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Software Engineering

http://proglang.informatik.uni-freiburg.de/teaching/swt/2009/

Exercise Sheet 8

Exercise 1: Collections in OCL (6 Points)

Let *col* be a collection in OCL. Implement the following operations:

1. `hasNElements`: Returns `true` for some number n und some expression *expr*, if there exist exactly n elements in *col* that fulfill *expr*. The iteration variable in *expr* is `it`.
2. `isUnique`: Returns `true` if *col* does not contain duplicates. Do *not* use the builtin function of the same name.
3. `take`: Returns for some number n a subset of *col*. The size of the subset is the minimum of n and the size of *col*.

Exercise 2: Pre- and postconditions in OCL (4 Points)

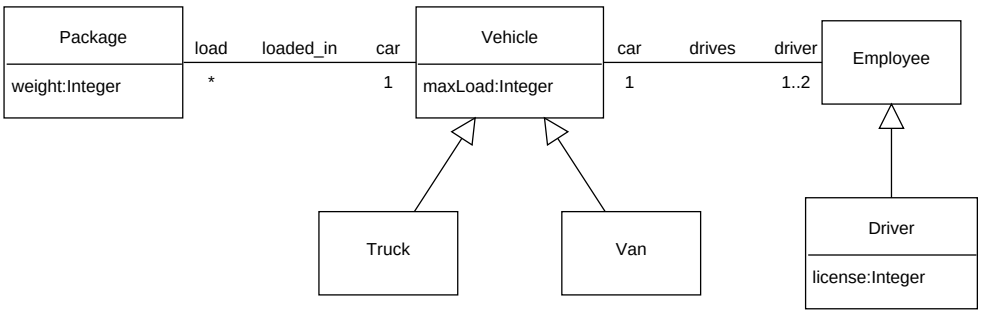
1. In the lecture, you have seen a precondition for the operation `move` of class `Meeting`. Refine this precondition so that meetings in different locations can take place at the same time.
2. The class `Meeting` from the lecture gets now extended by an operation

   ```
   relocate(newLocation : Location)
   ```

   which changes the location of a meeting. Find sensible pre- and postconditions for `relocate`.

Exercise 3: OCL in praxis (10 Points)

The following class diagram models part of a truckage company:



Implement the following constraints in OCL:

1. Every Employee driving a Vehicle has to be some kind of Driver. (There may be other kinds of Employees not listed in the diagram).
2. If the Vehicle is a Truck then two Drivers are assigned to it, Vans have only one Driver.
3. The Drivers of a Truck must have a Licence value of 2.
4. The combined weight of all Packages loaded into one Truck may not exceed its maxLoad.