User Story Methodology Adaptations for Projects Non-traditional in Scope and Customer GUI Contributions

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Abstract. Our project, which was non-traditional in scope and in customer involvement in GUI design, benefited from modification of the standard XP story development and maintenance process. We support these findings with data amassed over three years of such a project. We present the evolution of our augmented process, in accordance with the principles of XP. We present data comparing our use of the standard story process against our modified process, and identify properties of our project which render it a candidate for the alternative process. We hope our results can aid other XP planners in determining if their projects would benefit from such modified methodology, and if so, provide guidance in determining appropriate modifications.

1 Introduction

We were challenged with the task of effective management of user stories in a unique eXtreme Programming (XP) environment. We employed the simplicity rule to solve problems, as they arose, regarding user stories, and produced an on-line story environment that is web-accessible, OS-independent, easily used by programmers and non-programmers alike, with complex searching capabilities. Our story environment was influenced by several properties of our project: First, we are Linux-developers, experienced in combining existing utilities to solve problems in a divide-and-conquer strategy. Secondly, our project is large, with an extraordinary amount of dependency-laden stories. Third, our customer has exacting GUI requirements, which require explicit and precise articulation in order to provide low-risk estimations. Finally, our project’s success is determined fundamentally by its GUI, and thus, the customer's view of product correctness is largely based on the correspondence of its GUI with his vision. Our stories themselves are atypical in a number of ways. They are numerous, approaching 800 over the 3 year data collection period; they naturally fall into a hierarchical organizational structure largely mirroring the product structure; they are GUI-intensive, with over 500 images currently residing in stories, as discussed in Section 2; and they exhibit a high degree of artifact-level dependence, as discussed in Section 4.

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We discuss how these properties provide challenges to management of user stories in our environment. We outline our emergent story environment, resulting from solving each challenge as it arose, employing the principles of XP to the best of our abilities. We present data collected over a three year period to support our belief that this modified story environment is instrumental in the success of our project. Finally, we compare our environment with others reported in the literature, and provide guidance to other XP planners in determining the appropriateness and usefulness of any such methodology modifications in their environments.

2 The GUI Challenges

Our project commenced in early 2000 with a newly assembled team of experienced Linux developers embarking upon our first XP project. We practiced the suggested standard process. Stories were about 3 sentences written on standard index-cards, and served as a starting point for discussions with developers [1,3,4]. We followed the sound advice: “you should try to keep stories focused on user needs and benefits as opposed to specifying GUI layouts” [9]. Thus, GUI was not precisely specified, but generally agreed upon in conversations among developers and customer during planning and implementation. The uniqueness of our project immediately posed several complications.

We experienced customer dissatisfaction with the developed GUI, and, thus, dissatisfaction with the product, as the customer appeared to rate product correctness almost exclusively by its GUI. Advice from those more experienced with XP, including our XP consultant, was that when customers are dissatisfied with the work, they may focus on the GUI because they lack the terminology and experience necessary to identify the true underlying cause of their discontent. We increased communication with the customer, and carefully explored this possibility. We discovered that this customer truly considered the GUI paramount to the success of the project. The customer's goal was to develop the product for sale/lease to third parties, and he considered the GUI a significant factor in his product's competitive edge over other products with similar functionality. Primed with this knowledge, we began to implement more extensive customer/developer collaborations during implementation. However, this approach produced unsatisfactory results because as more details about GUI became evident during development, implementation time increased significantly over that estimated; it became apparent that simple initial stories with subsequent verbal collaboration were inadequate to provide low-risk estimations of the customer's intended product. This problem was a direct result of the GUI-intensive nature of our product, its positioning in the marketplace, and our customer's GUI-oriented definitions of product correctness and project success. As the customer had very precise ideas about GUI design, often down to the pixel, and as this design significantly influenced estimations, he began including precise, detailed GUI with stories to affect more reliable estimations and project planning, creating the designs with imaging tools. GUI images were then printed and physically attached to story cards. One such customer-produced, GUI attachment is presented in Figure 1.