Different concepts

Genome, Animal, Population

Description of concepts

Genome

Properties common to all genomes

- Maximal age of an animal
Positive integer number, constant throughout the simulation

- Number of mutations at cloning
Positive integer number, constant throughout the simulation

Properties of a genome seen from outside

- Number of bad mutations among the first t genes
Positive integer number

Operations on a genome

- Clone the genome
Return an imperfect clone of the genome, containing random mutations
Does not change original genome

Creation/destruction

- Creation of an ideal genome

- Creation later through cloning

- Destruction with animal, no special action needed

Implementation of state

- Private member. Stored as a bitset

Animal

Properties common to all animals

- Reproduction age
Positive integer number, constant throughout the simulation

- Birth rate
Positive integer number, constant throughout the simulation

- Mutations threshold leading to death
Positive integer number, constant throughout the simulation

Properties of an animal seen from outside

- Age
Positive integer number

- Alive?
Boolean

- Pregnant?
Boolean

Operations on an animal

- Age the animal one year
Increase age, decide about pregnancy
Changes the animal

- Give birth to a child
If the animal is pregnant a child with cloned genes is created
Does not change the animal

Creation/destruction

- Creation originally with age 0

- Creation later through childbirth

- Destruction when dead, no special action needed

Implementation of state

- Genome

- Age
Represented by positive integer number