Configuration-Related Topics

Alexander Felfernig*, Lothar Hotz†, Juha Tiihonen§, and Claire Bagley‡
*Graz University of Technology, Graz, Austria
†HITeC e.V., University of Hamburg, Hamburg, Germany
§Aalto University, Aalto, Finland
‡Oracle Corporation, Burlington, MA, USA
Contents

• Design
• Planning
• Recommender Systems
• Software Configuration and Version Management
• Product Data Management
Design

• Synthesis tasks [Brown and Chandrasekaran, 1989]
  • routine design (design class 3)
  • innovative design (design class 2)
  • creative design (design class 1)

• Routine design: specifications of objects, their properties, and compositional structures are given (∼ Configuration)

• Innovative design: e.g., creation of an upgrade version of a basic mobile phone type (∼ Open Configuration)

• Creative design: e.g., artistic design of a new furniture line
Planning

• Process of sequencing a set of activities in such a way that a defined goal can be accomplished

• Planning deals with the composition of actions whereas configuration deals with the composition of components
Recommender Systems (1)

- Recommender systems (Jannach et al., 2010) support users in the process of finding and selecting products (items) from a given assortment.

- One major difference between product configurators and recommender systems is the way in which product knowledge is represented.

- Recommender systems typically operate on a table of explicitly defined solution alternatives.

- In configuration the large space of possible solutions makes an explicit representation impossible.
Recommender Systems (2)

• **Collaborative filtering** [Konstan et al., 1997] determines recommendations by identifying nearest neighbors with a similar rating behavior compared to the current user.

• **Content-based filtering** [Pazzani and Billsus, 1997] recommends items on the basis of the similarity between the preferences of the current user properties extracted from item descriptions.

• **Knowledge-based recommendation** [Felfernig and Burke, 2008] recommends items on the basis of a predefined set of constraints and/or similarity metrics.
Software Configuration & Version Management

• Software configuration: in software-intensive domains such as Car Periphery Supervision require the combination of hardware and software systems [Thiel et al., 2001]

• Software Configuration Management (SCM) handles dependencies of software artifacts in the context of software development projects [Ylinen et al., 2002]

• Functionalities: creation of a new version of a software artifact, restoration of versions, merging of versions, and notification services that keep developers informed

• Difference to configuration: lack of an abstract, declarative model of the source code
Product Data Management

• Product Data Management (PDM) supports the management of information required to design, manufacture, and maintain products

• Example information: process specifications, product data, material specifications

• PDM systems support the storing for configurations, related documents, and configurator-created BOMs

• PDM systems increasingly also provide functionalities for configuring products
Thank You!
References (1)


References (2)


References (3)


References (4)


References (5)


