

CHANGE LOG

1) Bug(aging) in method simulate was fixed.

attacker = null;

river[posAttacker] = attacker; /* dies */

2) The method getSpecieClass was removed.

3) An abstract method reproduce(int age) was added to each animal type. Hence private method Animal[] addTo(String specie, int number, int age) was modified/generalized.

4) method Behavior and switchAttemptCollide were modified/refactored to each animal class and was generalized.

5) Each animal was set to a random strength that reflects the relation Zombie < Fish < Otter < Bear

6) method switchMove was generalized.

7) A new animal type ZOMBIE was added, with a relation as show in(5)

ANIMAL

+ r : Random
- gender : int
- strength : int
- movement : boolean
- moved : boolean

+ setAge(int ages) : void
+ getAge() : int
+ maxAge() : int
+ getBirthRate() : int
+ toString() : String
+ getSex() : String
+ getStrength() : int
+ getMovement() : String
+ setMoved(boolean move) : void
+ hasMoved() : boolean

FISH (int ages)

- maxAge : int
- age : int
- birthRate : int

+ setAge(int ages) : void
+ getAge() : int
+ maxAge() : int
+ getBirthRate() : int
+ toString() : String

OTTER (int ages)

- maxAge : int
- age : int
- birthRate : int

+ setAge(int ages) : void
+ getAge() : int
+ maxAge() : int
+ getBirthRate() : int
+ toString() : String

BEAR (int ages)

- maxAge : int
- age : int
- birthRate : int

+ setAge(int ages) : void
+ getAge() : int
+ maxAge() : int
+ getBirthRate() : int
+ toString() : String

ZOMBIE

+ int getStrength();
+ int getBehavior(Animal attacker, Animal defender)
- int switchAttemptCollide(String collision)
+ Animal reproduce(int age)

<< Interface >>

Ecosystem

```
addAnimal (Animal specie, int number) : Animal []
simulate (int rounds) : Animal []
Behavior (Animal attacker, Animal defender) : int
livingEco () : int
free () : int
SpeciesCount (Class specie) : int
canAddSpecies (int existing) : int
isFreeCell (int cell) : boolean
getSpeciesClass (Animal specie) : Class
toString () : String
toCompactString () : String
```



RIVER (int size)

```
- population : int
- river : Animal []
- r : Random
STAY : int final int
BEAR_REPRODUCE : final int
OTTER_REPRODUCE : final int
BEAR_FIGHTS : final int
OTTER_WINS : final int
FREE : final int
```

```
+ addAnimal (Animal specie, int number) : Animal []
- addTo (String specie, int number, int age) : Animal []
+ simulate (int rounds) : Animal []
- switchMove (int react, Animal attacker, Animal defender, int posDefender, int posAttacker) : Animal []
- resetMovement (Animal [] animals) : Animal []
+ Behavior (Animal attacker, Animal defender) : int
- switchAttemptCollide (String collision, Animal attacker) : int
+ livingEco () : int
+ free () : int
+ SpeciesCount (Class Specie) : int
+ canAddSpecies (int existing) : int
+ isFreeCell (int cell) : boolean
+ getSpeciesClass (Animal Specie) : Class
+ toString () : String
+ toCompactString () : String
```



- Animal[] addTo(Animal specie, int number, int age)