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**Aquaponics system**

***Overall description:***

Aquaponics is one of the agricultural systems that lead into a sustainable food production. The term Aquaponics can be divided into two parts "aqua" which refers to water and "ponics" which refers to labor or toil. In another word, Aquaponics is a system that circulates the water between two mediums in which the waste produced by farmed fish or other aquatic animals supplies nutrients for plants grown hydroponically, which in turn purify the water.

I plan to design and implement a NetLogo model of an aquaponic ecosystem that simulate this environment.

***Changes*:**

Based on Arthur feedback, instead of answering the balance state question, farmers might be interested in the frequency and amount of food they need to feed their fish.

***Agents*:**

Fish (turtles)

Water (patches)

***Agent behavior:***

I start this model as simple as possible. First, I set up the environment where we have a tank for fish and grow-bed for plants. For the current model, fish are the only agent and they can swim in the tank.

***Model output:***

The overarching model output will be a simulation of the aquapoinics system where fish get food and produce waste. These are converted to something that beneficial plants and let them grow. Plants contribute to this ecosystem by filtering the water for fish.

For now, the model shows the basic environment for the simulation.

***Questions*:** What the new question that this model will answer is how frequently should farmers feed fish and what is the right amount?

***Next steps:***

For next week, I’ll be working on adding tunnels to the environment and circulate water between the tank and grow-bed. I’ll also work on the basic behaviors for agents.