Generating User Stories in Groups

Cuong D. Nguyen, Erin Gallagher, Aaron Read, and Gert-Jan de Vreede

Center for Collaboration Science, University of Nebraska Omaha
{cdnguyen,egallagher,aread,gdevreede}@mail.unomaha.edu

Abstract. Communicating about system requirements with user stories is a distinctive feature of Agile Software Development methods. While user stories make system requirements intelligible to both customers and technical developers, they also create new challenges for the requirements elicitation process such as personal bias and requirements coverage. In this study we propose that when elicited from groups instead of individuals, the number of stories generated, the uniqueness and the comprehensiveness of the stories is likely to increase. A lab experiment design is delineated and partially completed. Future research will need to be conducted to determine conclusions.

Keywords: Requirements elicitation, user stories, group story telling.

1 Introduction

Software development remains a challenging process with nearly half of the projects considered late, over budget, and completed with fewer features than planned [1]. Poorly defined requirements are considered to be a leading factor in project failure [2]. Agile software development methodologies address difficulties of developing requirements resulting from rapidly changing customer needs by allowing a development team to respond quickly to changing requirements [3]. They encourage incremental releases, cooperation between customer and developers, simplicity (ease of learning), and adaptivity [4]. User stories are an integral part of several Agile methodologies including XP and Scrum [5, 6]. A user story is an account in the user’s own words of a way that (s)he would like to use the software and enables the communication of software requirements between developers and customers without needing familiarity with a specific method of delivery or jargon [6]. While using stories as a means of gathering requirements has been shown to be beneficial in a number of studies [7-9], collecting system requirements in the form of user stories can also be problematic for several reasons: A customers’ tacit knowledge may be partially hidden, stories are subject to multiple interpretations and personal bias, and the completeness of the set of stories is difficult to determine [8]. These problems may be addressed by collecting stories in groups. Group story telling can create an environment that supports evaluation of experience and promotes problem-solving [10]. This can help surface conflicts in goals among users and enable them to create shared understanding. Group story telling can also help elicit the tacit knowledge of participants with the richness of several different perspectives [11]. The purpose of our research is to understand to what extent groups will outperform individuals in generating user stories.
A key criterion to assess the quality of a set of requirements is completeness with a minimal amount of conflicts and overlaps in requirements [12]. We therefore compare individual and group storytelling in terms of the level of completeness and lack of overlaps or conflicts in requirements.

In the following section we define stories and explain their use in requirements engineering. We then explain the design of our study. We present some initial results. The paper concludes with a discussion of the envisioned contributions and expected challenges regarding the further execution of the study.

2  Background

Stories are narrative retellings of personal experiences of phenomena or events [13]. Individual tells a story either in one-on-one situation or in a group to another individual (usually a researcher) using either free-association or through the use of an interview and/or prompts [14]. Further, stories can be topical, biographical, or autobiographical [15]. Stories can appear in various forms, including terse stories – a simplified and succinct retelling that leaves components such as plot or characters to the imagination of the individual hearing the story [16].

In requirements engineering, stories are used and structured in at least two different ways. First, stories may be used as a means of understanding the experiences and needs of users. They can capture the experiences of users with a current system as well as aid in capturing the desired attributes of a system [7]. Second, in Agile software development stories are used as a source of documentation of requirements specifications and structured in a way that helps stakeholders to easily relate essential details of software requirements for a new system. Stories must focus on the experience of the user and must be short enough to fit on an index card [6, 17]. These short stories are then used as conversation starters with developers who confirm the details of the story in acceptance tests on the software [17].

User stories play an important role in the requirements elicitation process in agile development[5]. The purpose of the requirements elicitation activity is to be able to describe the goals of the new system, with an understanding of the needs of the stakeholders and the constraints of the system [18]. Eliciting requirements in the form of user stories allows stakeholders to convey their needs in a way that is natural to them, allowing them to relate more tacit knowledge [7]. Documenting system requirements in the form of user stories allows customers to communicate desired features of a system without having to know a specific modeling language [19]. Details of stories are worked out through oral communication between the users and requirements engineers, thus avoiding errors of interpretation which may occur with written requirements [17]. However, stories consist of an individual’s view of a system and may therefore make it difficult for requirements engineers to grasp a complete view of the system [8]. Valuable information might not be volunteered by users as they might assume it is already known to the requirements engineers, or forget abnormal cases [20].

Allowing users to generate stories in groups can alleviate some of the aforementioned shortcomings of collecting user requirements with stories individually. Story telling in groups allows a problem to be seen from multiple perspectives [11]. When users tell stories in groups, the knowledge of one user can be verified and expanded by another user, since the knowledge of one user helps to activate the knowledge of