IT350: Software Engineering
Assignment 2

Comparison of Various Software Requirement Specification Formats based on Table of Contents

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Format 1(IEEE)

Advantages

1. Very detailed and concise
2. Useful for the developers to get a good idea of what the client wants to see in the final product
3. There is a provision to add requirements later by including them in the “To Be Discussed” section
4. Evolving documentation
5. Follows a standard document convention that has to be followed by all the maintainers

Disadvantages

1. It is hard for the client to specify some requirements(like communication interfaces) in such detail at the beginning phase
2. Many sections may be marked under “To Be Discussed” remain unfilled during the initial phases
3. Takes a considerable amount of time to prepare
4. SRS will undergo many revisions due to refinement of requirements
5. Less focus on UML/class diagrams, though they help the developer visualize the final product

Format 2

1. Purpose

2. Scope

3. Product Perspective

3.1. System Interfaces

3.2. User Interfaces

3.3. Hardware Interfaces

3.4. Software Interfaces

3.5. Communications Interfaces

3.6. Memory Constraints

3.7. Operations

3.8. Site Adaptation Requirements

4. Product Functions

5. User Characteristics

6. Limitations

7. Assumptions And Dependencies

8. Apportioning Of Requirements

9. Specific Requirements

10. External Interfaces

11. Functions

12. Usability Requirements

13. Performance Requirements

14. Verification

15. Supporting Information

Advantages

1. Has extra details about memory constraints and special operations by the user
2. The “Apportioning” section is a helpful addition as it maps the requirements to the software that will carry out the given operations to satisy the requirement
3. “Site adaptation requirements” help in ensuring the end product will be compatible with more systems by specifying any data or initialization sequences that are specific to a given site
4. “Usability requirements” include measurable effectiveness, efficiency, and satisfaction criteria in specific contexts of use.
5. Provides the verification approaches and methods planned to qualify the software
6. Supporting info contains : Sample input/output formats, descriptions of cost analysis studies, or results of user surveys; A description of the problems to be solved by the software; Special packaging instructions for the code and the media to meet security, export, initial loading.

Disadvantages

1. Much more complicated and time consuming to create. No user documentation.
2. Harder for the client to specify such requirements detail at the beginning phase(more revisions)

Format 3

1. Introduction
1.1 Purpose
1.2 Document Conventions
1.3 Intended Audience and Reading Suggestions
1.4 Project Scope
2. Overall Description
2.1 Product Perspective
2.2 Product Features
2.3 User Classes and Characteristics
2.4 Operating Environment
2.5 Design and Implementation Constraints
2.6 User Documentation
2.7 Assumptions and Dependencies
3. System Features
Core Features
Additional Features
4. External Interface Requirements
4.1 User Interface
4.2 Hardware Interfaces
4.3 Software Interfaces
4.4 Communications Interfaces
5. Other Nonfunctional Requirements
5.1 Performance Requirements
5.2 Safety Requirements
5.3 Security Requirements
5.4 Software Quality Attributes
6. Key Milestones
7. Key Resource Requirements
8. Other Requirements
9. Appendix A Glossary
10. Appendix B Project Proposal

Advantages

1. Less complicated than Format 2 to create
2. “Key Milestones” give the client a good idea of what to expect and when. This avoids unrealistic expectations
3. “Project Proposal” provides a complete summary of the given problem statement and what the end product will be capable of
4. System features are split into core and additional so that developers can assign priorites.
5. Key Resource requirements divide the huge problem into managable logical chunks and state the necessary required expertise, internal/external resources to satisfy the requirements and the associated constraints

Disadvantages

1. Many revisions can still arise.
2. Harder for the client to specify such requirements in such detail at the beginning phase

Format 4

Advantages

1. Simpler format than 1,2 and 3, easier to make
2. Client can specify functionality without going into the specific sub-requirements
3. Includes Legal information and standards

Disadvantages

1. No diagrams to aid developers think of the final product
2. More focus on non functional than functional requirements.
3. Support Information can be vague since there is no proper definition

Format 5

Advantages

1. Simplest format
2. Use-case/class/ER/Web Architecture diagrams aid the software developers
3. Includes Legal information and standards, not mentioned in others

Disadvantages

1. Maybe too simple
2. Supplementary requirments might mix up functional and non-functional requirements
3. No mention about user documentation

References

Format 1: IEEE SRS https://web.cs.dal.ca/~hawkey/3130/srs_template-ieee.doc
Format 2: International Standard for custom SRS - https://belitsoft.com/php-development-services/software-requirements-specification-document-example-international-standard
Format 3: https://www.cise.ufl.edu/class/cen3031sp13/SRS_Example_1_2011.pdf
Format 4: https://www.utdallas.edu/~chung/RE/Presentations07S/Team_1_Doc/.../SRS4.0.doc
Format 5: IBM SRS https://www.ibm.com/developerworks/.../files/.../document/.../*SRS_Sample.doc*