

Case Module : SRS Inspection
Prerequisite Knowledge: Understanding of basic elements of a Fagan Software Inspection process.
<p>Learning Objectives:</p> <p>Upon completion of this module students will have increased ability to:</p> <ol style="list-style-type: none"> 1. Appreciate and understand the roles and responsibilities of an inspection team 2. Work as a member of an Inspection Team. 3. Work more effectively as part of a team. 4. Assess the quality of a Software Requirements Specification (SRS). 5. Describe problems in specifying the requirements for a software product. 6. Explain the inspection process. 7. Describe the value of the Fagan inspection process. 8. Gain experience working with and generating inspection artifacts.
<p>Keywords:</p> <p>Customer Needs, Software Requirements Specification, Fagan Software Inspection</p>
<p>Case Study Artifacts:</p> <ol style="list-style-type: none"> 1. DH Customer Need Statement 2. DH High Level Requirements Definition (HLRD) 3. DH Background Scenario 4. DH Team Biographical Sketches 5. DH SRS, Version 1.3 <p>Inspection Package:</p> <ul style="list-style-type: none"> • Inspection Process Description • SRS Checklist • Defect Log • Inspection Summary Report Form
<p>Case Study Participants:</p> <ul style="list-style-type: none"> • The DH Team • Jose Ortiz, Director, DigitalHomeOwner Division of HomeOwner, Inc.
<p>Scenario:</p> <p>In late August of 2010, HomeOwner Inc. (the largest national retail chain serving the needs of home owners) established a new DigitalHomeOwner division that was set up to explore the opportunities for equipping and serving “smart houses” (dwellings that integrate smart technology into every aspect of home living). In August and September of 2010, the Marketing Division of HomeOwner conducted a needs assessment for a DigitalHome product that would provide the computer and communication infrastructure for managing and controlling the “smart” devices into a home to best meet the needs and desires of homeowners. The Marketing Division produced two documents: the <i>DH Customer Need Statement</i> and the <i>DH High Level Requirements Definition (HLRD)</i>.</p> <p>In early September 2010, a five person team was assembled for the project and started a “project launch”. After project planning was completed the team began work on requirements analysis and specification. The first version, 1.0, was completed in early October 2010 and versions 1.1 and 1.2 were completed by late October.</p> <p>In consultation with Jose Ortiz, the team has decided to carry out a formal Fagan inspection</p>

of the SRS, version 1.2. Jose has agreed to act as a customer on the inspection team, Michel Jackson is the author, Disha Chandra will be the moderator and other roles will be assigned in the overview meeting.

Exercise:

1. As preparation for the case module, ask each student to read the Case Study Artifacts listed above.
2. Divide the class into a set of small teams (4-5 people). Each team takes on a role from the DH Team or as Jose Ortiz and then follows the inspection process:
 - a. Planning: The inspection is planned by the moderator.
 - b. Overview meeting: The author describes the background of the work product, describes the inspection process, and reviews the inspection forms.
 - c. Preparation: Each inspector examines the work product to identify possible defects.
 - d. Inspection meeting: During this meeting the reader reads through the work product, part by part and the inspectors point out the defects for every part.
 - e. Rework: The author makes changes to the work product according to the action plans from the inspection meeting.
 - f. Follow-up: The changes by the author are checked to make sure everything is correct.

Appendices:

Exercise Booklet

Resource Information:

- [Fagan,1976] Fagan, M.E., Design and Code inspections to reduce errors in program development, 1976, *IBM Systems Journal*, Vol. 15, No 3, Page 182-211 .
(<http://www.mfagan.com/ibmfagan.pdf>)
- [Fagan, 1986] Fagan, M.E., Advances in Software Inspections, July 1986, *IEEE Transactions on Software Engineering*, Vol. SE-12, No. 7, Page 744-751.
(<http://www.mfagan.com/aisi1986.pdf>)
- [Humphrey 2000] Humphrey, Watts S., *Introduction to the Team Software Process*, Addison-Wesley, 2000.

Teaching Notes:

- This case module could be used in different level courses (from a software level introductory course in software engineering to an upper level or graduate course in requirements engineering or quality assurance.).
- Since an appropriate inspection rate is 2-3 text pages per hour, it would best not to assign the entire SRS to each inspector, but rather some subset – e.g., 6-9 pages per inspector.
- Assuming an adequate student preparation for the exercise, allowing students about four hours each for the exercise should be sufficient: assuming three hours for preparation and inspection, and one hour for the inspection meeting.
- It would be beneficial to follow the exercise with a twenty to thirty minute discussion concerning the student team results. Some key points to include in the discussion are the following:
 - Discuss how closely the inspection process was followed:
 - How well did the team conduct each phase?
 - How well did students carry out their assigned inspection role (i.e., moderator,

- author, inspector)?
- What was the quality of the inspection outline (NOTE: it is very helpful if the instructor complete the product inspection, and compare the students outcome to the instructor outcome)
- How well was time managed?
- Were all forms completely correctly and all appropriate data collected (number of defects, time spent for inspection, etc.)?
- Address any personal conflict or egoistic attitude displayed.
- Student team members should be cautioned about a few things:
 - Leave their ego outside of the meeting room
 - Their job is to identify defects, not fix them.
 - The SRS is a Requirement document and not a Design specification; so inspect appropriately and check that design elements have not been introduced by the author or as a result of inspection. This does not include design constraints specified by the customer.
 - Come prepared to the inspection meeting – students need to spend appropriate effort during their individual inspections.
 - It is critical that students understand the data they need to collect (time and defect data), how to use the forms provided, and the importance being careful and accurate in collecting and recording data. If students do not properly collect and record inspection data it will be difficult to assess the effectiveness of the inspection.
- If the course involves actual student development teams, this exercise could provide a good team building experience: it could be carried out near beginning of a course; it does not require deep technical knowledge; and everyone can participate.
- If the time and the size of the class permit, the course instructor could take on the role of Jose Ortiz.
- If the class is divided to multiple teams, if possible, it is best to have each team conduct their inspection in a separate room, thus eliminating distracting noise generated by other teams.
- It would be best to hold the inspection meeting in class, since it would allow the instructor to observe this part of the inspection process. For a class of 20 or more, it would be good to have two instructors observe the inspection meeting.
- A typical team size to accommodate all roles would be 4-5 members, with a maximum of 8 in order to accommodate a productive inspection meeting.
- It would be best if all team members are inspectors. The author and moderator could inspect but not include their inspection data in the meeting discussion.