

Designing Software Product Lines With Uml From Use Cases To Pattern Based Software Architectures

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Designing Software Product Lines with UML **From Use Cases –**

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Designing a Product Line The key is to identify dimensions of your product that are highly valued by some customers yet of little importance to other customers. Now you need to offer versions that...

How to increase revenue by using a versioning strategy to –

software architecture and product lines i the designing of software architectures 2 design of software ... product line approach to software development again our approach has been shaped by the co operation projects that we have had with a number of companies which use software product lines get

Design And Use Of Software Architectures Adopting And –

Product Line Architecture design is a key activity for developing successful Software Product Line projects. But it is difficult and complex task since architecture of software product line should be considered with variability.

Guidelines for Architecture Design of Software Product Line

Software Product Line engineering (SPL) has emerged in recent years as a planned approach for software reuse within families of related software products. In SPL, variability and commonality among different members of a family is studied and core assists (system architecture, software components, documentation, etc.) are designed accordingly to maximize reuse within the family members.

Using a Software Product Line Approach in Designing Grid –

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It is possible to generate quick and random design concepts without touching a physical pen or paper. Simply use SWID, the market ` s best Product Design Software that you can trust. Create, edit, modify, and customize your designs using SWID ` s geometry. It takes the shortest time possible to get the work done with SWID.

6+ Best Product Design Software Free Download for Windows –

Competitive advantage. Marketing executives believe that product lines give companies a competitive advantage.When a business has a competitive advantage, it has an edge over its rivals. When a company has many product lines and groups them together, it creates a product mix. Collins Dictionary has the following definition of the term: " A product line is a group of related products produced ...

What is a product line? Definition and examples – Market –

Using a Software Product Line Approach in Designing Grid ...

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fashion is software product line engineering (SPL). We propose to design and implement static analysis frameworks as product lines in order to foster reuse of analysis components and allow for tailored but generally useful analyses. Permission to make digital or hard copies of all or part of this work for personal or

Winter Semester 16/17 Software Engineering Design –

Software Product Lines (SPL) offer the ability to create, maintain and evolve a set of similar products with the simplicity of a single system rather than the complexity of deploying a multitude ...

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In the component-based distributed design phase, the component-based software architecture for the product line is developed. The software product line is structured into components, and the interfaces between the components are defined. The architecture of a product line contains kernel, optional, and variant components.

14 – Software Product Line Architectural Design: Component –

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A software product line is a set of software-reliant systems that share a common, managed set of features satisfying a particular market or mission area, and are built from a common set of core assets in a prescribed way. Producing a set of related products as a product line has allowed organizations to achieve increased quality and significant reductions in cost and time to market.

Software Product Lines – eLearning

Trust the innovative company - Product Designer Tool – and benefit from its ability to develop high-quality personalized online designer tools for clients from all across the world. Its path-breaking online design software is quite simple to customize products like t-shirt, shoe, hat, cap, mug, banner, stamp, greeting cards etc. with effortless ease. The company has expertise in developing 2D/3D designer tools in jQuery, PHP and HTML5 to meet specific requirements of every company.

Designing Software Product Lines with UML **From Use Cases –**

"Designing Software Product Lines with UML is well-written, informative, and addresses a very important topic. It is a valuable contribution to the literature in this area, and offers practical guidance for software architects and engineers." –Alan Brown Distinguished Engineer, Rational Software, IBM Software Group "Gomaa's process and UML extensions allow development teams to focus on feature-oriented development and provide a basis for improving the level of reuse across multiple software development efforts. This book will be valuable to any software development professional who needs to manage across projects and wants to focus on creating software that is consistent, reusable, and modular in nature." –Jeffrey S Hammond Group Marketing Manager, Rational Software, IBM Software Group "This book brings together a good range of concepts for understanding software product lines and provides an organized method for developing product lines using object-oriented techniques with the UML. Once again, Hassan has done an excellent job in balancing the needs of both experienced and novice software engineers." –Robert G. Pettit IV, Ph.D. Adjunct Professor of Software Engineering, George Mason University "This breakthrough book provides a comprehensive step-by-step approach on how to develop software product lines, which is of great strategic benefit to industry. The development of software product lines enables significant reuse of software architectures. Practitioners will benefit from the well-defined PLUS process and rich case studies." –Hurley V. Blankenship II Program Manager, Justice and Public Safety, Science Applications International Corporation "The Product Line UML based Software engineering (PLUS) is leading edge. With the author's wide experience and deep knowledge, PLUS is well harmonized with architectural and design pattern technologies." –Michael Shin Assistant Professor, Texas Tech University Long a standard practice in traditional manufacturing, the concept of product lines is quickly earning recognition in the software industry. A software product line is a family of systems that shares a common set of core technical assets with preplanned extensions and variations to address the needs of specific customers or market segments. When skillfully implemented, a product line strategy can yield enormous gains in productivity, quality, and time-to-market. Studies indicate that if three or more systems with a degree of common functionality are to be developed, a product-line approach is significantly more cost-effective. To model and design families of systems, the analysis and design concepts for single product systems need to be extended to support product lines. Designing Software Product Lines with UML shows how to employ the latest version of the industry-standard Unified Modeling Language (UML 2.0) to reuse software requirements and architectures rather than starting the development of each new system from scratch. Through real-world case studies, the book illustrates the fundamental concepts and technologies used in the design and implementation of software product lines. This book describes a new UML-based software design method for product lines called PLUS (Product Line UML-based Software engineering). PLUS provides a set of concepts and techniques to extend UML-based design methods and processes for single systems in a new dimension to address software product lines. Using PLUS, the objective is to explicitly model the commonality and variability in a software product line. Hassan Gomaa explores how each of the UML modeling views—use case, static, state machine, and interaction modeling—can be extended to address software product families. He also discusses how software architectural patterns can be used to develop a reusable component-based architecture for a product line and how to express this architecture as a UML platform-independent model that can then be mapped to a platform-specific model. Key topics include: Software product line engineering process, which extends the Unified Development Software Process to address software product lines Use case modeling, including modeling the common and variable functionality of a product line Incorporating feature modeling into UML for modeling common, optional, and alternative product line features Static modeling, including modeling the boundary of the product line and information-intensive entity classes Dynamic modeling, including using interaction modeling to address use-case variability State machines for modeling state-dependent variability Modeling class variability using inheritance and parameterization Software architectural patterns for product lines Component-based distributed design using the new UML 2.0 capability for modeling components, connectors, ports, and provided and required interfaces Detailed case studies including a step-by-step solution to real-world product line problems Designing Software Product Lines with UML is an invaluable resource for all designers and developers in this growing field. The information, technology, and case studies presented here show how to harness the promise of software product lines and the practicality of the UML to take software design, quality, and efficiency to the next level. An enhanced online index allows readers to quickly and easily search the entire text for specific topics.

Software product line engineering has proven to be the methodology for developing a diversity of software products and software intensive systems at lower costs, in shorter time, and with higher quality. In this book, Pohl and his co-authors present a framework for software product line engineering which they have developed based on their academic as well as industrial experience gained in projects over the last eight years. They do not only detail the technical aspect of the development, but also an integrated view of the business, organisation and process aspects are given. In addition, they explicitly point out the key differences of software product line engineering compared to traditional single software system development, as the need for two distinct development processes for domain and application engineering respectively, or the need to define and manage variability.

While standardization has empowered the software industry to substantially scale software development and to provide affordable software to a broad market, it often does not address smaller market segments, nor the needs and wishes of individual customers. Software product lines reconcile mass production and standardization with mass customization in software engineering. Ideally, based on a set of reusable parts, a software manufacturer can generate a software product based on the requirements of its customer. The concept of features is central to achieving this level of automation, because features bridge the gap between the requirements the customer has and the functionality a product provides. Thus features are a central concept in all phases of product-line development. The authors take a developer ` s viewpoint, focus on the development, maintenance, and implementation of product-line variability, and especially concentrate on automated product derivation based on a user ` s feature selection. The book consists of three parts. Part I provides a general introduction to feature-oriented software product lines, describing the product-line approach and introducing the product-line development process with its two elements of domain and application engineering. The pivotal part II covers a wide variety of implementation techniques including design patterns, frameworks, components, feature-oriented programming, and aspect-oriented programming, as well as tool-based approaches including preprocessors, build systems, version-control systems, and virtual separation of concerns. Finally, part III is devoted to advanced topics related to feature-oriented product lines like refactoring, feature interaction, and analysis tools specific to product lines. In addition, an appendix lists various helpful tools for software product-line development, along with a description of how they relate to the topics covered in this book. To tie the book together, the authors use two running examples that are well documented in the product-line literature: data management for embedded systems, and variations of graph data structures. They start every chapter by explicitly stating the respective learning goals and finish it with a set of exercises; additional teaching material is also available online. All these features make the book ideally suited for teaching – both for academic classes and for professionals interested in self-study.

This book covers research into the most important practices in product line organization. Contributors offer experience-based knowledge on the domain and application engineering, the modeling and management of variability, and the design and use of tools to support the management of product line-related knowledge.

Software product lines represent perhaps the most exciting paradigm shift in software development since the advent of high-level programming languages. Nowhere else in software engineering have we seen such breathtaking improvements in cost, quality, time to market, and developer productivity, often registering in the order-of-magnitude range. Here, the authors combine academic research results with real-world industrial experiences, thus presenting a broad view on product line engineering so that both managers and technical specialists will benefit from exposure to this work. They capture the wealth of knowledge that eight companies have gathered during the introduction of the software product line engineering approach in their daily practice.

Designing Software Product Lines with UML **From Use Cases –**

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Over the last decade, software product line engineering (SPL) has emerged as one of the most promising software development paradigms for increasing productivity in IT-related industries. Detailing the various aspects of SPL implementation in different domains, Applied Software Product Line Engineering documents best practices with regard to system development. Expert contributors from academia and industry come together and focus on core asset development, product development, and management, addressing the process, technical, and organizational issues needed to meet the growing demand for information. They detail the adoption and diffusion of SPL as a primary software development paradigm and also address technical and managerial issues in software product line engineering. Providing an authoritative perspective of the latest research and practice in SPL, the text: Presents in-depth discussions and many industry / case studies Covers applications in various domains including automotive, business process management, and defense Organized according to the organizational, process, and technical aspects of software product lines within an organization Provides the expertise of a distinguished panel of global contributors Ever-increasing global competition coupled with a fragile world economy means that the pressure is on for software engineers and software process improvement professionals to find ways to meet the needs of expanding markets—with greater efficiency and effectiveness. This book arms readers with the insight needed to harness the power of SPL to increase productivity, reduce time to market, and to handle the growing diversity in the quickly evolving global marketplace.

The concept of a data lake is less than 10 years old, but they are already hugely implemented within large companies. Their goal is to efficiently deal with ever-growing volumes of heterogeneous data, while also facing various sophisticated user needs. However, defining and building a data lake is still a challenge, as no consensus has been reached so far. Data Lakes presents recent outcomes and trends in the field of data repositories. The main topics discussed are the data-driven architecture of a data lake; the management of metadata – supplying key information about the stored data, master data and reference data; the roles of linked data and fog computing in a data lake ecosystem; and how gravity principles apply in the context of data lakes. A variety of case studies are also presented, thus providing the reader with practical examples of data lake management.

The Software Product Line (SPL) is an emerging methodology for developing software products. Currently, there are two hot issues in the SPL: modelling and the analysis of the SPL. Variability modelling techniques have been developed to assist engineers in dealing with the complications of variability management. The principal goal of modelling variability techniques is to configure a successful software product by managing variability in domain-engineering. In other words, a good method for modelling variability is a prerequisite for a successful SPL. On the other hand, analysis of the SPL aids the extraction of useful information from the SPL and provides a control and planning strategy mechanism for engineers or experts. In addition, the analysis of the SPL provides a clear view for users. Moreover, it ensures the accuracy of the SPL. This book presents new techniques for modelling and new methods for SPL analysis.

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