Modelling the ecosystem of Rossumøya

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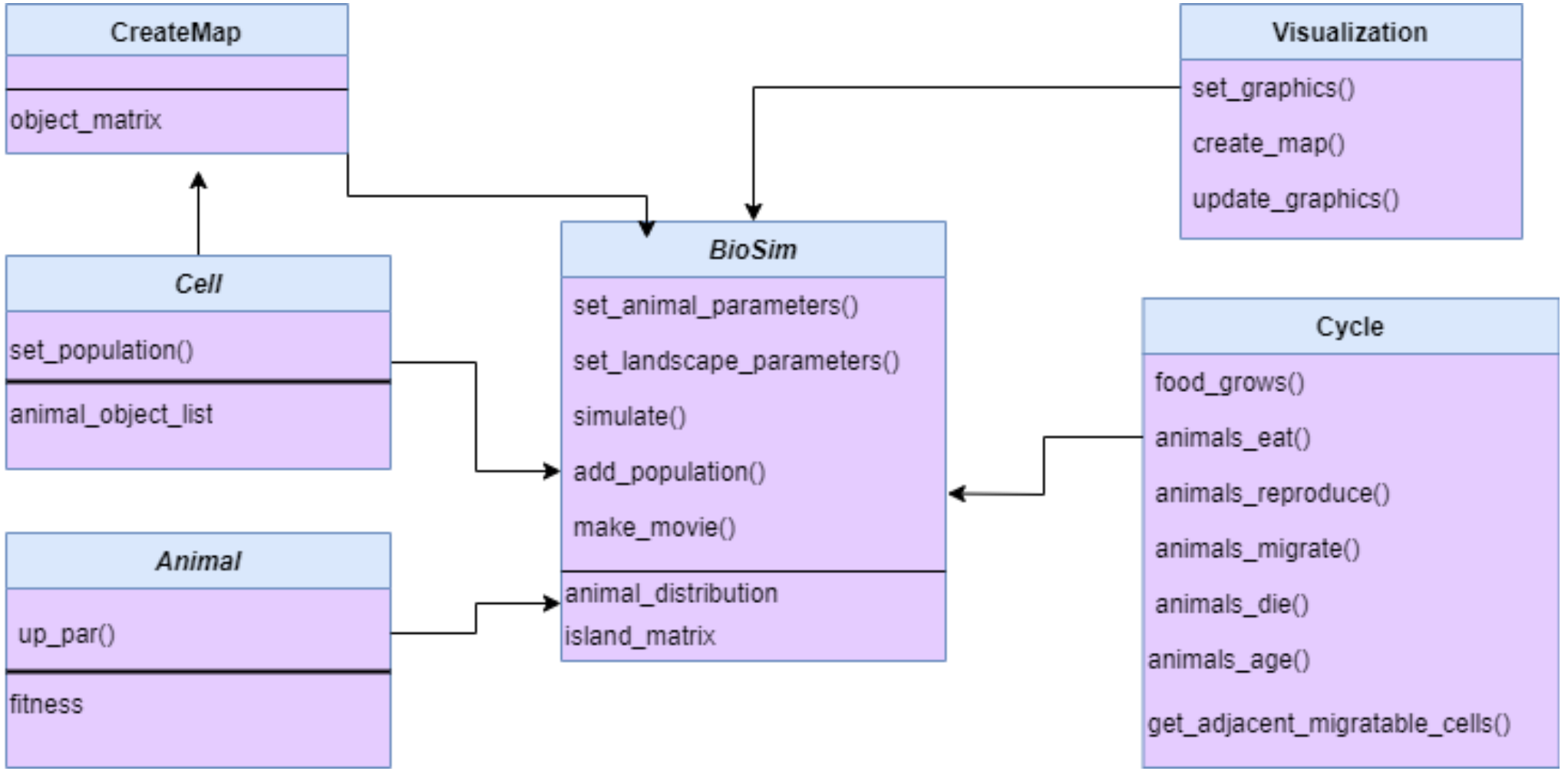
Our approach

- CreateMap class to put animals in.
- Cell → Jungle, Savannah
- Herbivores, simple simulation.
- Added carnivores.
- Implemented the annual cycles (Cycle class)
- Biosim (put it all together)
- Visualization


CreateMap
object_matrix
Visualization
set_graphics()
create_map()
update_graphics()
Cell
set_population()
animal_object_list
BioSim
set_animal_parameters()
set_landscape_parameters()
simulate()
add_population()
make_movie()
animal_distribution
island_matrix
Cycle
food_grows()
animals_eat()
animals_reproduce()
animals_migrate()
animals_die()
animals_age()
get_adjacent_migratable_cells()
Animal
up_par()
fitness

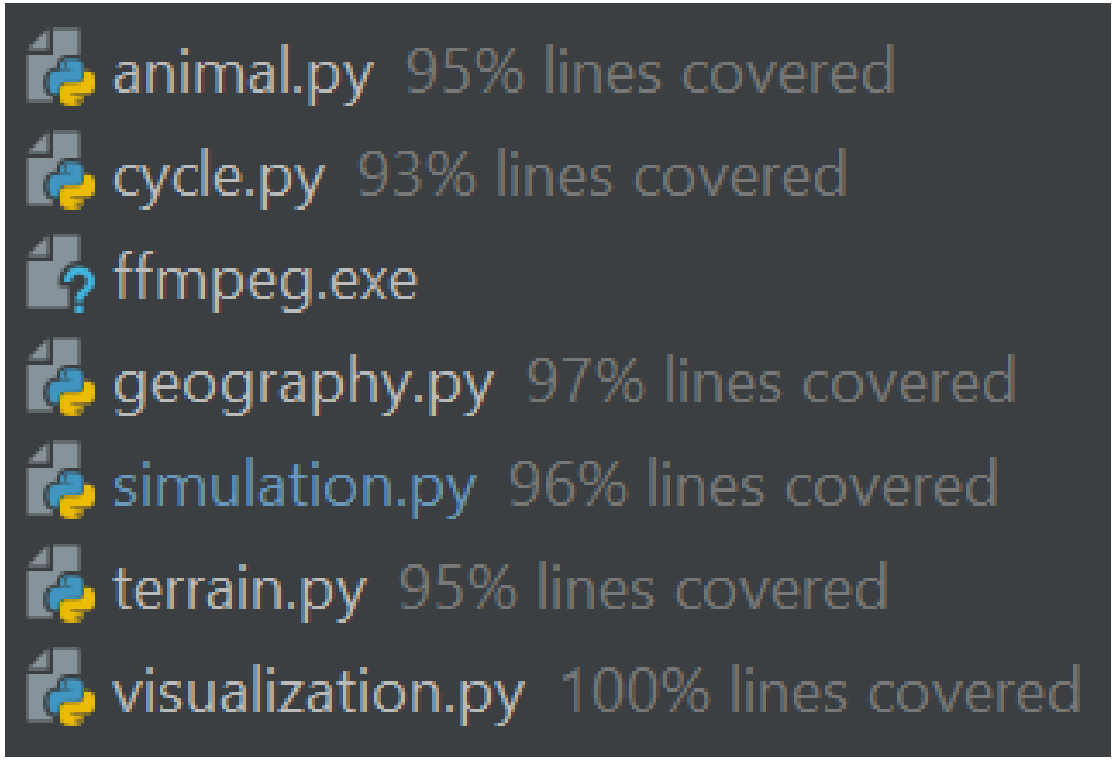
Simplifying the code

- Make it work → Make it pretty
- Entire implementations in single methods
- Cycle
  - Eating, procreating and migration
  - Imporvement, «animal methods»
  - Migration, animal properties

* Inline comments

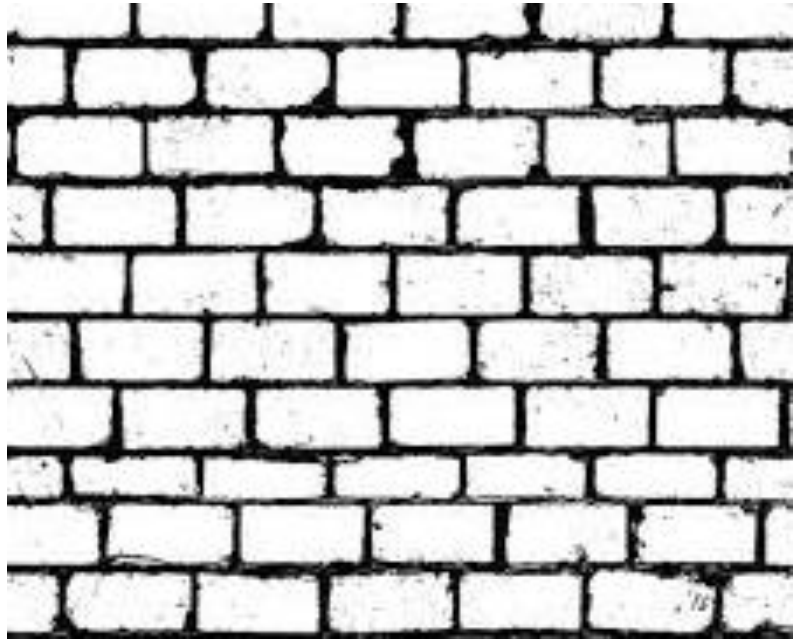
TDD, Test coverage

- One test file for each file, and each function tested.
- Tested while programming, made sure methods worked before moving on.
- High test coverage.
- Additional tests for visualization, simulation

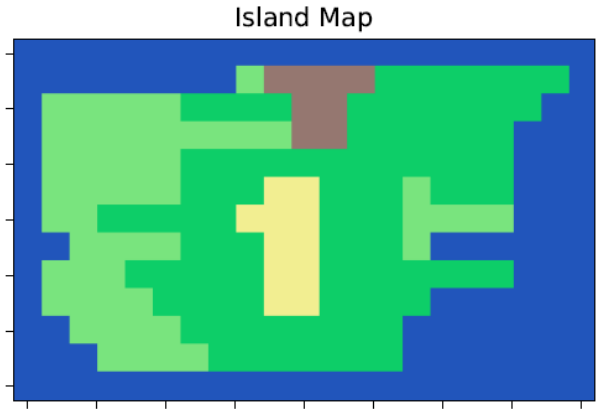


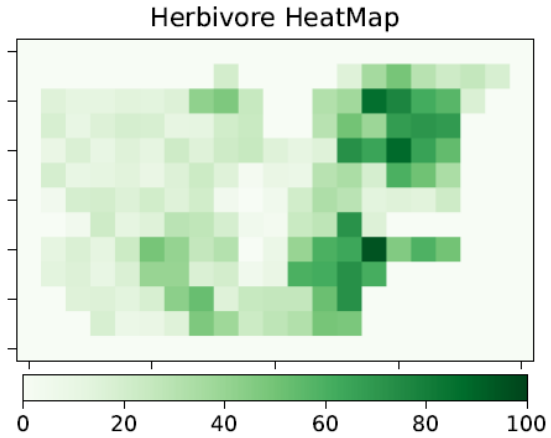
Extras

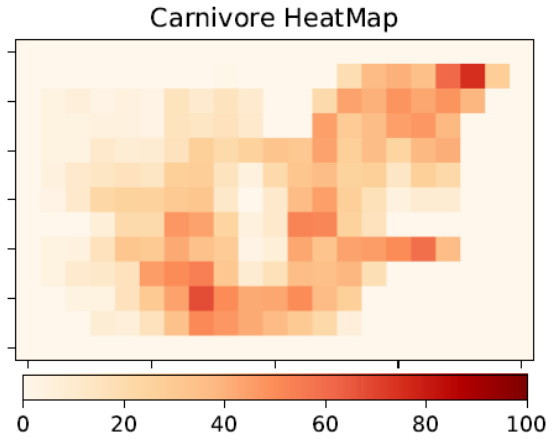
- Script auto creates video, auto deletes previous pngs
- Main focus: all requirements
- Made sure to debug tests
- Double checked the logic
- Good and detailed documentation (inline comments, long code)

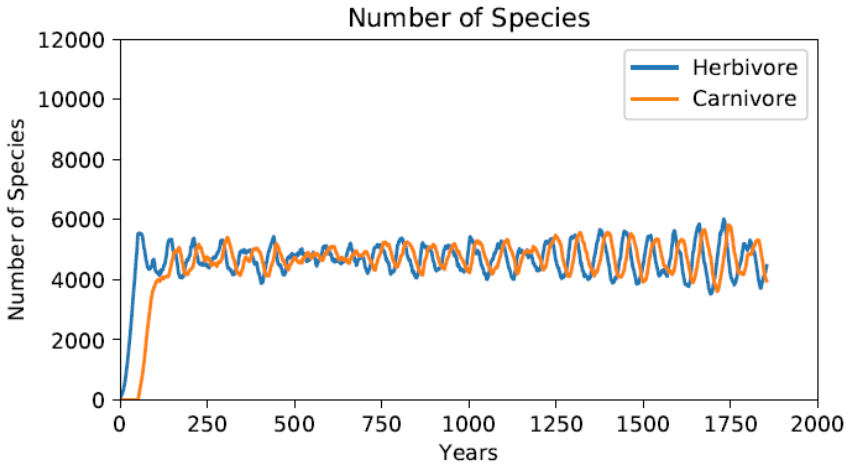


Visualization- Maps and Line graph









Improvements

- Made a separate list for Herbivore and Carnivore
- Use a numpy object array instead of lists
- Cached properties --> fitness

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