SWEN3145 - Software Modelling

Modelling Exercise 5

1 Purpose

The purpose of this session is for you to describe the requirements of a system, add constraints to a UML class model, and compare the nuances of alternate models.

2 Instructions

Some specific rules are given below.

1. The modelling exercise in this tutorial may be completed in groups of 2-3 students[1] – you may also choose to work on your own. The deliverables are the same whether you are in a group or working on your own.
2. Submit zip file containning your *pdf* file as required in tasks 1 to 3 and your *.use* file as required in Task 2 from Section 4. Put the names of the people you worked with on the first lines of the files — names that are missing from the files will not get the marks assigned to the submission or be sent feedback. Only one group member needs to make a submission on OurVLE.

3 Description

Figure 1 is a requirements class diagram of a small part of the Robot application and Figure 2 is an alternate of Figure 1. The *Role* and *ObjectWithJourney* classes are abstract and the *Date* class is being used as a data type.

4 Tasks

1. In not more than 500 words, write a summary explaining the requirements that could have led to the class diagram in Figure 1.
2. Choose ten (10) static invariants that you consider to be important that are not already enforced by multiplicity constraints in Figure 1. Give an english description for each invariant, i.e., the requirement, and the OCL specification to enforce it. Add a table to your pdf file with the answer and also ensure that the constraints and their explanations are in your *.use* file.
3. Figure 2 gives an alternative requirements class diagram for the Robot application. Compare and contrast it with the class diagram in Figure 1 in terms of the:
   a) advantages or disadvantages of using the one or the other; and
   b) the functionality allowed or restricted by one or the other.

[1] This group can be different from your project group and be different from week to week during the semester.

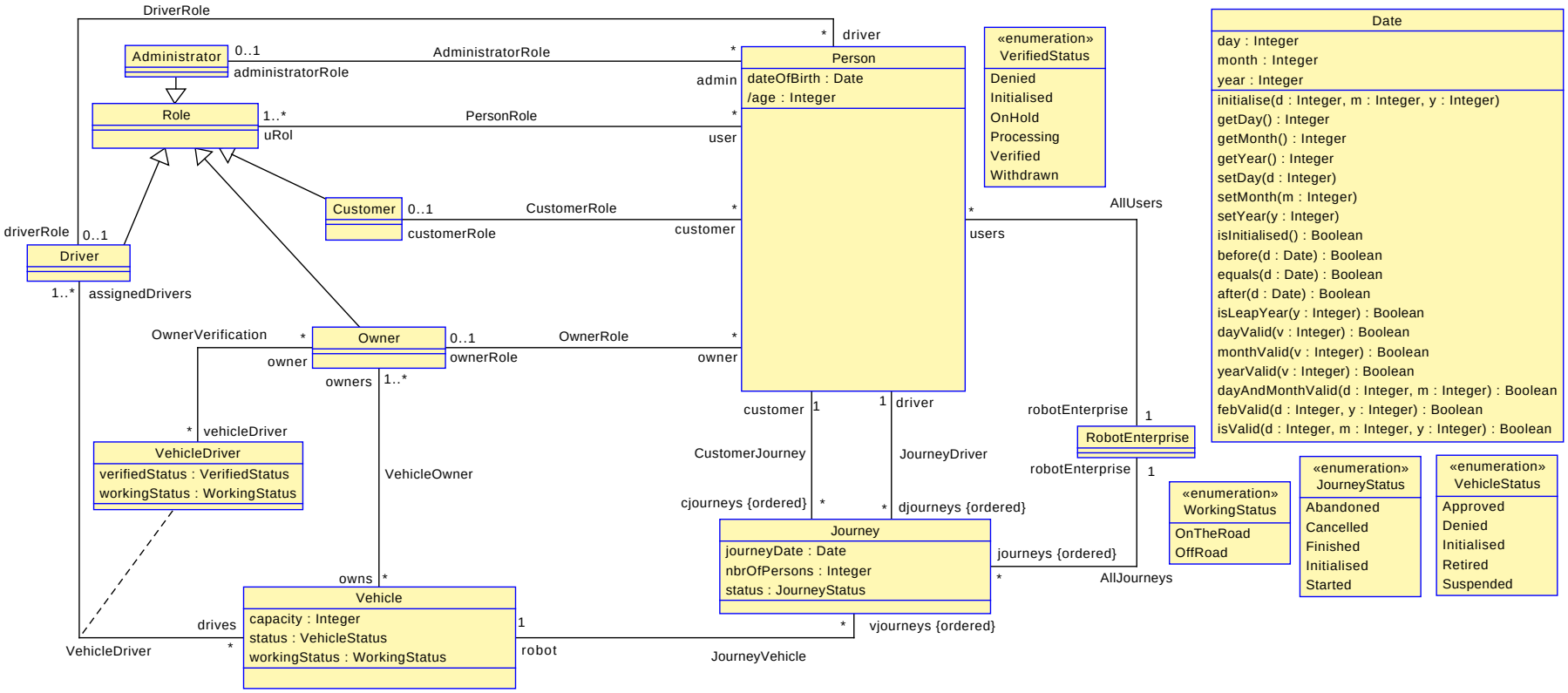

Figure 1: Requirements class diagram for the Robot Application - Association and role names view.

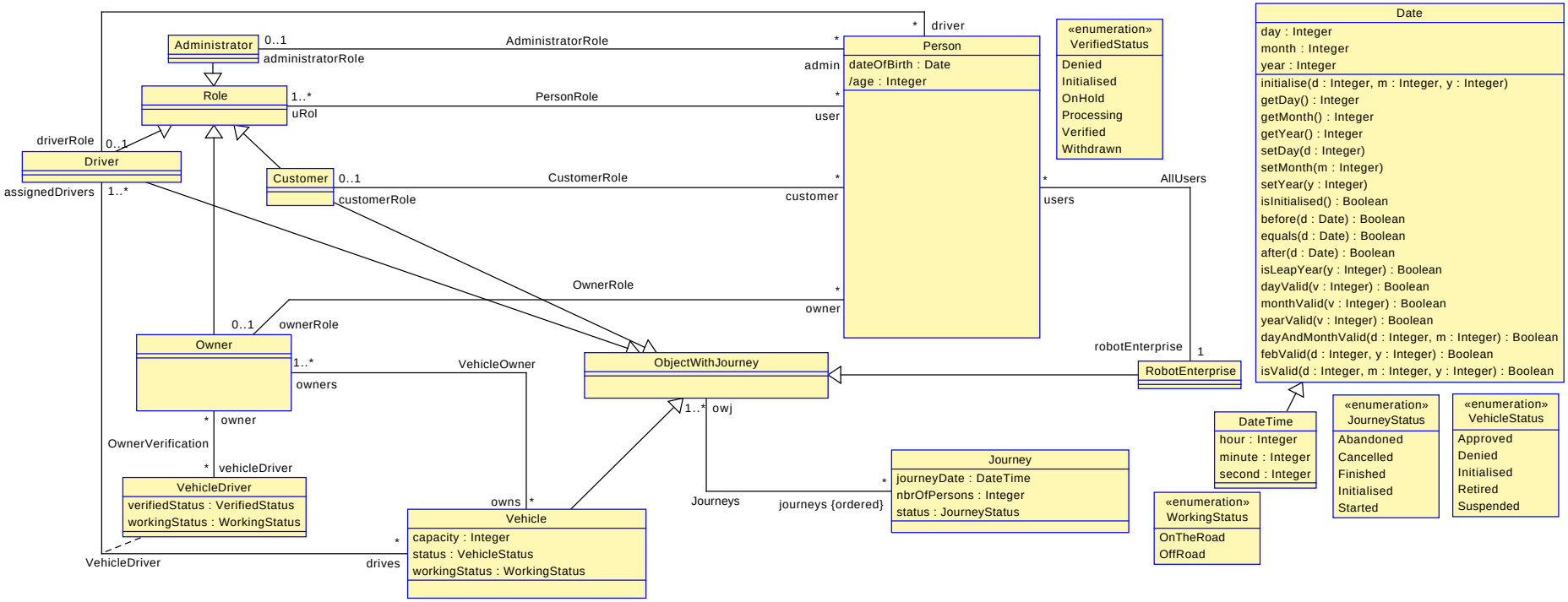

Figure 2: An alternate requirements class diagram for the Robot Application - Association and role names view.