Universität Basel

Software Architecture

Exercise – Modelling

BSc

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Exercise Opening

Overview

Design or evaluation of software architecture means **reflecting** on the structure of software-based systems **without describing this structure in great detail** (e.g., in program code).

Thus **abstracting from details** (i.e., **modelling**) and concentrating on the coarse structures is an essential element in software architecture elaboration.

The notion of model is almost as important as the notion of system. The study of a system basically amounts to building the corresponding model and studying or analyzing its behavior. This gives rise to the problem of **validating a model against the modelled system**. In other words, the problem of verifying whether a model adequately depicts the system it represents?

How abstractly you must approach a design , depends on the questions to be answered in each individual case.

Exercise Agenda

- Modelling

Modelling

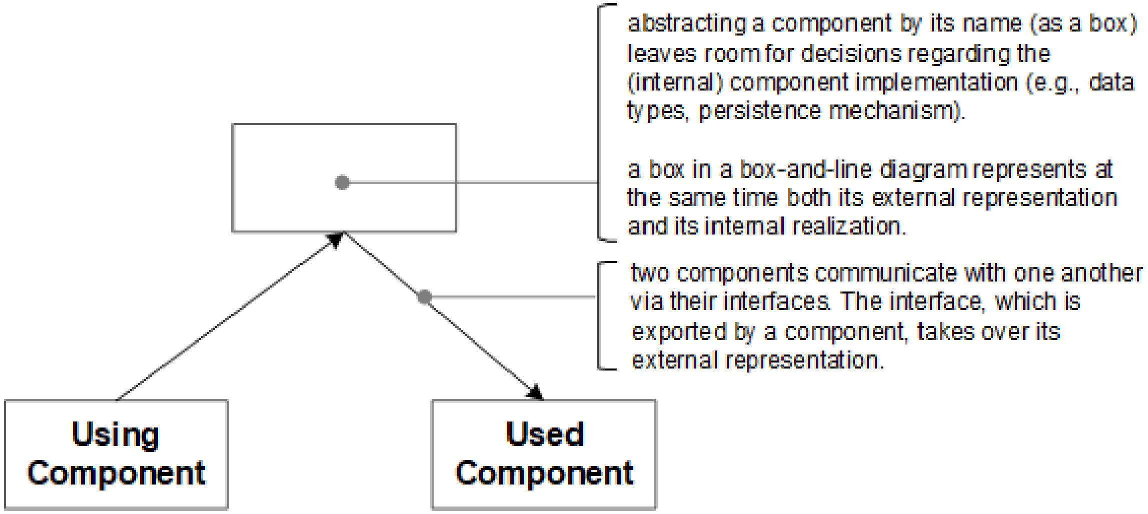
Abstraction

What is the benefit of abstraction in the field of software development?

Modelling
Components

The (software) architecture of a (software) system is often described as the structure of the system (whole), consisting of several parts (**components**) as well as their interdependencies (**relations**).

Diagrams in which components are represented as rectangles and component relations as connecting lines are a simple way to describe software architecture (**box-and-line diagrams**).



abstracting a component by its name (as a box) leaves room for decisions regarding the (internal) component implementation (e.g., data types, persistence mechanism).

a box in a box-and-line diagram represents at the same time both its external representation and its intemal realization.

two components communicate with one another via their interfaces. The interface, which is exported by a component, takes over its external representation.

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Modelling
Components

What types of components can we distinguish?

Modelling

Relations

What types of relations can we distinguish?

Questions