



URBAN STUDIES & PLANNING

UJSP

Complex Adaptive Systems

Exercise 1

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A!

Exercise 0.1 (individually or in pairs)

In the course exercise we will utilize Gama modeling platform (<https://gama-platform.github.io/>) to create a model of a dynamic urban phenomenon.

(1) **Learn GAMA** | Go Gama platform website to download and install Gama. You can get started by reading the tutorial and description of predator-prey model. The tutorial can be found on Gama platform Github website and models described in tutorial in Gama model library. In the tutorial building an agent-based model in Gama is described step by step.

(2) **Invent Your Urban Model** | Then select one of the models, tutorials or toy models, you are interested in and think about how to create your own model by applying it to some current urban phenomenon/issue in Finland. The idea is to create a working agent-based model during the course that simulates some 'bottom up' dynamics of the urban environment the group finds interesting.

(3) **Present your idea** | Present your initial findings on 3.5.2021.

Learn GAMA - Suggested steps

- Get familiar with graphical user interface (GUI)

<https://github.com/gama-platform/gama/wiki/NavigatingWorkspace>

- Test interesting tutorials, toy models etc.

- Learn step by step

- Model organization (i.e. procedure structure)

<https://github.com/gama-platform/gama/wiki/ModelOrganization>

- Basic programming concepts (i.e. inside procedures)

- Basic variables

- Operators

- Looping & Branching

<https://github.com/gama-platform/gama/wiki/BasicProgrammingConceptsInGAML>

Find details from the Reference

<https://github.com/gama-platform/gama/wiki/GamlReference>

Tweak existing models and observe behavior!!!

Invent Your Urban Model

You can start by:

- exploring the toy models of Gama library and select what interest you
- to think about which area would be suitable for you
- checking how to get GIS data if needed for the model
- thinking if there's a behavior or other features in the model you would like to change
- at first stage keep it simple and add features to model later if needed