Lab 2 - script

Software design
Computer Science Bachelor
February - March 2023

The goal of this lab is to learn about class diagrams in UML. We will focus on a toy project, a delivery system, for which we will ask the students to make part of the class diagram and to write part of the corresponding Java code.

Step 1

We will first explain why we use UML. The majority of students will already be familiar with UML from the Requirements Engineering course, so this is mainly intended as a refresher. We will give a description of the system we'll be modeling:

"Our company needs a delivery system which is deployed in order to help retail shops deliver orders placed online to the customer's doorstep.
The company needs to handle the administration of customers, employees and their warehouses.
The customers use the service by placing one order (or more) which consists of a list of products, a date of request and they are able to validate the status of their order.
The employees are divided between drivers that deliver the orders from a warehouse to the customers and managers which assign the drivers to orders. The company can have any number of drivers but there is only one manager per warehouse.
The company has at least one warehouse where they hold their products and each warehouse has 5 cars for delivery of the orders. The cars have different sizes and each driver needs to specify what type of car they can drive."

Step 2

We show a part of the class diagram for the system described in the first step. We explain how you go from the description of the model to the class diagram. Then we show how you go from the class diagram to Java code. Since most students will be unfamiliar with Java, this will also serve as an introduction to the language's syntax.

Step 3

We ask the students to integrate a different part of the class diagram by themselves and implement this in Java. Afterwards we reconvene and show how we have modeled this to give the students an example model which they can compare their own model against.

Step 4

We ask the students to finish the class diagram by themselves and implement the rest in Java. Afterwards we show the full solution we made, so students can compare.