Situation

Mr Shingshan, passioned by fish, ask you to develop a simulation for his next aquarium : he would like to get many different, rare and expensive species of fish, and he doesn't want to discover a desert instead of his aquarium, after few months ….

Filling the aquarium

The aquarium contains alga and fishes. Alga do nothing : this is an alga, it exists or not. The fish, has a name (Mr Shinshan love his fishes), and a sex (male or female). The aquarium has a method to add a fish and one other to add an alga. The aquarium has a method to spend time : for each turn, we process the actions, and we display :

        - the number of alga alive.
        - the fishes, with its name and its sex.

Variety

Similar fishes is not interesting. So, we can have herbivorous and carnivorous fishes. And there is six differents species, the carnivorous : grouper, clown fish and tuna, and the herbivorous : flounder, bass, carp. Each fish can eat, an other fish (for carnivorous), or an alga (for herbivorous). The food is chosen randomly.

Miam miam miam

Each turn, each fish eat and what is eaten disappear. Be careful : a fish cannot eat itself and a living being eaten do nothing.

A bit of lightness in this world of heavies

Now, we add the life points. Fishes and alga are living being. All living being begin with 10 life points. If a living being has 0 life points, it dies.

Each turn, an alga grows and wins 1 points. An alga eaten lose 2 points.

Each turn, a fish loses 1 points and are more hungry. If it is very hungry (less than 5 points), it looks for food. Herbivorous can eat an alga and win 3 points. Carnivorous can eat an other fish and win 5 points. But it can't eat itself, or a fish from the same species. To be bitten is very painful : a fish lose 4 points.

Death

Every living being begin with an age of 0 turn, and die if the age is more than 20 turns.

Sexuality

Mono-sexual (tuna and carp) : the fish appear with a sex and nether change.

Old hermaphrodite (bass and grouper) : the fish appear as a male and after 10 turns become a female.

Opportunist (clown fish and flounder) : the fish change its sex according to what it needs.

Save

Mr Shinshan would like to save its aquarium on a file.

Load

It will be easier to load the aquarium from a file.

References : https://zestedesavoir.com/forums/sujet/447/javaquarium/