Java Basics

Oefeningen OOP 2

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1. Animals make sounds, have a weight (kg) and sizes (cm).

   - Cats, fish and rabbits make different noises when rubbed: ’miauw’, ’blub’ and ’ribbit’. Other animals remain silent.

   - We can ask an animal if it is too heavy.
     › a cat is too heavy if it’s weight is bigger than it’s size.

     › fish are never too heavy

     › rabbits are too heavy if bigger than one kilogram

     › in general animals are too heavy when their weight is bigger than their size - 10;

   - An animal must be able to give (using toString()) it’s full type and whether it is too heavy:
     › "Hey, I’m a fish and I’m not Fat !"

     › "Hey, I’m a cat and I need to go and see the Weightwatchers"

   - Two animals are considered equal if they Body Mass Index is equal

     - BMI: weight / (size * size).

   - TIPS :

     › use constants where possible.

     › use super. in toString() of the different subclasses.

   BRAINTEASER: How could you implement the toString() in the super class (Animal) and still have the correct toString() without the need to override the toString in the subclasses.

2. We are going to model a ship for transporting cars over the canal.

   - This ship has a maximum capacity of 100 places.

   - A second limitation is that the maximum weight that can be supported is 95000 kg.

   - We are going to model two kind of vehicles.

- › A car has a weight of 1000 kg and takes one place.
- › A Van has a weight of 1500 kg and takes two places.

- Create a class Ship.
- Create the variables necessary to hold the information of the ship.
- Write a method addVehicle(Vehicule aVehicule) to add a vehicule into the ship.
- Write a method totalWeight() that returns the total weight of the content of the ship.
- Write a method removeVehicle() to remove the last added vehicle
- Write a method getContent() to check the content of the ship (return a String).
  - › for example : "2500 kg and 25 places"

- When adding or removing cars to your ship, pay attention to the maximum total number of cars and the maximum total weight.