

SOFTWARE REQUIREMENTS SPECIFICATION

Do the requirement analysis and prepare SRS

Objective

To introduce the concepts of user and system requirements, to describe functional and non-functional requirements and to explain how software requirements may be organized in a requirements document. A software requirement is a condition or capability needed by a user to solve a problem or achieve an objective and that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document. Two classes of requirements: Functional requirements – What the program does Non-functional requirements – Attributes about the program

Overview

The SRS document explains the purpose and features of the software, the interfaces of the software, what the software will do, the constraints under which it must operate and how the software will react to the external stimuli. This SRS document is intended for both the end-users and to the developers of the software. 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.

The 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 must provide, as well as states any required constraints by which the system must abide. 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.

Procedure

Attendance Management System is software developed for daily student attendance in schools, colleges and institutes. It facilitates to access the attendance information of a particular student in a particular class. The information is sorted by the operators, which will be provided by the teacher for a particular class. This system will also help in evaluating attendance eligibility criteria of a student.

SRS 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.
- ✓ 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.
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CHARACTERISTICS OF A GOOD SRS

An SRS should be

- a) Correct
- b) Unambiguous
- c) Complete
- d) Consistent
- e) Ranked for importance and/or stability
- f) Verifiable
- g) Modifiable
- h) Traceable
- i) Correct

STRUCTURE OF SRS

1. Introduction
 - 1.1 Purpose
 - 1.2 Scope
 - 1.3 Overview
2. General Description
 - 2.1 User Manual
3. Functional Requirements
 - 3.1 Description
 - 3.2 Technical Issues
4. Interface Requirements
 - 4.1 GUI
 - 4.2 Hardware Interface
 - 4.3 Software Interface

- 5. Performance Requirements
- 6. Design Constraints
- 7. Other Non functional Attributes
 - 7.1 Security
 - 7.2 Reliability
 - 7.3 Availability
 - 7.4 Maintainability
 - 7.5 Reusability
- 8. Operational Scenarios
- 9. Preliminary Schedule

Example: SRS Document for Attendance Management System

1. INTRODUCTION

1.1 Purpose

The purpose of developing attendance management system is to computerized the tradition way of taking attendance. Another purpose for developing this software is to generate the report automatically at the end of the session or in the between of the session. This document detailed functional and non-functional requirements for attendance maintenance system. The purpose of this document is that the requirements mentioned in it should be utilized by software developer to implement the system.

1.2 Scope

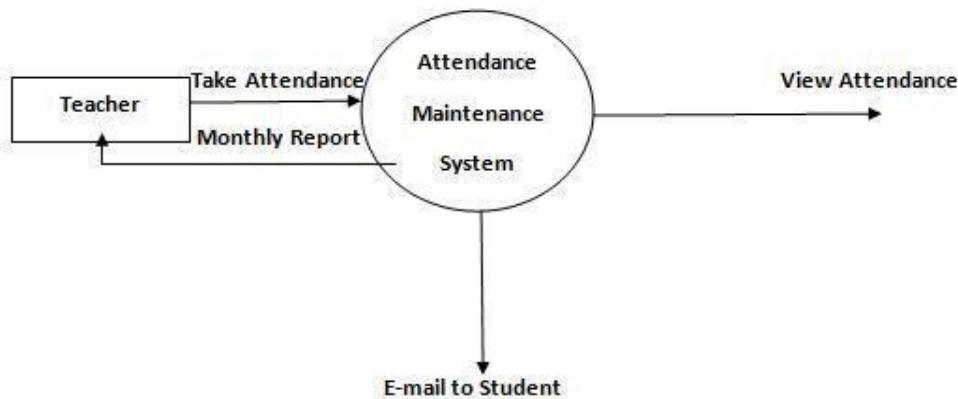
This system allows the teacher to maintain attendance record of the classes to which it is teaching. With the help of this system Teacher should be in a position to send e-mail to the students who remain absent for the class. The system provides a cumulative report at every month end for the corresponding class.

1.3 Overview

This system provides an easy solution to the teacher to keep track of student attendance, and statistics

2. General Description

This attendance maintenance system replaces the traditional, manual attendance system by which a lot of paper work will be reduced. The teacher should able to view photograph of student along with his attendance in his laptop. This is the primary feature of this system. Another feature is that Teacher can be allowed to edit particular record at desired time. The system should produce monthly attendance report. And there should be facility to send an e-mail/warning to the student remaining absent in the class. Every Teacher should have laptop with wireless internet connection. A teacher may teach to different classes and a separate record for the corresponding classes should be maintained.



2.1 User manual

The system should provide Help option in which how to operate the system should be explained. Also hard copy of this document should be given to the user in a booklet form.

3. FUNCTIONAL REQUIREMENTS

The identity of student is verified and then marked present at particular date and time. The system should display student photograph along with their names for the corresponding class. The student may be marked present or absent students. A statistical report should display individuals report or a cumulative report whenever required.

3.1 Description

The identity of student is verified and then marked present at particular date and time. The system should display student photograph along with their names for that corresponding class. The student may be marked present or absent depending upon his display individuals report or a cumulative report whenever requirement.

3.2 Technical Issues

The system should be implemented in VC++.

4. Interface Requirements

4.1 GUI

GUI 1: Main menu should provide option such as File, Edit, Report, help.

GUI 2: In File menu one can create a new record file or can open an existing record file..

GUI 3: The display of record

GUI 4: Report option should display statistical report. It may be particular student or for the whole class.

GUI 5: Help option should describe functionality of the system. It should be written in simple HTML.

4.2 Hardware Interface

Hardware Interface 1: The system should be embedded in the laptops.

Hardware Interface 2: The laptop should use wireless Ethernet Card to send departmental database server.

4.3 Software Interface:

Software Interface 1 : Attendance maintenance system.

Software Interface 2 : The attendance database should be transmitted to departmental database server.

Software Interface 3 : E-mail message generator which generates standard message of absence.

Software Interface 4 : Report generators.

5. Performance Requirements

- This system should work concurrently on multiple processors between college hours. The system should support 50 users.
- The email should be send within one hour after class gets over.
- The system should support taking attendance of maximum 10 students per class.

6. Design Constraints

The system should be designed within 6 months.

7. Other Non Functional Attributes

7.1 Security

The teacher should provide password to log on to the system. He/she should be able to see the record of his/her class.

7.2 Reliability

Due to wireless connectivity, reliability cannot be guaranteed.

7.3 Availability

The system should be available during college hours.

7.4 Maintainability

There should be a facility to add or delete or update teachers and students for each semester

7.5 Reusability

There should be a facility to add or delete or update teachers and students for each semester.

8. Operational Scenarios:

There will be student database, teacher database. The student database will contain students name, class, attendance, email address, address, and phone number. The teacher database will contain teachers name, class taught, e-mail address, phone number.

9. Preliminary Schedule

The system has to be implemented within 6 months.

Viva-Voice Questions

1. What is SRS document?
2. How to prepare a SRS document?
3. How to apply a SRS document for a real-time project?
4. What are the major goals in SRS?
5. How to design a structure of SRS?

Lab Report

After successful completion of this lab, the student will have the ability to prepare a SRS document for any software project.

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