Project proposal

Group Name: Obiglobis
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Project Title: Survival of the fittest

General Introduction
We will make a “predators-prey” simulation based on the Wa-Tor Dynamic Simulation which is expanding the cellular automaton simulation.

The main idea is to analyze the behavior and stability of the model based on the different parameters. By plotting each parameter and state of cells we should get a good insight into the system and therefore be able to make some assumptions.

The Model
The Model is a cellular automation with a two-dimensional grid, with the edges connected to each other. This creates a torus and makes interaction over the edges possible. Time is measured in steps. The cells and their parameters will be adapted and expanded over the course.

We have 3 different Cells: Forest (F), Grey Wolves (W), Rabbits (R)
Properties of animals: age, nutrition, reproduction age.
Forest acts as a neutral terrain.

Fundamental Questions
What parameters have the highest impact on the system?
Is it possible to reach an equilibrium between wolves and rabbits and how is it reached?
When do the rabbits and wolves get extinct?

References

Studies on Population Dynamics Using Cellular Automata
Rosana Motta Jafelice and Patrícia Nunes da Silva
http://cdn.intechweb.org/pdfs/15062.pdf

Sharks and fish wage an ecological war on the toroidal planet Wa-Tor
http://home.cc.gatech.edu/biocs1/uploads/2/wator_dewdney.pdf

Research Methods
Cellular Automata