

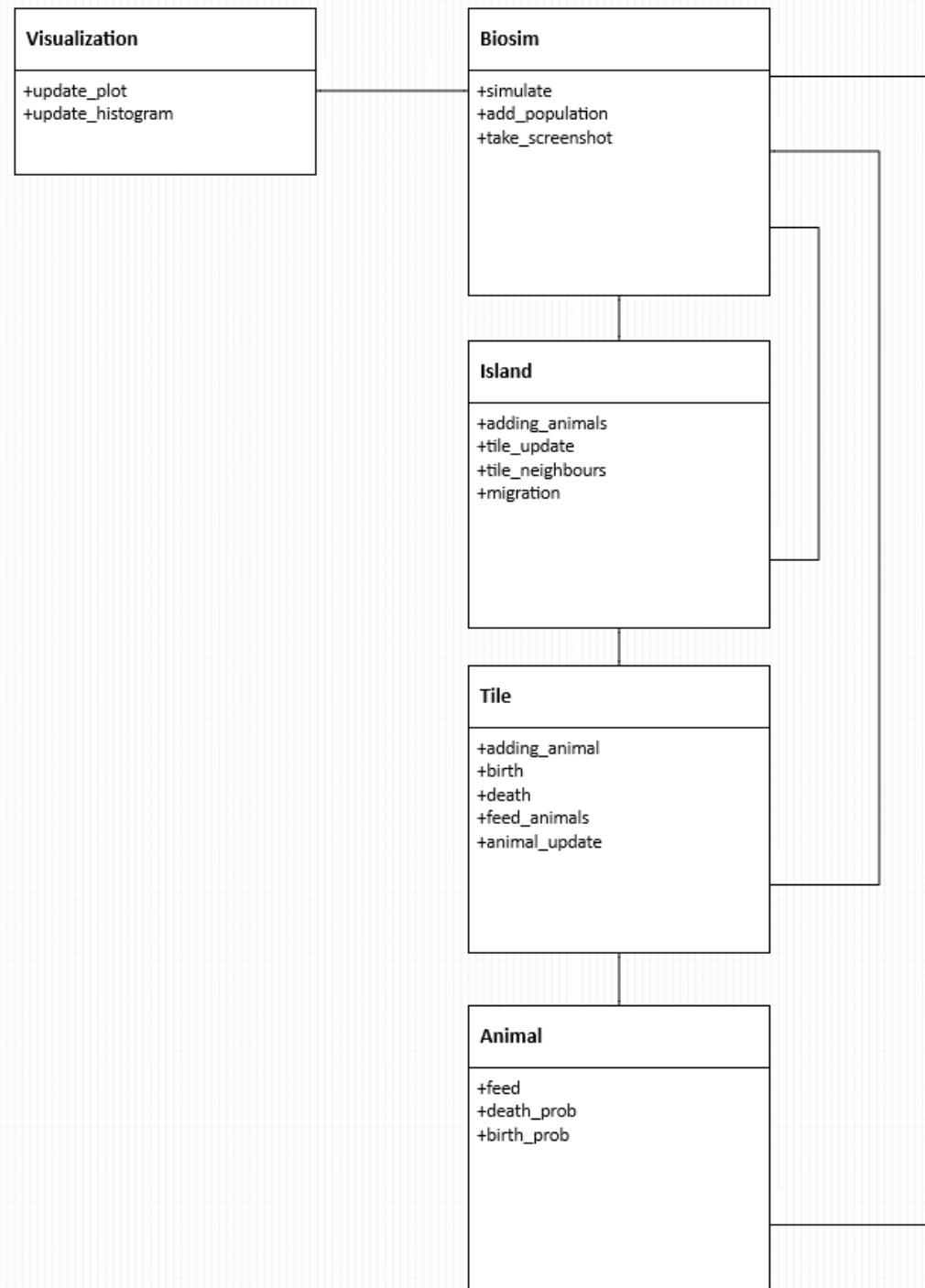
Norges miljø- og
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universitet

BioSim – Inf 200

Modelling the Ecosystem of Rossumøya

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Structure



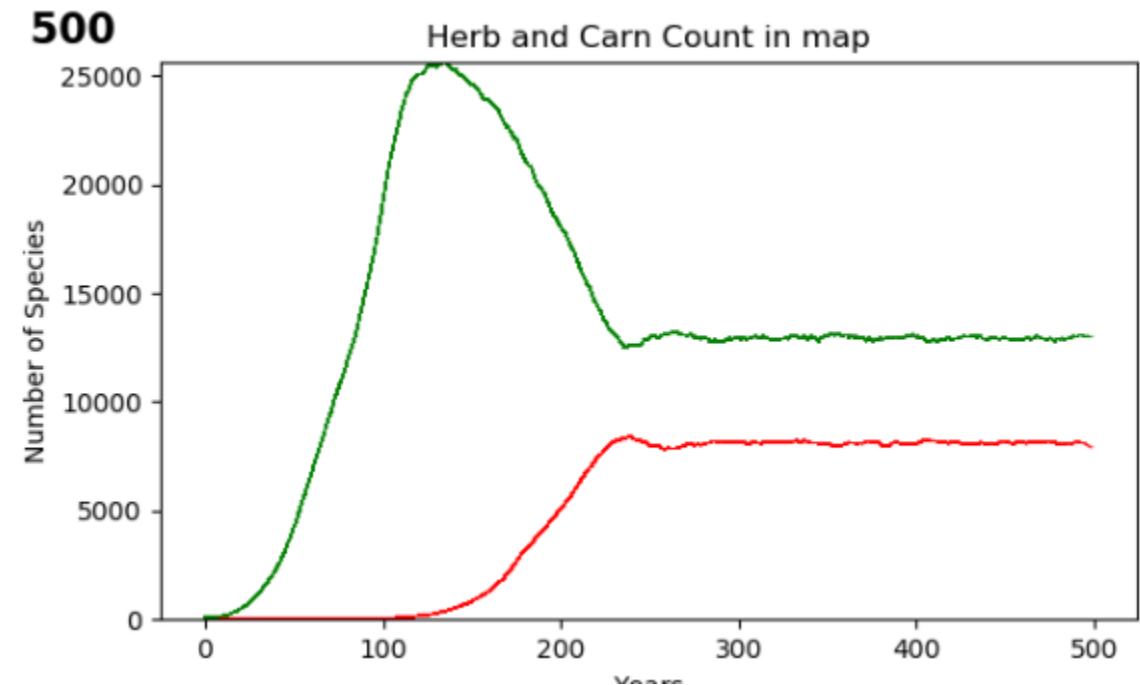
Solutions

- Animal and tile class
 - Implemented first
 - Fitness rate of update
 - Update tile animal by animal
- Island class
 - Update island tile for tile
 - Handles migration
- BioSim class
 - Simulation setup and execution

```
def migrate(self, tile):
    """
    Handles the migration and moves animals between tiles, this also makes
    sure no one moves twice.
    :param tile: dict
    dictionary representing a tile with its respective
    population.
    :return: None
    """
    initial_pop = self.tiles_lists
    if len(tile.herb) > 0:
        for herb in tile.herb:
            if tile.can_migrate(herb):
                destination = choice(self.tile_neighbours(tile.grid_pos))
                if not herb.has_moved:
                    herb.has_moved = True
                    if destination.can_move:
                        for tiles_row in initial_pop:
                            for initial_tile in tiles_row:
                                if initial_tile == destination:
                                    initial_tile.herb.append(herb)
                                    tile.herb.remove(herb)
    if len(tile.carn) > 0:
        for carn in tile.carn:
            if tile.can_migrate(carn):
                destination = choice(self.tile_neighbours(tile.grid_pos))
                if not carn.has_moved:
                    carn.has_moved = True
                    if destination.can_move:
                        for tiles_row in initial_pop:
                            for initial_tile in tiles_row:
                                if initial_tile == destination:
                                    initial_tile.carn.append(carn)
                                    tile.carn.remove(carn)
```

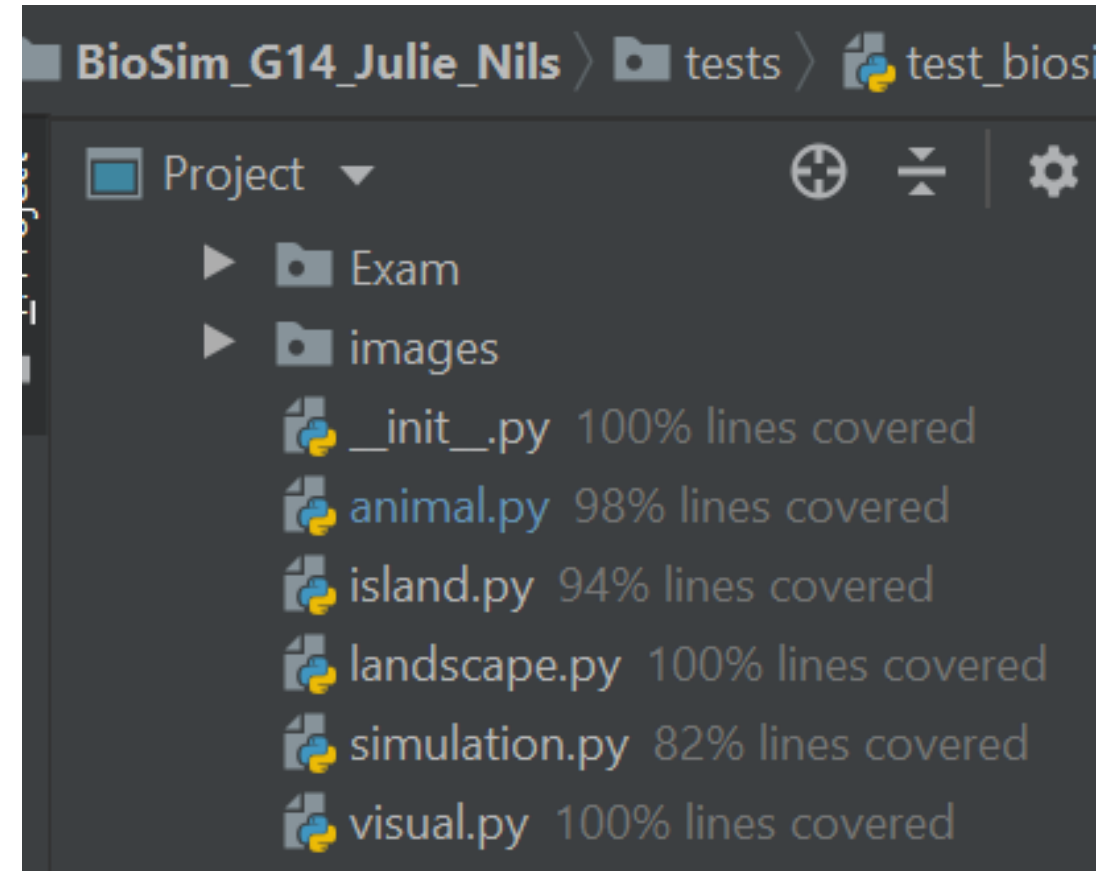
Trustworthy

- Still some bugs
- But results does not vary too much
- Easy to edit due to structure



Limitations

- Too many loops
- Can be simplified
- Readability (island)
- Limited test quality and coverage



Improvements

- Animal and tile class
 - Short subclasses
 - Avoid redundant code
 - Make the code compact and readable
- Can be made in a better way
- There are still some bugs
- Better testing

