some videos on my phone about this and they are in a folder. These videos are to show the debugging process

Next to-do:

* Car Movement Script DONE
* Pass random values for speed DONE
* Pass random values for speed size DONE
* Platform DON’T NEED YET
* Tracker for which car is the best

Next next

* Change the creature so that it has more places to generate wheels
* Have it so it passes from generation to generation
* Remember I wrote some things down for this somewhere so. Like what variables we can change on the wheel.
* Make it look a bit sexier

Added script in the car so it moves vroom vroom

**A big part of this assignment was figuring out how Unity works.**

**Used scenes to save progress**

Okay…. So let me save.

Now we will create a script following the best creature.

# Day12 16/03/2023

Renamed creature Generator to Creature

Lmao actually didn’t do much.

Need to restructure my code. Use the pseudocode and think how ti intergrate it into unity

# DAY13 (17-03-2023)

Combination day! Big day! Acutal unity with pseudocode!

Realized need to do some serious restructuring. Especially with accessing variables and class structure etc. Need to think and structure

Focused on implementing the actual camera following.

Couldn’t implement camera following. Theres something wrong with my Unity simulation I think.

## Wheel Class:

Added generate wheel code

Had to change constructors, remember this!

## Creature Class:

Decided to have mutations happen at the simulation class. The higher the better

Creature class now has to return shit

Realsied need to do some serious resturcuring. Especially with accessing variables and class structure etc. Need to think and structure

# DAY14(22/03/2023)

Lots of progress

Managed to establish classes and objects in my simulkation.

Fixed the camera issue I had, I need to assign the creature BODY not the object to the variable for it to work.

Struggling with automating this in my simulation scrip tbut I think its just a simple mistake and my mind is boggled.

To do:

* Assign the camera variable automatically
* Figure out why numOfCreatures don’t work
* Have it go from generation to generat

Future to-do:

* New arena
* New variables to consider
* Actual experiment\

**Chatpt**: In Unity its Debug.log not Console.writeLine like it is in C#

Notes when coding:

I need an array of type wheel

-Not game object because it also needs attributes like the radius

-So constructor must return a type wheel

-what should the wheelGenerator return>?

-Asked chat gpt

OKAY SO

The constructor doesnt NEED to reutnr anything, nor does the wheelGenerator

In the wheelArray in the Creature Class we just call the wheel cosntructor

We use the private varibles of each class for shit

IT'S DONE