Overview of the 3rd International Workshop on Software Patterns and Quality (SPAQu’09)

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Abstract
We will discuss here the theoretical, social, technological and practical issues related to quality aspects of software patterns including security and safety aspects. The workshop will provide the opportunity for bringing together researchers and practitioners, and for discussing the future prospects of this area. As for the workshop format, first, we will have short talks on what software patterns are, and how they are related to quality. Second, we will have accepted position paper presentations to expose the latest researches and practices on software patterns and quality. Finally, we will discuss several topics related to these presentations in small groups. Newcomers, interested researchers and practitioners are free to attend the workshop to facilitate their understandings, researches and practices on software patterns and quality.

Categories and Subject Descriptors D.2.10 [Software Engineering]: Design; D.2.11 [Software Engineering]: Software Architectures; D.2.13 [Software Engineering]: Reusable Software; D.3.3 [Programming Languages]: Language Constructs and Features

General Terms Design, Experimentation, Measurement

Keywords Software Patterns, Software Quality, Design Patterns, Security Patterns

1. Main Theme and Goals
As requirements for software products and processes have become more complex, larger scale and have begun to include higher reliability, demand is increasing for a system of technologies to capture, share, enhance, apply and evaluate software patterns. Especially, although numbers of pattern catalogs have been published, little known is about how to specify, measure and evaluate those patterns themselves and/or their application results from the viewpoint of quality. Such conditions make it difficult to see the nature of software patterns and pattern-oriented development ways.

To overcome such conditions, the first workshop of this series was held on December 2007 collocated with the Asia-Pacific Software Engineering Conference (APSEC)[1], and it attracted more than 30 people. The second one was held on October 2008 collocated with the Pattern Languages of Programs Conference (PLoP)[2], and it attracted around 10 people. These previous workshops were successful to discuss the theoretical, social, technological and practical issues related to quality aspects of patterns including security and safety aspects.

However we believe there is a still room to gain an improved understanding and for further research on these topics, and thus continuous efforts for holding the workshop are necessary. This workshop will provide the opportunity for bringing together researchers and practitioners, and for discussing the future prospects of that area. The tone of the workshop will be such that a newcomer to the field of software patterns will receive an introduction of what software patterns are, and how they fit in with their research.
2. Possible topics

"Quality" is defined as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs in ISO 8402. An important property of software quality is that quality requirements are not limited to functionality and reliability. For example, typical software quality characteristics are classified in ISO/IEC 9126 as the followings: functionality, reliability, usability, efficiency, maintainability and portability. To these we can add security and safety. Quality requirements (as part of non-functional requirements) can be specified for each quality characteristic.

Software patterns can be reused to fulfill software requirements including functional and non-functional ones. Currently how to specify quality aspects of patterns applications or of themselves is a remaining big research challenge. Typical existing approaches are the followings:

• Qualitative analysis of relationships among quality attributes (characteristics) and patterns, such as software quality assessment[4] and architecture trade-off analysis[5].
• Requirements engineering for quality aspects of patterns, such as the goal-oriented analysis of patterns for finer representation and selection[6].
• Quantitative measurements of quality aspects of patterns, such as the design complexity[7] and defect frequency[8] in design patterns application results.
• Emerging quality-specific patterns such as security patterns[9].

However, we believe there is still room to gain an improved understanding and further research development on these topics (e.g. how to validate pattern analysis and/or application results?).

3. Post-workshop activities

After the workshop, we will display a poster summarizing the workshop results at the OOPSLA conference site. Moreover, we have a plan to make and put a detailed report on the workshop website[3]. This report will include a summary of discussions so that it will provide a brief summary of the state of the art and future perspectives in the area of software patterns and quality. Therefore, it should facilitate each participant’s and non-participant reader’s understanding and future research/practice on this area.

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References