Requirement Engineering for Web applications

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Abstract

With the rapid development of service computing technology, Web Application Development (WAD) is getting rid of heavy programming labor and replacing it with resource aggregation to reuse available services on the Internet. Thus, designing and programming phases will no longer account for a big ratio in software development lifecycle. Rather, requirements engineering (RE), a phase that comes before design and programming, will play a more important role that determines the success of WAD. In fact requirements engineering should be as complex and well thought out as the design and programming, yet its insufficiencies have led to many projects with poor requirements and blamed as the major reason for many software failures. Therefore, requirements engineering is now moving to the forefront gaining increased significance in software engineering for services oriented web applications.

Web applications requirements have new characteristics causing them to change more rapidly. This makes traditional requirements modeling and validation methods insufficient to provide adequate support for web applications. The requirements of the web applications come from not only the general domain analysis and the personalized, diverse users’ requirements, but also the availability of the related web services. Web applications requirements are also evolving while they are widely used. Therefore, RE for Web applications (RE4Webapp) is challenged to explore sound engineering approaches for eliciting (identifying), describing, validating and managing requirements of Web applications.

Our investigating of RE4Webapp is based on a hierarchical and cooperative requirements engineering framework named RGPS-C, which is a cyclical model consisting of four layers, namely Role, Goal, Process and Service. Based on this model, we will discuss the challenges and principles for RE4Webapp fundamental activities in the cyclical process, including requirement elicitation, analysis, evolution, validation, and management. In the cyclical process of RE4Webapp, requirements validation is a crucial activity to ensure high-quality requirements. Based on RGPS-C model, a framework is provided to examine the factors involved in validating requirements, delineate some issues and problems in validating requirements and puts forth some possible areas for further research in requirements validation as connected to user satisfaction, especially for services oriented web applications.