

Software Requirements Specification (SRS)

Project X

Authors:

Instructor:

1 Introduction

- Provide an overview of the entire SRS subsections
- Indicate the topics that will be covered in this document.

Start of your text.

1.1 Purpose

- What's the purpose of the SRS document?
- Specify the intended audience.

Start of your text.

1.2 Scope

- Identify SW product(s) to be produced by name
- Describe the application of SW being specified, including benefits, objectives, goals (i.e., high-level observable services). What is the application domain? (e.g., embedded system for automotive systems, graphical modeling utility) This is the domain description of the application.
- Explain what SW product will, and if necessary, will not do. This is the requirement of the application.
- Be consistent with similar statements in higher-level specifications (e.g., the original project specification from customer)

Start of your text.

1.3 Definitions, acronyms, and abbreviations

- Define all terms, acronyms, and abbreviations need to understand the SRS. If this section is extensive, then move to an appendix. It is also possible to provide a link to other resources for extensive terminology explanation.

Start of your text.

1.4 Organization

- Describe what the rest of the SRS contains
- Give the organizational structure of the SRS.

Start of your text.

2 Overall Description

- Give a brief introduction of what information will be covered in this section.

Start of your text.

2.1 Product Perspective

- Describe the context for the product
- Is it one element that is part of a bigger system? If so, then give a pictorial representation or diagram (e.g., data flow diagram – DFD, block diagram) that describes how your product fits.
- Interface Constraints:
 - System interfaces
 - User interfaces
 - HW interfaces
 - SW interfaces
 - Communication interfaces
- Other types of constraints:
 - Memory
 - Operations
 - Site adaptation operations (customization that is done on-site).

Start of your text.

2.2 Product Functions

- Summarize the major functions that software will perform (portions may come directly from the customer specification – cite as appropriate).
- These function descriptions should be easily understandable by the customer or to any general reader.

Start of your text.

2.3 User Characteristics

- Expectations about the user (e.g., background, skill level, general expertise)

Start of your text.

2.4 Constraints

- See list of possible constraints from IEEE SRS document.
- Give English descriptions of safety-critical properties
- Give English descriptions of other properties that if violated, the system will not perform properly.

Start of your text.

2.5 Assumptions and Dependencies

- Assumptions made about the HW, SW, environment, user interactions.

Start of your text.

2.6 Deferred Requirements

- Based on negotiations with customers, requirements that are determined to be beyond the scope of the current project and may be addressed in future versions/releases.

Start of your text.

3 Specific Requirements

- Start with a 1-2 sentence introductory description of the purpose of this section.
 - Give an enumerated list of requirements.
 - As appropriate, use a hierarchical numbering scheme.
1. Sample requirement at the top level
 - 1.1. Level 2 requirement example
 - 1.2. Another Level 2 requirement
 2. Select the “Requirement” Style.
 3. Separately list the Cybersecurity requirements
 - 3.1. Identify the threat vectors (pathways for attacks)
 - 3.2. Identify the threat actors (types)
 - 3.3. What kind of cybersecurity vulnerabilities exist for your subsystem? How can you prevent, detect, and/or mitigate?

4 Modeling Requirements

- This is the specification portion of the requirements document. (Specifying the bridge between the application domain and the machine domain.)
- For each new diagram type introduced, describe the notation.
 - Give and describe use case diagrams
 - Use the template below to describe each use case.

- Each use case should refer to 1 or more requirements (in Section 3)
- Give and describe a high-level class diagram (i.e., domain model) that depicts the key elements of the system
 - Include a data dictionary to describe each class, its attributes, its operations, and relationships between classes.
- Representative Scenarios of System:
 - Give English descriptions of representative scenarios for each use cases.
 - Check: use instances of the class names from class diagram; refer to the terms used in use case diagram
 - For each scenario, give a corresponding sequence diagram
 - Check: Objects should be instances of classes in class diagram
- Create and explain a state diagram for all key classes that participate in the scenarios (from above).
 - Check: that all scenarios can be validated against the state diagrams.
 - Check that the events, actions are modeled in the class diagram.
 - Check that all variables referenced in the diagrams are declared as attributes in the class diagram.

Start of your text.

5 Prototype

- Describe what your prototype will show in terms of system functionality.

5.1 How to Run Prototype

- Describe what is needed to run your prototype.
- What system configuration? (Should be accessible through web.) Are there plugins? Are there any OS or networking constraints? Give the URL for the prototype.

Prototype should also be accessible via a webpage. It should be executable and provide an interactive interface. A sufficient number of scenarios that provide a representative collection of system behavior should be supported and interactive with the prototype.

5.2 Sample Scenarios

- Give sample scenarios of using your system. Use real data and problem scenarios. Include screen captures illustrating what your prototype produces. As always, be sure to describe all figures.

6 References

- Provide list of all documents referenced in the SRS

- Identify each document by title, report number, date, and publishing organization.
- Specify the sources from which the references can be obtained.
- Include an entry for your project website.

Start of your text.

- [1] D. Thakore and S. Biswas, "Routing with Persistent Link Modeling in Intermittently Connected Wireless Networks," Proceedings of IEEE Military Communication, Atlantic City, October 2005.

7 Point of Contact

For further information regarding this document and project, please contact **Prof. Betty H.C. Cheng** at Michigan State University (chengb at msu.edu). All materials in this document have been sanitized for proprietary data. The students and the instructor gratefully acknowledge the participation of our industrial collaborators.