

Software Modelling, fall 2009, exercise 2

1. In the course *programming project* students are supposed to write down the working hours that they are using for the project.

Always when doing something related to the project, a student writes down the time used and the information on the type of activity the time was used.

Activity could be

- requirements analysis
- design
- programming
- testing
- documentation
- other

A computer system that supports the usage hour reporting of programming projects is needed.

The programming project is done in a group. In one group there are several students and one instructor. Students are working individually, each has an own project to do. The instructor ensures that every student has an account to the system. Instructor should be capable of following the progress of the students.

Lecturer of the programming course ensures that each active instructor has an in the system with the proper privileges.

Your task now is to:

- List the actors of the system
 - List the possible use cases
 - Give a short description for every use case
 - Draw a use case diagram
2. Give a more detailed description for three use cases (you can pick any three you like). Use the template of Alistair Cockburn to report the use cases. You'll find the template in www.cs.helsinki.fi/u/mluukkai/ohmas09/usecase.pdf
 3. LAL is a recently established Finnish company that is going to provide intercity bus transportation. Your task is to define an information system to support LAL's business. You are at the moment preparing for a meeting with the company's representative in order to start to gather the requirements. He has contacted you by email and told you the following about LAL's business plan (see next page).
List the actors of the systems.
 4. List all the use cases for LAL-system. It is enough to give a name and a brief description to every use case.
 5. Draw a use case diagram for LAL-system.

LAL Business plan

"Our aim is to be competitive on the market by offering very affordable tickets. We intend to be able to keep ticket prices low by minimizing our expenses: we are going to provide service only on very popular direct routes between big cities without guarantees about further connections to smaller destinations.

We try to adjust the ticket prices so that the demand keeps our buses as fully booked as possible. Those who buy their tickets early get cheaper tickets. If a bus line proves to be unpopular, we can lower the ticket prices on it. On the other hand, we are prepared to raise prices on the more popular lines. Our dynamical pricing can even result in a situation where passengers sitting in the same bus have paid different prices for their tickets depending on when they bought their tickets. On the other hand, we do not offer any reduced prices for selected customer groups or for customers buying multiple tickets at once.

We sell tickets only through our internet service, not on bus stations, bus stops, or on the buses themselves. Tickets must be paid by a credit card or by using a dedicated internet banking service. Tickets cannot be booked before purchase. Tickets are sold for a particular line on a particular date and time, but not for a certain seat in the bus. Purchased tickets can be cancelled, but we can offer only a partial refund. Cancellation can be made in the internet or by using our phone service. The later the cancellation is made, the smaller the refund. Besides cancellation, phone service gives also schedule information.

All our tickets are electronic tickets that are delivered to users by email. The bus driver checks the validity of the ticket by reading the bar code in the ticket when a passenger enters the bus.

We intend to hire people for a variety of jobs. The transportation scheduler's responsibility is to design the timetables and to establish and cancel bus routes and individual bus connections on certain dates and times according to the demand. The pricing analyst optimizes the ticket prices according to the demand and the market situation. The transportation organizer acts as the head of the bus drivers and designates the drivers and vehicles for each bus connection. He is also responsible for supervising vehicle maintenance and inspections. The drivers and phone service employees will be paid by the hour. The other personnel will have a regular monthly salary. We intend to outsource or externalize all activities, such as accounting, payroll calculations, vehicle maintenance, and computer maintenance, that do not belong to our core business."