

EXERCISE 1

AIM: To prepare PROBLEM STATEMENT for any project.

THEORY:

The problem statement is the initial starting point for a project. It is basically a one to three page statement that everyone on the project agrees with that describes what will be done at a high level. The problem statement is intended for a broad audience and should be written in nontechnical terms. It helps the non-technical and technical personnel communicate by providing a description of a problem. It doesn't describe the solution to the problem.

The input to requirement engineering is the problem statement prepared by customer. It may give an overview of the existing system along with broad expectations from the new system.

The first phase of requirements engineering begins with requirements elicitation i.e. gathering of information about requirements. Here, requirements are identified with the help of customer and existing system processes. So from here begins the preparation of problem statement.

So, basically a problem statement describes what needs to be done without describing how.

Conclusion: The problem statement was written successfully by following the steps described above.

EXERCISE NO. 2

Aim: Understanding an SRS.

Theory:

An SRS is basically an organization's understanding (in writing) of a customer or potential client's system requirements and dependencies at a particular point in time (usually) prior to any actual design or development work. It's a two-way insurance policy that assures that both the client and the organization understand the other's requirements from that perspective at a given point in time.

The SRS document itself states in precise and explicit language those functions and capabilities a software system (i.e., a software application, an eCommerce Web site, and so on) must provide, as well as states any required constraints by which the system must abide. The SRS also functions as a blueprint for completing a project with as little cost growth as possible. The SRS is often referred to as the "parent" document because all subsequent project management documents, such as design specifications, statements of work, software architecture specifications, testing and validation plans, and documentation plans, are related to it.

It's important to note that an SRS contains functional and nonfunctional requirements only; it doesn't offer design suggestions, possible solutions to technology or business issues, or any other information other than what the development team understands the customer's system requirements to be.

A well-designed, well-written SRS accomplishes four major goals:

It provides feedback to the customer. An SRS is the customer's assurance that the development organization understands the issues or problems to be solved and the software behavior necessary to address those problems. Therefore, the SRS should be written in natural language (versus a formal language, explained later in this article), in an unambiguous manner that may also include charts, tables, data flow diagrams, decision tables, and so on.

It decomposes the problem into component parts. The simple act of writing down software requirements in a well-designed format organizes information, places borders around the problem, solidifies ideas, and helps break down the problem into its component parts in an orderly fashion.

It serves as an input to the design specification. As mentioned previously, the SRS serves as the parent document to subsequent documents, such as the software design specification and statement of work. Therefore, the SRS must contain sufficient detail in the functional system requirements so that a design solution can be devised.

It serves as a product validation check. The SRS also serves as the parent document for testing and validation strategies that will be applied to the requirements for verification. SRSs are typically developed during the first stages of "Requirements Development," which is the initial product development phase in which information is gathered about what requirements are needed--and not. This information-gathering stage can include onsite visits, questionnaires, surveys, interviews, and perhaps a return-on-investment (ROI) analysis or needs analysis of the

customer or client's current business environment. The actual specification, then, is written after the requirements have been gathered and analyzed.

SRS should address the following

The basic issues that the SRS shall address are the following:

- a) Functionality. What is the software supposed to do?
- b) External interfaces. How does the software interact with people, the system's hardware, other hardware, and other software?
- c) Performance. What is the speed, availability, response time, recovery time of various software functions, etc.?
- d) Attributes. What are the portability, correctness, maintainability, security, etc. considerations?
- e) Design constraints imposed on an implementation. Are there any required standards in effect, implementation language, policies for database integrity, resource limits, operating environment(s) etc.?

A sample of basic SRS Outline

1. Introduction

- 1.1 Purpose
- 1.2 Document conventions
- 1.3 Intended audience
- 1.4 Additional information
- 1.5 Contact information/SRS team members
- 1.6 References

2. Overall Description

- 2.1 Product perspective
- 2.2 Product functions
- 2.3 User classes and characteristics
- 2.4 Operating environment
- 2.5 User environment
- 2.6 Design/implementation constraints
- 2.7 Assumptions and dependencies

3. External Interface Requirements

3.1 User interfaces

3.2 Hardware interfaces

3.3 Software interfaces

3.4 Communication protocols and interfaces

4. System Features

4.1 System feature A

4.1.1 Description and priority

4.1.2 Action/result 4.1.3 Functional requirements

4.2 System feature B

5. Other Nonfunctional Requirements

5.1 Performance requirements

5.2 Safety requirements

5.3 Security requirements

5.4 Software quality attributes

5.5 Project documentation

5.6 User documentation

6. Other Requirements

Appendix A: Terminology/Glossary/Definitions list

Appendix B: To be determined

Conclusion: The SRS was made successfully by following the steps described above.