

Name: SOLUTION

Answer the questions below. Be clear and concise in your answers, writing in complete sentences and providing examples for support as appropriate.

Please write in complete sentences. Starting with the next quiz, you will be deducted $\frac{1}{2}$ credit for not writing in complete sentences. Again, this is an important skill to learn in software engineering, and not just an arbitrary request. Additionally, we continue to have problems with “memory dumps” instead of well thought-out answers. You will also be deducted if not structuring your answer coherently or not following length requirements, if given. Both of these issues are usually avoidable if you arrive on time for quizzes.

Consider four requirements engineering activities that occur in every project: Elicitation, Analysis, Specification and Validation.

In the eXtreme Programming (XP) model of software development, requirements engineering revolves around short blurbs called “user stories.” User stories are gathered from the customer as a project begins. The stories are used in two ways: test development, in which acceptance tests are developed, and release planning, in which a project schedule is developed. During release planning meetings, user stories are clarified, elaborated and prioritized, then written onto notecards and sorted into incremental releases. Release planning is followed by development and acceptance testing, and the entire process iterates until the product is complete.

1. (8 pts.) What activities of the XP approach correspond to requirements elicitation, analysis, specification, and validation, respectively?
 - Elicitation is done by the gathering of user stories.
 - Analysis is done during release planning as requirements are clarified, elaborated, and prioritized.
 - Specification is done as requirements are written onto notecards and sorted into incremental releases.
 - Validation is done through the development of acceptance tests.

Other acceptable answers were also given credit, but I would offer two points of clarification. First, the activity of requirements validation is “Concerned with demonstrating that the requirements define the system that the customer really wants (see page 21 of slide set 3).” In other words, we are validating the actual requirements, not validating anything about their implementation (through testing). Thus, test development/planning/generation is a requirements validation activity, but test execution is not. There is a big difference here.

Also, several of you described elicitation as simply “user stories.” Elicitation is simply the acquisition, gathering, or obtaining of these stories. The stories themselves do not define elicitation.

Samples:

- “Gathering user stories from customer corresponds to requirements elicitation. Release planning meetings where user stories are clarified, elaborated and prioritized corresponds to requirements analysis. When they’re written onto notecards and sorted into incremental releases, that corresponds to requirements specification. Test development, in which acceptance tests are developed, corresponds to validation.

Points:

- 2 points each
- Partial credit given for partially correct answers

2. (2 pts.) Critics of XP claim it is more vulnerable to “scope creep” and poor design because of poor requirement traceability. What is requirement traceability?

Requirement traceability is the ability to relate each requirement to its source, other requirements, and system design throughout the development process. The key words here are things like “origin” and “relationships.” A matrix alone does not define requirement traceability. I was very lenient on the grading here, and gave full credit if you said almost anything other than “tracing requirements.”

Samples:

- “ ... being able to effectively note all requirements and their relation to each other, avoiding repeat notation and contradiction as might happen with these user story notes.”
- “The visibility of the evolution of a project’s initial requirement to its contribution to the design, part in the implementation and presence in testing.”

Points:

- 2 points