Software Engineering - Assignment 2

IT350

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IEEE SRS (Software Requirements Specifications) is a description of a software system to be developed and standardized by IEEE in IEEE standard 830. Like many of the IEEE software engineering standards, Standard 830 includes some guidance and recommended approaches for specifying software requirements. The bulk of the document is a detailed suggested template for organizing the different kinds of requirements information for a software product. This report includes the comparison of the standard IEEE SRS with the SRS's of TCS, IBM and INFOSYS.

IEEE SRS

Format

Appendix B: Analysis Models
Appendix C: To Be Determined List

IBM SRS

Format

1. Introduction
    1.1 Purpose
    1.2 Scope
    1.3 Definitions, Acronyms and Abbreviations
    1.4 References
    1.5 Technologies to be used
    1.6 Overview
2. Overall Description
    2.1 Use-Case Model Survey
    2.2 WEB Architecture diagram
    2.3 ER Diagram
    2.4 Architecture diagram
    2.5 Data Dictionary
    2.6 Assumptions and Dependencies
3. Specific Requirements
    3.1 Use-Case Reports
    3.2 Class Diagram
    3.2 Supplementary Requirements
4. Supporting Information
5. Concerns / Queries / Doubts if any

TCS SRS

Format

1. INTRODUCTION
       1.1 PURPOSE
       1.2 SCOPE
       1.3 DEFINITIONS, ACRONYMS AND ABBREVIATIONS
       1.4 REFERENCES
       1.5 OVERVIEW
2. GENERAL REQUIREMENTS
       2.1 PRODUCT PERSPECTIVE
              2.1.1 System Interface
              2.1.2 User Interface
              2.1.3 Hardware Interface
              2.1.4 Software Interface
              2.1.5 Communication Interface
              2.1.6 Memory Constraints
              2.1.7 Operations
              2.1.8 Site Adaptation requirements
       2.2 PRODUCT FUNCTIONS
       2.3 USER CHARACTERISTICS
       2.4 CONSTRAINTS
       2.5 ASSUMPTIONS AND DEPENDANCIES
       2.6 PRIORATISING OF THE REQUIREMENTS
3. SPECIFIC REQUIREMENTS
       3.1 EXTERNAL INTERFACES
       3.2 FUNCTIONS
       3.3 PERFORMANCE REQUIREMENTS
       3.4 LOGICAL D ATABASE REQUIREMENTS
       3.5 DESIGN CONSTRAINTS
       3.6 SOFTWARE SYSTEM ATTRIBUTES
       3.7 ORGANIZING THE SPECIFIC REQUIREMENTS
       3.8 ADDITIONAL COMMENTS
4. APPENDIX
5. INDEX

INFOSYS SRS

Format

1. OVERVIEW
      1.1. Current System
      1.2 Limitations of the Current System
      1.3 Proposed System
            1.3.1 Objectives of the Proposed System
2. FUNCTIONAL REQUIREMENTS
      2.1 System Requirements
            2.1.1 Scope & Boundary
            2.1.2 Context Diagram
      2.2 Business Events
            2.2.1 External Events
            2.2.2 Temporal Events
      2.3 Inputs and Outputs
      2.4 Relationships
      2.5 Precedence Relationships
      2.6 Screens
      2.7 Reports
3. EXTERNAL INTERFACE REQUIREMENTS
4 OPERATING ENVIRONMENT REQUIREMENTS
      4.1 Hardware
      4.2 Software
      4.3 Network
      4.4 Communication
5 PERFORMANCE REQUIREMENTS
6 STANDARDS REQUIREMENTS
      6.1 User Interface
      6.2 Detailed Design
      6.3 Coding
      6.4 Document
7 SPECIAL USER REQUIREMENTS
      7.1 Security
      7.2 Audit Trail
      7.3 Reliability
      7.4 Transaction Volume and Data Volume
      7.5 Backup and Recovery
      7.6 Legal
      7.7 Data Migration
      7.8 Data Retention
      7.9 Installation
      7.10 User Training
      7.11 User Manual and Help

Comparison between IEEE and IBM SRS

- The IEEE SRS is much more detailed than that of the IBM SRS and gives a much more completely detailed information regarding the project.
- Sections such as non-functional requirements are much more detailed and by dividing the main sections into a number of subsections, it is ensured that all the important areas of requirements are taken by the user preparing the SRS for his/her project
- The to-be-determined list in IEEE SRS, which is found missing in the IBM version is an advantage for the IEEE version because the to-do lists the things that are yet to be done in the SRS and mentions all things that have a scope for improvements and things to be do be implemented and taken care of while preparing the subsequent version of the project.
- The non-mention of Database and Architecture Design is also one of the drawbacks of the IEEE SRS because the database design and the architectural design helps the user implementing the project and prevents him from wasting over thinking about and implementing the database design.
- For developers who don't have common language or English as second language, requirements explained with diagrams is less ambiguous than IEEE SRS format.ie the IEEE format can be ambiguous.

Comparison between IEEE and TCS SRS

- TCS has a section called prioritising requirements which is missing in the IEEE format. This section is needed because it helps describe the priority order in which the requirements are to be taken care of.
- Database requirements and Design constraints are absent in the IEEE format but are present in the TCS Format. This helps in providing an in-depth knowledge regarding the implementation of the project and gives a broader idea of how the databases are utilised and what are the limitations of the system that is being designed
- TCS and IEEE format are a lot similar in nature and are more or less the same.
- The TCS SRS is less time consuming than the IEEE SRS.
- The TCS has index which helps in easy and quick information retrieval.

Comparison between IEEE and Infosys SRS

- Infosys SRS describes how the current system is and then tells the limitation of the current system and also details as to how the proposed system works and the objectives of proposed system. This provides for a much clearer understanding as to how the newer system is having improvements over the existing system.
- Since Infosys is a lot more specific about its purposes we can find fields such as audit trail, Reliability, Data migration, Data Retention installation etc. which are missing in the IEEE format SRS as it is a more generalised version.
- There are other fields such as performance requirements which detail the number of transactions per second, number of customers served etc. This being specific to Infosys as it is a consultancy company that provides service to its customer and fields such as these are absent in IEEE SRS. In case of providing SRS for a company that provides service to customers and/or other companies then the Infosys format SRS maybe much more suited than that of the IEEE format one which appears to be very generic.
- Version History is absent in the Infosys SRS and can be seen in the IEEE SRS, this can help keep in track the current version of the project and give an idea of the progress that has been made on the project.
- The Infosys SRS doesn't have a specific section to mention the assumptions and dependencies that have been kept in mind while designing the project. This is one of the areas where the IEEE has an upper hand over the Infosys format as mentioning the assumptions and dependencies clears any doubts that might arise.
- Design and Implementation Constraints are found in the IEEE format but not in the Infosys format, and these help to explain clearly the limitations of the design of the system that is being proposed and describes the limits and boundaries under which the implementation has to be done.

Conclusion

Even with all the drawbacks of the system, IEEE Standard 830-1998 Software Requirements Specifications will help a project in setting goals and prioritize on the features of the application for timely delivery of the projects. Although IEEE format is one of the best format for SRS that is present, it could be improvised by adding certain features such as database design and design constraints that are currently absent in SRS format.

Similarly, for specific projects we can include topics specific to the project at hand such as audit trail, Reliability, Data migration, Data Retention installation if we are doing a project for a client that involves a lot of data that has to be tracked. Also prioritization of requirements among the team members can be specified.