Domain models (Problems)

Lecture notes

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Announcement

No lectures on
October Friday 13

Introduction

- In the following slides, we present a number of conceptual models informally
- Each problem must be solved independently from the others
- You must produce a conceptual model, and a UML domain model for each problem
- No Java domain model is required

Problem #1

- Acme specialises in managing child care centres, for which they store their names, addresses, emails, and phone numbers
- Each child care centre offers a number of services, which are described textually; services are not predefined in a taxonomy, but may be created or deleted as time goes on
- Child care centres must pay a fee so that their services can be advertised by Acme; fees are for a period of a natural year and they must be backed by a receipt, which might not be available as of the time of registering a payment
- Adults register their children to child care centres; registrations are for a natural year and must be backed by a receipt, which must be available as of the time of making a registration
- The actors of this system are the adults and the clerks of the child care centres, for which Acme stores their names, addresses, phones, and email addresses
- Every adult may be responsible for a number of children, regarding whom the system stores their names

Problem #2

- Acme runs a web site about start-ups, each of which is characterised by means of a number of success stories for which the system must store a title and a description
- Acme has information about investors and the start-ups in which they've invested money; for each investment, Acme stores the date, time, amount of money, and a description
- Both start-ups and investors are customers of Acme and then actors of the information system
- Acme stores a name and a rating for every customer, plus some features that characterise them further
- Each feature has a name and a textual description; the catalogue is dynamic; current features include "name of the CEO", "name of the CTO", "stock market", "website", "blog", "twitter user", and "LinkedIn user".

Problem #3

- Acme's business consists of managing distribution routes
- A route is composed of a list of segments, each of which has an origin point and a destination point; every route requires a vehicle with a given capacity (measured in kilogrammes, litres, units, and the like); some routes require refrigerated vehicles
- Each point of a segment consists of an address, GPS co-ordinates, and a date and a time at which they must be visited
- A route must be assigned to a unique vehicle, for which Acme stores its plate number, make, model, capacity, and a note on whether it is refrigerated or not
- Acme works with both producers and distributors; the producers inform Acme about the routes that they require to distribute their products, and the distributors inform them about the vehicles that they own; Acme's business consists of matching routes and vehicles
- Acme stores the name, VAT number, contact person, and contact phone of their customers; the customers are the actors of the information system

Problem #4

- Acme sells component copies
- Every component has a code, a name, a version, a description and a license, which, in turn, has a legal text that describes it
- A component may have from zero to thousands of copies, which are owned by Acme's customers; Acme stores the name of each customer and the name of the company for which he or she works; each copy of a component has a unique serial number
- Acme has an extensive knowledge base that consists of articles about the components whose copies they sell
- Customers may comment on the articles
- Customers are the actors of the information system

Problem #5

- Acme manages product incidences
- Each product has a serial number and belongs to a family; families have a number of predefined maintenance procedures
- Incidences are placed by Acme's customers, who select the product and the maintenance procedure they require; an incidence may be related to some previous incidences by the same customer
- Acme hires a number of technicians who are specialists in a subset of maintenance procedures; every incidence is eventually assigned to a technician
- Technicians and customers are the actors of the system

Problem #6

- Acme runs roughly 100 veterinary clinics in different cities across the world
- In each clinic there are a number of employees: veterinaries, nurses, and assistants. Acme stores a social insurance number for each employee
- Each clinic cares of hundreds of pets, each of which has a name, a race, and an owner, who is a customer
- Each pet has a VR (Veterinarian record) in which nurses jot down information about each visit to the clinic: the veterinary, nurse, and (optional) assistant who looked after the pet, moment, symptoms, treatment, and remarks
- The actors of the system are the employees and the customers; Acme stores the following contact data about them: name, address, phone and email

Thanks!

Light of the moon
Moves west, flowers' shadows
Creep eastward