

Rossumøya – G13

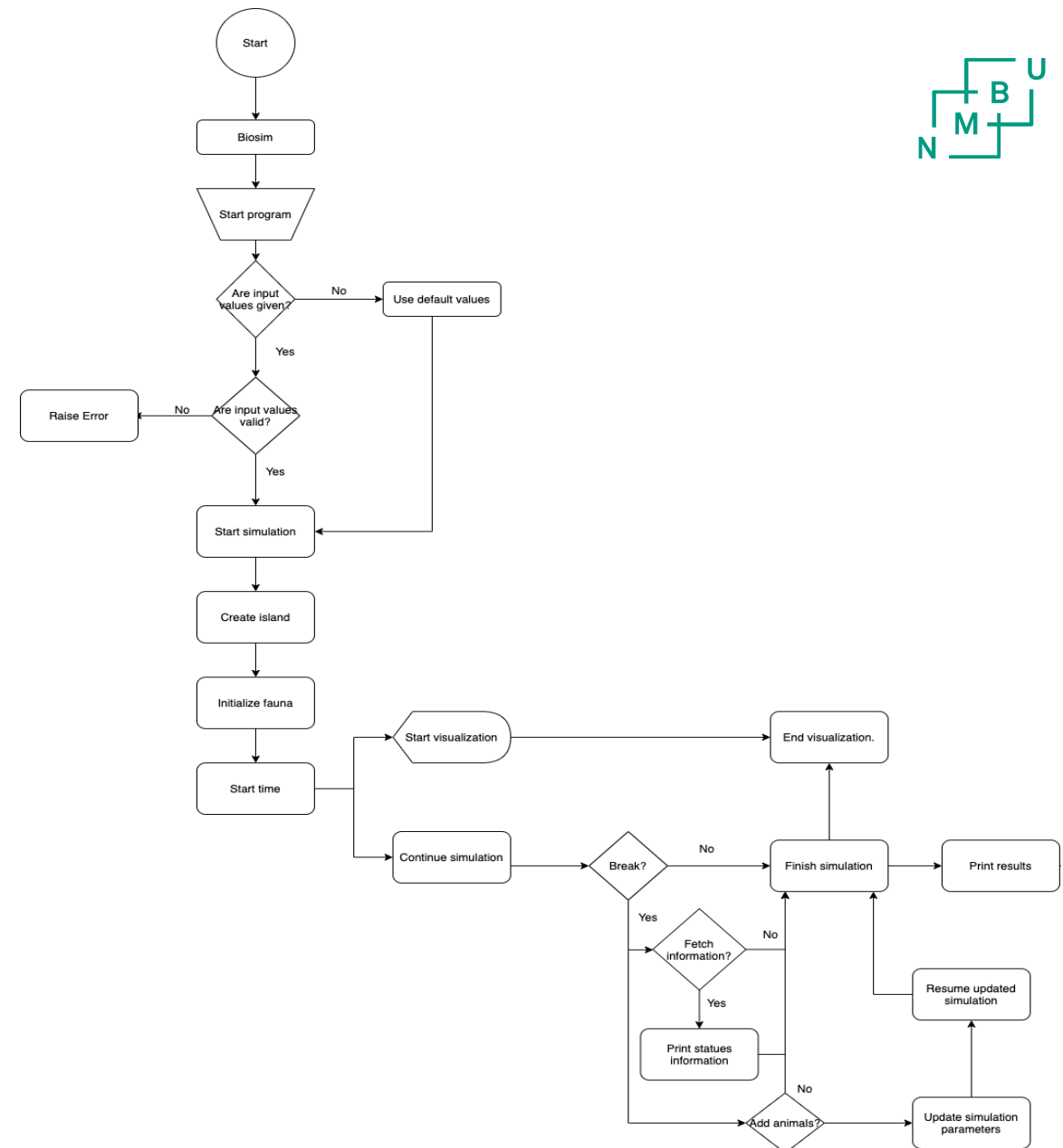
Johan Stabekk and Sabina Langås

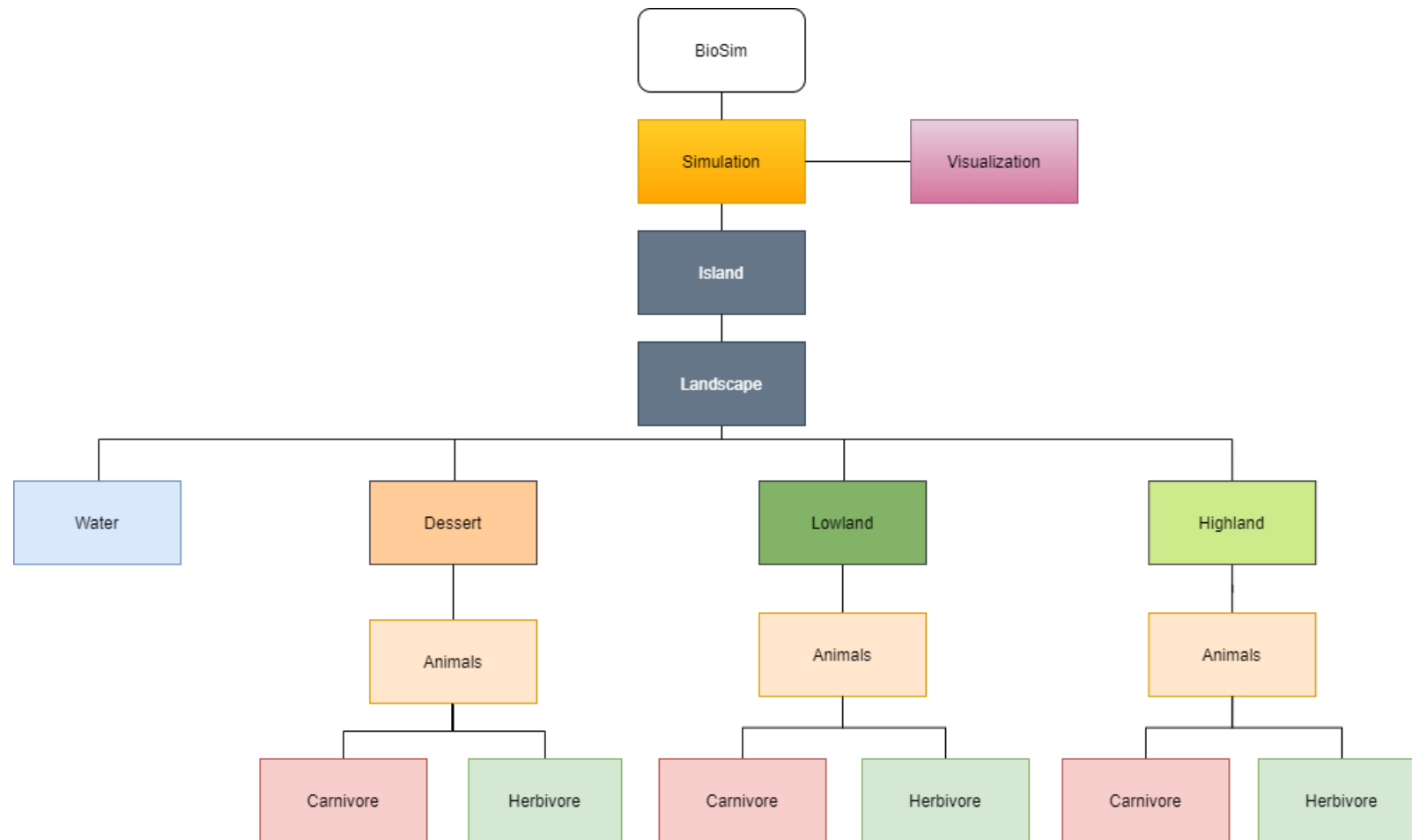
23.06.2020



Rossumøya begins

- Understanding
 - Project Requirements
 - Class Hierarchy
- Set up
 - GitHub, GitKraken
 - Project Milestones
- Plan





Challenges and accomplishments

Make it work → Make it work right → Make it beautiful

Challenges:

- Birth
- Carnivores eat
- Migration

Accomplishments:

- Independent visualization
- Make Movie
- Serialization



NumPy



matplotlib



Testing

100% files, 96% lines covered in 'biosim'

Element ▲	Statistics, %
<code>__init__.py</code>	100% lines covered
<code>animals.py</code>	99% lines covered
<code>island.py</code>	95% lines covered
<code>landscapes.py</code>	100% lines covered
<code>simulation.py</code>	89% lines covered
<code>visualization.py</code>	99% lines covered

Animals	Parameters	Set params	✓
	Init	Test initialization	✓
	Age	Increases by year	✓
		Get age	✓
		Set age	✓
	Weight	Get weigh	✓
		Set weight	✓
		Weight loss	✓
	Fitness	Changes with age	✓
		Changes with weight	✓
		Is 0 if weight is 0	✓
	Migration	Returns True if should migrate.	✓
	Birth	Give birth if b_prob big and mother heavier	✓
		If mother loses too much weight, no birth	✓
		Mother loses weight	✓
	Death	Die by random choice	✓
		Die if eaten	✓
		Dies if weight == 0	✓
Species	Herbivore	Eats ['F'] fodder	✓
	Carnivore	Eats ['F'] herbivore	✓
Landscape	Parameters	Set params	✓
		Raises errors	✓
	Population	Set population	✓
		Add population	✓
	Lowland	Food grows	✓
	Highland	Food grows	✓

Documentation

BioSim_G13

INSTALLATION

Guide

MODULES

Simulation

Visualization

Island

Landscapes

Animals

EXAMPLES

Checkerboard demo

Check Biosim

Population generator

» Modelling the Ecosystem of Rossumøya

[View page source](#)

Modelling the Ecosystem of Rossumøya

This library provides the computer programs for the simulation of population dynamics on Rossumøya.

Summary

The long term goal is to preserve Rossumøya as a nature park for future generations. The ecosystem on Rossumøya is characterized by several different landscape types, lowland, highland and desert. The fauna includes only two species, one species of herbivores (plant eaters), and one of carnivores (predators). In order to investigate if both species can survive in the long term we have made a simulation which runs for a given amount of years. After the simulation, one can obtain a status information which include: number of years that has been simulated, total number of animals on the island and total number of animals per species. One is also able to visualize the simulation results while the simulation runs. The graphics window include: the island's geography, total number of animals per species as graph, distribution heat maps for the number of animals per cell and simulation year. ¹

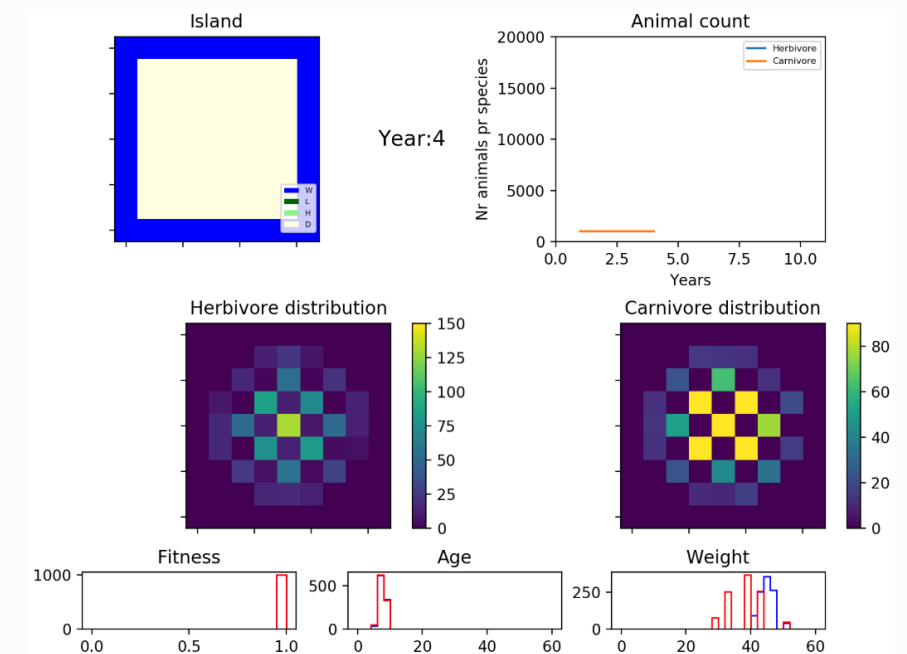
Installation

To make the BioSim run as smooth as possible, its required to have some libraries and setups installed. Read about the requirements and how to get them [here](#).

Checkerboard demo

mod: *BioSim_G13_Johan_Sabina.checkerboard_demo* is a small demo script running a BioSim simulation that test if the animals migrate and move the right way. They should move according to information and pictures given by the project task

Example of simulation frame returned



Modell of the ecosystem of Rossumøya

