

CS 4473/9551a: Software Requirements Engineering

Project description

1. Introduction

In this project you (Requirements Engineers) will engineer requirements for any project topic of your choice, assuming that it has been approved by the prof. You need to elicit the requirements from your Pairing Group (that plays multiple roles, e.g.: client stakeholders, architects, test planners, release manager, etc.), which is assumed to have been identified in the group pairing spreadsheet. Following elicitation, you will carry out the rest of the Requirements Engineering (RE) process steps, e.g., Analysing and Specifying (modelling), Verifying and Validating the gathered requirements, Prioritising requirements, Creating the Software Requirements Specification (SRS) document, etc.

In this process, you will interact with the Pairing Group in their appropriate role for the “task at hand” (e.g., “Clients” while eliciting requirements; “Architects” while determining Architecturally Significant Requirements (ASRs); “Testers and Test Planners” while determining “Testability” of elicited requirements, “etc.”). You are expected to read up on the techniques required to perform the various tasks, (e.g., elicitation techniques: interview, focus group, prototyping, etc. to elicit requirements; model requirements for specifying requirements; etc.).

2. Tasks to be performed

| # | Task | Associated details | Deliverables *** |
|---|------------------------------------|--|------------------------------------|
| 1 | Establishing business requirements | See Ch. 5 (W & B book), including Fig. 5-3. | Vision and Scope document |
| 2 | Elicitation | Elicit requirements using various elicitation techniques as appropriate for the project. See Ch. 7 (W & B book) | Raw requirements |
| 3 | Analysis | The purpose of requirements analysis is to be sure that all requirements accurately represent stakeholder needs See: https://www.techtarget.com/searchsoftwarequality/definition/requirements-analysis | Analysis notes |
| 4 | Modelling | Modelling depicts the logical aspects of the problem domain’s data components, transactions and transformations, real-world objects, and changes in system state. See Ch. 12 (W & B book). | Analysis notes and selected models |
| 5 | Verification and Validation | See Chs. 14 and 17 (W & B book) | V & V notes |
| 6 | Determining | Key requirements that are deemed to shape the | Documented ASRs |

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| | Architecturally Significant Requirements (ASRs) | system (or system's architecture) are identified in conjunction with the architects. See. "Software Architecture in Practice" (3 rd or 4 th edition – 3 rd may be easily available from public domain), Len Bass, Paul Clements, and Rick Kazman, Addison-Wesley. | and a high-level architecture of the system. |
| 7 | Prioritisation | In conjunction with the various stakeholders (not only users or clients), requirements are prioritised. See Ch. 16. | Prioritised requirements documented |
| 8 | Testability of requirements | The international standard IEEE 1233-1998 describes "testability" as the <i>"degree to which a requirement is stated in terms that permit establishment of test criteria and performance of tests to determine whether those criteria have been met"</i> . See: https://www.prolifics-testing.com/news/achieving-requirements-testability#:~:text=The%20international%20standard%20IEEE%201233,those%20criteria%20have%20been%20met%E2%80%9D . | Documented test cases |
| 9 | Selection for release | In conjunction with the Release manager and team, selection of requirements is made that will make up the release to be developed. Future releases can also be planned though not fixed until the next development cycle. | Release plan |
| 10 | Documenting requirements | The elicited requirements are documented in an organised manner. See Ch. 10 (W & B book) | The Soft. Reqts. Spec. (SRS) |
| | OTHER | Other information deemed important by the group. | OTHER |

*** The deliverables can be organised within a larger digital binder, perhaps as separate sections, so that they can be more effectively understood and used for desired purposes. Also, each group must make its own decision as to how much of the elicited requirements are covered in the specific deliverables (e.g., analysis, models, testability, etc.). One satisfying criterion is whether enough convincing examples are given for assessment. The SRS document, however, should have the complete set of requirements.

3. Project marks distribution

For any given project, the RE role will get 70% of the overall project marks; whereas, the Paired Group will get 30% for *that* project. Thus, it is very important that both the RE Group as well as the Paired Group collaborate with committed effort and excellence to maximise the marks of the project.

In the event that there is a complaint against a member of a group for missing meetings, not delivering quality results, etc., the prof. (at totally his discretion) may conduct a peer review. In this case, the individuals in the group will get proportionate marks. The best advice is to take this project as an opportunity to truly contribute quality results: one for all and all for one!