Software Requirements Specification

for

Security Management System

Version 1.0 approved

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Table of Contents

Revision History

Name	Date	Reason For Changes	Version

1.   Introduction

1.1   Purpose

The purpose of this document is to present a detailed description of the Security Management System. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli. This document is intended for both the stakeholders and the developers of the system.

1.2   Document Conventions

This document takes some conventions in consideration. For every topic heading font size taken is 18 and for subheadings it is 14 and most of the document is written with a font size of 12.Important topics, headers and words are highlighted so as to stand their significance. Higher-level requirements are given higher priority which is clearly visible by the detailed description of the requirement.

1.3   Intended Audience and Reading Suggestions

This document is intended for Developers, project managers, marketing staff, users, testers, and documentation writers.
Brief Summary of whole SRS document can be summarize within following sections (Users are required to follow this sequence only in order to have a better understanding of the document).

Section 1 describes the insight of this document particularly focusing on the purpose, conventions followed in this document, which it is meant for giving brief view of the project scope and references.

Section 2 gives overall structure of the project including feature description, Operating Environment Design and Implementation constraints.

Section 3 gives brief description about the features of the project.

Section 4 building an estimation workbook which will guide us in further development of project. Project estimating is not an exact science. In fact, in the early stages of a project, it has often been hit and misses. By building and deploying a standard estimating workbook, we are able to capture our current knowledge and further that knowledge as our experience guides us.

1.4   Product Scope

Security Management System is a web-based application that is intended to be used by the security manager as well as the security persons. It will allow the security persons to log-in, apply for leave, view their number of remaining leaves, view their upcoming 7-day schedule and log out.
It will allow the security manager to log-in, process the leave applications, create a routine for the upcoming 7 days, calculate the salary of each employee and log-out. It provides a user-friendly interface for both types of users.

1.5   References

IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.

2.   Overall Description

2.1   Product Perspective

Security Management System was developed to manage IIT campus security. But it can be used to manage any other security system with the same constraints by appropriately adjusting the following administrator settings :
  ➢ List of the places identified by unique numbers.
  ➢ Number of leaves allowed per person per year.
  ➢ Monthly salary per person.
  ➢ Penalty for exceeding the allowed number of leaves.

2.2   Product Functions

The following are the methods initiated by the security person :
  ➢ Register
  ➢ Login
  ➢ Change password
  ➢ View schedule – View duty date, place, start time, end time for the upcoming 7 days.
  ➢ Apply for leave
  ➢ View status of the leave application.
  ➢ View the number of leaves taken and the remaining number of leaves for the year.
  ➢ Log-out
The following are the methods initiated by the manager :
  ➢ Register
  ➢ Login
  ➢ Change password
  ➢ Approve/decline leave requests
  ➢ Create routine – Creates a schedule for the upcoming 7 days.
  ➢ Monitoring – Monitor the number of times a security person was non-punctual.
  ➢ Calculate salary – This method is to be invoked at the end of the month. Computes the salary of all persons when this function is invoked.
  ➢ Log-out

2.3   User Classes and Characteristics

  ➢ Security manager
  ➢ Security persons

2.4   Operating Environment

  ➢ Windows 7
  ➢ Windows 8
  ➢ Windows 10
  ➢ Linux
  ➢ Mac OS X

2.5   Design and Implementation Constraints

  ➢ This software was developed in Java using Eclipse platform.
  ➢ This software requires a JRE component to be installed on the system.

2.6   User Documentation

This project is intended for two types of users, security manager and the security persons. The security manager acts as the administrator.
                    Thus there is a separate document for each type of user which can be accessed through the Help option on the starting page. Apart from that, there is an installation manual which can be accessed while installing the software.

2.7   Assumptions and Dependencies

This software is developed in Java and therefore requires Java to be installed on the user's system. This version requires Java version 7 or higher. This applies to Windows and Linux users.

3.   External Interface Requirements

3.1   User Interfaces

User interfaces will be created in Java with the help of Java swing. Each interface will have a standard layout.
  ➢ Upon running the software, the user will be presented with an interface containing two buttons : (1) Manager login (2) Security person login.

Manager :
  ➢ Upon choosing Manager login, the user will be presented with an interface containing three buttons : (1) Register (2) Login (3) Change password.
  ➢ Upon choosing Login, the user will be presented with an interface containing two text fields for ID, password.
  ➢ Upon entering the correct credentials, the user will be presented with an interface containing all the methods performable by the Manager.

Security person :
> ➢ Upon choosing Security person login, the user will be presented with an interface containing three buttons : (1) Register (2) Login (3) Change password.
> ➢ Upon choosing Login, the user will be presented with an interface containing two text fields for ID, password.
> ➢ Upon entering the correct credentials, the user will be presented with an interface containing all the methods performable by the Security person.

3.2   Hardware Interfaces

The system comprises of users which are spread in IIT Kharagpur and connected over intranet. Every system acts as a client over which application is being installed. These clients interact with the server handled by the Manager over LAN. The minimum hardware requirements for this software are a 500 Megahertz CPU and 128 megabytes of RAM. A system with these specifications can handle a Network of approximately 1000 edges and nodes. For bigger networks, additional memory is required.

3.3   Software Interfaces

This software requires Java to be installed on the system, more specifically Java version 7 or 8. Additional information can be found on section 2.7 of this document.

3.4   Communications Interfaces

Since this application is intended for intranet within the campus so for networking RMI is being used. RMI is Remote Method Invocation which provides for remote communication between Java programs. All communication is between the clients(security persons) and the server(Manager). Clients do not interact with each other.

4.   System Features

This section demonstrates the software's most prominent features and explains how they can be used and the results they will give back to the user.

4.1   Initial Authentication

4.1.1   Description and Priority

Authentication is the process of determining whether someone or something is, in fact, who or what it is declared to be. In private and public computer networks (including the Internet), authentication is commonly done through the use of logon passwords. Knowledge of the password is assumed to guarantee that the user is authorized. For security reasons, care should be taken that only the authorized security persons of IIT Kharagpur get registered with the site.
This is achieved by asking the employee to enter a secret code given by the Institute before getting registered.
This feature is High Priority.

    4.1.2   Stimulus/Response Sequences

        This feature is used when the security persons first register onto the software

    4.1.3   Functional Requirements

        REQ-1:   Upon choosing Register option on the first interface, the user will be presented with an interface containing three text fields, ID, password, confirm password, secret code.

        REQ-2:   If the secret code entered by the user is incorrect, an appropriate error message is displayed and the user is presented again with the same interface with the three empty text fields. Upon three incorrect tries, a notification is sent to the Manager.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The software must satisfy the following constraints :
- A security person must be able to access only his/her routine.
- The Manager must be able to access the schedules of all employees.
- A fixed number of leaves are allowed. Beyond that, a fixed amount will be deducted as fine.
- All security persons must get the same number of duties in a month.
- A security person must not have duties in two different places on the same date and time.

5.2 Safety Requirements

There is a bug tracker available where users can report any bugs they have encountered so that the developers can fix it in the next release.

5.3 Security Requirements

System is built with login capabilities so that only authorized employees of the Institute can access the system. Read, write modify permissions are granted on account for whom knowledge is meant.
Apart from this Java RMI provides inbuilt security features and some will be added to make it a more secure system.

5.4 Software Quality Attributes

This software provides the users with both simple features. Due to its well designed and easy to use interface it can be used by both experts and typical users. Users are expected to read the documentation specified in Section 2.6 before installing and using it.

5.5 Business Rules

No business rules are needed for this software.

6. Other Requirements

No other requirements.

Appendix A: Glossary

RMI – Remote Method Invocation. It provides remote communication between Java programs.
Client – Security person
Server – Security Manager

Appendix B: Analysis Models

None.

Appendix C: To Be Determined List

None.