Employee Management System with Permission Grid

Software Requirements Specification

Version 1.1

03/12/2017

Aakriti Upadhyay
Graduate Student (Masters)

Prepared for
CSI 518 Software Engineering Course
Instructor: Dr. Mei Hwa Chen
Spring 2017

Revision History

Date	Description	Author	Comments
03/12/2017	Version 1.1	Aakriti Upadhyay	Project description

Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

Signature	Printed Name	Title	Date
	Aakriti Upadhyay	Graduate Student	
	Dr. Mei Hwa Chen	Instructor, CSI 518	

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1 Introduction

This section gives a scope description and overview of everything included in this SRS document. Also, the purpose for this document is described and a list of abbreviations and definitions is provided.

1.1 Purpose

The purpose of this document is to give a detailed description of the requirements for the ERP software model. It will illustrate the purpose and complete declaration for the development of system. The document gives detailed description of both functional and non-functional requirements proposed by client. It will also explain system constraints, interface and interactions with other external applications. This document is primarily intended to be proposed to a customer for its approval and a reference for developing the first version of the system for the development team.

1.2 Scope

The ERP software model is a internal document sharing software which can be used in any organization to ensure the security for confidential documents for personal privacy or proprietary considerations.
The purpose of this project is to provide a friendly environment for employees to update personal details, able to upload or download documents and should be able to apply for vacation/sick leave to their current managers.

Managers can create directories and assign different access to it (private, public, protected and default). They can even assign bonus to his/her immediate managers or employees and have facility to accept or reject the leave application of their employees.

Administrator uses employees information to assign under supervision of any manager and has provision to run payroll and generate paycheck for each employee. The administrator can update organization profile information.

Furthermore, the software need internet connection to fetch and display results. All system information is maintained in a database, which is located on a web-server.

1.3 Definitions, Acronyms and Abbreviations

Table 1 - Definitions

Term	Definition
User	Someone who interacts with the web application.
Employee	Someone who works in the organization.

Admin/Administrator	System administrator who is given specific permission for managing and controlling the system.
Manager	Someone who is at higher position in the organization.
Stakeholder	Any person who has interaction with the system who is not a developer.
Web-Portal	A web application which present special facilities for its users.
DESC	Description
RAT	Rational
DEP	Dependency

1.4 References

The software has been developed referring to company's ERP portal.

1.5 Overview

The remainder of this document includes five chapters and appendixes. The second one provides an overview of the system functionality and system interaction with other systems. This chapter also introduces different types of stakeholders and their interaction with the system. Further, the chapter also mentions the system constraints and assumptions about the product.

The third chapter provides the requirements specification in detailed terms and a description of the different system interfaces. Different specification techniques are used in order to specify the requirements more precisely for different audiences.

The fourth chapter deals with the various user and system event flow diagrams. It gives a pictorial representation of user activity, system activity and various internal functionalities.

The fifth chapter deals with requirement changes in the software. It includes a motivation for the chosen prioritization methods and discusses why other alternatives were not chosen.

The Appendixes in the end of the document include the all results of the requirement prioritization and a release plan based on them.

2 General Description

This section will give an overview of the whole system. The system will be explained in its context to show how the system interacts with other systems and introduce the basic functionality of it. It will also describe what type of stakeholders that will use the system and what functionality is available for each type. At last, the constraints and assumptions for the system will be presented.

2.1 Product Perspective

This system will consist of only one part i.e. web portal. The web portal will be used for managing the information about the employees and the system as a whole. The web portal will need to communicate to organizational other internal web portals available in order to synchronize. The other internal portals will provide support for the application meeting all functionalities. The reference to other web portal's functionality will be embedded into the application in order for the user to be able to use the functions in the application in a seamlessly manner.

Since this is a data-centric product it will need somewhere to store the data. For that, a database will be used. The web portals will communicate with the database, however in slightly different ways. The web portal will use the database to fetch, add and modify data. All of the database communication will go over the Internet.

The web portal has some restrictions about the resource allocation. To avoid problems with overloading the operating system, the application is only allowed to use 20 megabytes of memory while running the application and uploading files on the portal. The maximum amount of hard drive space is also 20 megabytes.

2.2 Product Functions

With this application, the users will be able to update personal details, upload or download documents and able to apply for vacation/sick leave to their current managers. The employee information will be based on the user inputs which will be used as criteria for supervision assignment. It will be possible for the administrator of the system to manage the options for those criteria to assign employee under supervision of any manager. It will be viewed in a list view form, based on employees who are newly registered and inactive. There will be another list of employees and managers who are already active in the system available to the administrator.

Manager created protected access directories will have provision to allow another-team-employee (employee who is not in the current manager tree but working in other team) to access a particular directory. These directories access can be restricted by the sub-mangers of the current manger.

The web portal will provide functionality to manage the system and the organisation information.

2.3 User Characteristics

There are three types of users that interact with the system: employees, managers and administrators. Each of these three types of users has different use of the system so each of them has their own requirements.

The employee only use the application to raise leave request and upload or download document from the directories for which the access has been granted. This means that the employee have to be able to access only specific directories, choose a directory to/for documents and then navigate to it. In order for the employee to upload or download a document from a directory, the access should be approved by the manager.

The manager is also an employee and has facilities to all its functionalities. In addition to those functionalities, the manager will be able to approve or reject their employee's leave request and can provide access to directories created by them. Only managers has provision to create directories on the portal.

The administrators also interacts with the web portal. They are managing the overall system so there is no incorrect information within it. The administrator can manage the profile information for organization as well as able to run payrolls and generate paychecks.

2.4 General Constraints

The application is constrained by the system interface to the different systems within the company. Since there are multiple systems, the interface will most likely not be the same for every one of them. Also, the language requirements are restricted to use of only object oriented programming language i.e. java, jsp and MySQL in order to develop architecture following only MVC model.

The Internet connection is also a constraint for the application. Since the application fetches data from the database over the Internet, it is crucial that there is an Internet connection for the application to function.

The web portal will be constrained by the capacity of the database. Since the database is shared between multiple systems, it may be forced to queue incoming requests and therefore increase the time it takes to fetch data.

2.5 Assumptions and Dependencies

One assumption about the product is that it will always be used on systems that have enough performance. If the systems does not have enough hardware resources available for the application, for example, the users might have allocated them with other applications, there may be scenarios where the application does not work as intended or even at all.

Another assumption is that the apache tomcat server exists in all systems and running. If the systems have different server, the application need to be specifically adjusted to another server and that would mean the integration would have different requirements than what is stated in this specification.

3 Specific Requirements

This section contains all of the functional and quality requirements of the system. It gives a detailed description of the system and all its features.

3.1 External Interface Requirements

This section provides a detailed description of all inputs into and outputs from the system. It also gives a description of the hardware, software and communication interfaces and provides basic prototypes of the user interface.

3.1.1 User Interfaces

A first-time user of the web portal should see the in welcome page when he/she opens the application, see Figure 1. If the user has not registered, he/she should be able to do that on the registration page on clicking "create an account" button, see Figure 2.
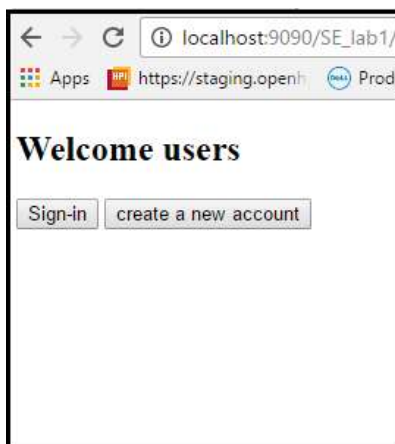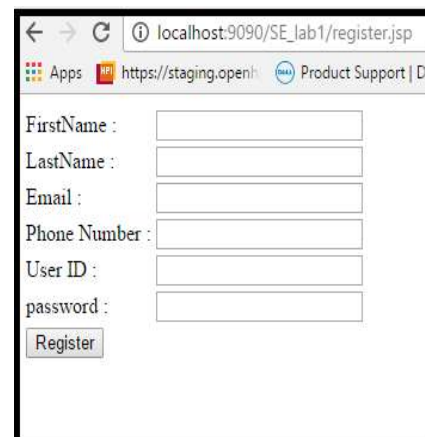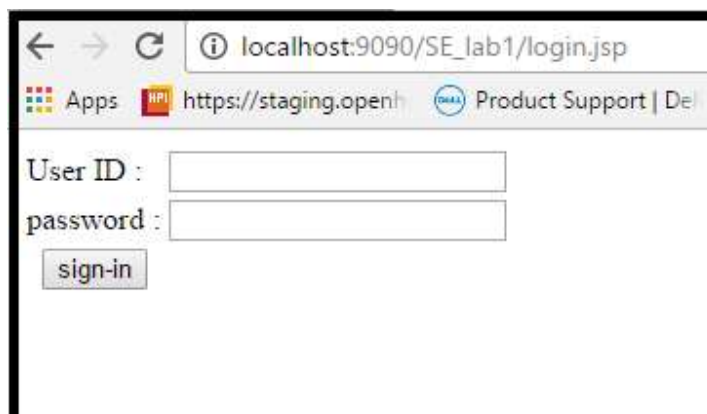

Figure 1

Figure 2

If the user is not a first-time user, he/she should be able to login directly on clicking "sign-in" button when the application is opened, see figure below.

Every user will have a user main page where they can upload or download documents in the directory, see sample view in Figure 3.
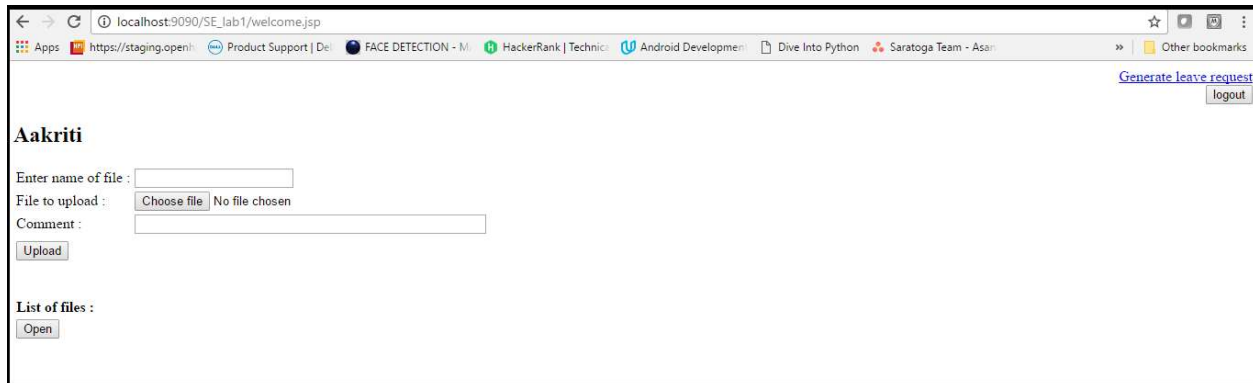

Figure 3: Employee Main page

3.1.2 Hardware Interfaces

The web portal does not have any designated hardware, it does not have any direct hardware interfaces. The hardware connection to the database server is managed by the underlying operating system on the web server.

3.1.3 Software Interfaces

The communication between the database and the web portal consists of operation concerning both reading and modifying the data. The connection of web portal with other web portals is through database and share same database connection.

3.1.4 Communications Interfaces

The communication between the different parts of the system is important since they depend on each other. However, in what way the communication is achieved is not important for the system and is therefore handled by the underlying operating systems for the web portal. The communication standards used are FTP and HTTP protocols. The port 3306 is used for connection with database.

3.2 Functional Requirements

This section includes the requirements that specify all the fundamental actions of the software system.

3.2.1 User Class 1 - Employee

3.2.1.1 *Functional requirement 1.1*

ID: FR1
TITLE: Employee registration

DESC: A user should be able to register through the web portal page. The user must provide First Name, Last Name, address, phone number, personal email, username and password.
RAT: In order for a user to register on the web portal.
DEP: None

3.2.1.2 Functional requirement 1.2

ID: FR2
TITLE: Employee log-in
DESC: Given that a user has registered, then the user should be able to log in to the web portal.
RAT: In order for a user to sign-in on the web page.
DEP: FR1

3.2.1.3 Functional requirement 1.3

ID: FR3
TITLE: Profile page
DESC: On the web portal, a user should have a profile page. On the profile page a user can edit his/her information, which includes the First Name, Last Name, address, phone number, personal email and password.
RAT: In order for a user to have a profile page on the web portal.
DEP: FR1

3.2.1.4 Functional requirement 1.4

ID: FR4
TITLE: Vacation/sick leave request
DESC: User should be able to raise vacation or sick leave request. The request should automatically get raised to immediate manger of the employee.
RAT: In order for a user to request for leave.
DEP: FR2

3.2.1.5 Functional requirement 1.5

ID: FR5
TITLE: Upload/Download documents
DESC: Given that a user is logged in, then the user should be able to upload or download documents from/into the directories.
RAT: In order for a user to upload or download document.
DEP: FR2

3.2.2 User Class 2 - Manager

3.2.2.1 Functional requirement 2.1

ID: FR6
Feature: Leave request approval
A manager should be logged in to the web-portal

Scenario: Successful log-in
Given a leave request raised by an immediate employee.
A manger receives notification for the approval of employee's leave request.

Scenario: Approval of request
Given the manager receives leave request notification.
Manager should have option to accept/reject leave request.

3.2.2.2 Functional requirement 2.2

ID: FR7
Feature: Directory creation
A manager should be able to create directory on the web-portal.

Scenario: Permission assignment
Given the manager created a directory.
Manager should be able to assign different access permissions to the directory (i.e. public, private, protected and default).

Scenario: ATE permission assignment
Given the manager created a directory with protected access.
Manager should be able to allow another-team-employee access permission to the directory.

3.2.2.3 Functional requirement 2.3

ID: FR8
Feature: Bonus assignment
A manager should be logged in to the web-portal

Scenario: Appraisal approval
Given a list of immediate employees under him/her.
A manger should be able to assign bonus to his/her sub-managers or employees.

3.2.3 User Class 3 - Administrator

3.2.3.1 Functional requirement 3.1

ID: FR9
Feature: Administrator log in
In order to administer the system
An administrator should be logged in to the web-portal

Scenario: Successful log-in
Given the administrator wants to log in
When the administrator logs in with an administrator account
Then the administrator should be logged in as an administrator

3.2.3.2 Functional requirement 3.2

ID: FR10
Feature: Organization profile update

In order to edit organization information, an administrator should be logged in to the web-portal

>**Scenario: Edit profile**
>Given the administrator wants to edit organization information.
>When the administrator logs in with an administrator account
>Then the administrator should be able to edit profile information.

3.2.3.3 Functional requirement 3.3

ID: FR11
Feature: Generate paycheck
Administrator should be able to view list of employees and managers who are already active in the system on the web-portal.

>**Scenario: Run payroll**
>When the administrator logs in with an administrator account.
>The administrator should be able to generate paycheck and run payroll for each employee.

3.2.3.4 Functional requirement 3.4

ID: FR12
Feature: Supervision assignment
Administrator should be able to view list of employees who are newly registered and inactive on the web-portal.

>**Scenario: Registered employee is inactive**
>Given a list of newly registered employee and inactive.
>The administrator should be able to assign employee under supervision of any manager.

3.3 Data Requirements

Each user should be registered online on portal with their First name, Last name, address, phone number, personal email, username and password in order to sign-in using login credentials on the web portal.

3.4 Use cases

The use case diagram below shows the roles of three different actors i.e. employee, manager and administrator.

Assign permission

<<include>>

Create Directory

Accept/reject leave request

Assign bonus

Manager

Update profile

Raise leave request

Upload/download documents

Employee

Register/login

View list of active/inactive employees

Assign supervision to inactive employees

Update organization profile

Admin

Run payroll