Indian Institute of Information Technology, Vadodara

College HR Management and Payroll System

Software Requiurements Specifications

CS301 Software Engineering Project – Autumn 2015

team #02 - ninEngineers

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Revision History

1. Introduction

Payroll system is the heart of any Human Resource system of an organisation. And there are lots of HR and Payroll management systems that serve many organisations under different circumstances. But, most of them are static and require modifications according to the organisational needs.

Our Institute is in its developing phase. And the existing HR and Payroll System is managed manually by the administration. Besides, current course on Software Engineering deliberately expects us to do a project that will help our institute somehow.
We, as future software engineers, wanted to develop a software solution to address the effort and time-consuming manual operations of existing Payroll management by incorporating the software engineering practices.

1.1 Purpose

To assist and ease the workload of the accounting staff of the Indian Institute of Information Technology Vadodara (IIITV) is the main goal of the software solution we are providing. The next purpose of this project is to let us learn the software engineering practices as a part of software engineering project for ongoing semester.

1.2 Project Scope

The College HR Management and Payroll System (CHPS) will allow accounting staff to maintain a complete record of each employee. It will generate payslips, bills, any payment record on demand. The CHPS application will be hosted from a local server (must be running continuously, except for the maintanence period), and the users can access all the relevant information over a web portal. On the Server-side, secure and normalised databases would be designed to keep the communication efficient and intact without being vulnerable to any illegal attack.

1.3 Benefits

The CHPS application will serve services that could be very much less cumbersome to operate, clearly reflect the transparency in the financial management, and can be adapted according to the change in policies or program guidelines.
As a web portal, it could be easily available for its users for assessing the existing data from anywhere and anytime. Every employee of Institute can experience a new way of accessing his/her employee book efficiently.

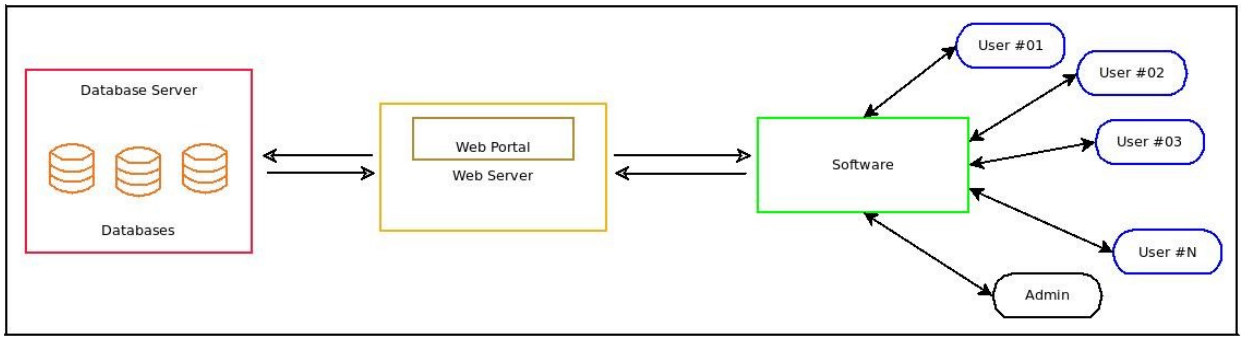
1.4 Definitions and Abbrevations

The following terms would be used throughout this document.
These terms could be referred as stated below:

Institute/College	~ Indian Institute of Information Technology Vadodara(IIITV)
CHPS	~ College HR management and Payroll System
HR	~ Human Resource
database	~ A storage of information which could be handled efficiently data manipulation techniques.
SRS	~ Software Requirements Specification

1.5 Overview

The following subsections provide the complete overview of the software specifications requirements documentation for the product College Payroll System. The entire SRS is documented in view of User and the following sub sections are arranged to give a complete outlook of the software, its perspective, features and system requirements.



Block Diagram

2. Overall Description

2.1 Product Perspective

This software is developed specifically to cater the accountiing staffs' leave management, is totally self-contained and works efficiently. It provides simpler database rather than complex ones for high requirements and it provides good and efficient graphical user interface to both novice as well as experienced user of the computer.

2.2 Product Functions

i. *Employee Module*

This module would be able to encapsulate functions of Employee entity:

+ Employee Details
+ Designation
+ Department

ii. *Search Module*

iii. *Attendance Module*

It would be able to provide functional attributes of Attendance entity:

+ Leave
+ Attendance
+ Managing Leave

iv. *Salary Module*

Salary module would give a complete idea for computing Salary of each employee:

+ Earnings
+ Deductions
+ Payslips

2.3 Hardware Interface

+ Memory minimum of 512 RAM (1 GB recommended)
+ Hard Drive space of 40-100 GB
+ Printer

2.4 Software Interface

+	Operating System	Linux – Ubuntu 14.04
+	Front End	any web browser (firefox recommended)
+	Back End	phpmyadmin, apache v2.0, mysql

2.5 User Characteristics

There are two types of users that will interact with the system: End users and Administrator. As each of these user has different use of the system, each of them has their own set of requirements.

(a) End User

- No specific knowledge or skills are required from the end user.
- End user should have basic idea about basic computer operations and database.

(b) Administrator

- He/She must be able to manage user rights.
- Admin must ensure a reliable network connection to the server.
- Web servers must be updated according to the network requirements and must be able to modify the network paramaters, if needed.
- Admin must ensure proper functioning of the software.
- Recovery after system crash will only be possible when backups are taken at regular intervals.

2.6 Assumptions and Dependencies

- The product must have an interface which is simple enough to understand.
- All necessary hardware and software are made available for implementation.
- The proposed software solution would be designed, developed and implemented based on the SRS document.
- End users should have basic knowledge of computers. In order to get acquainted with the software, users would be provided with user manual for proper referring of every feature.
- The system is not required to save generated reports.

3. Specific Descriptions

3.1 Functional Requirements

(a) Administrator:

This module would help the administrator to enter the designation and the related description. It would also help to add, modify the department.

(b) Employee:

This module would help to enter personal details of the employee. It would serve as direct communication between the end user (employee itself) and the software.

(c) Search:

This module would be helpful in searching the department, designation and employee details of any employee.

(d) Attendance:

This module keeps the record of every type of leave provided to the employees. Employees can enter the period of leave for which they are applying here. Employees can keep track of their available leaves and number of leaves used.

(e) Salary:

This module computes the final salary of every employee. It uses the information on allowances, basic salary, deductions, PF, ESI, etc of each employee. It would also provide payslips.

(f) Report:

It would be helpful in generating the administrative reports like Salary Report, Attendance Report and Employee Report which can be exported as pdf document from the software.

3.2 Performance Requirements

+ The System should work as efficiently as possible with precise execution of every computation
+ The system should have built-in error detection and correction facility
+ System should be able to handle big data easily

3.3 Design Constraints

+ The system would be able to run on Ubuntu 14.04 or later or any web browser
+ This system can support any . . .

3.4 Software Quality Attributes

i. Cost effective

As the software, we are creating is a part of our course, there would not be any overhead in the form of cost incurring for building the software. Besides that, the software will be self-sustaining.

ii. Readymade payslips

Creating payslips for each and every employee takes up a lot of time and effort. By this software, manual labour to create the payslips for each employee will be reduced. The payroll software would do the necessary calculations and create the payslips at the end of the month.

iii. Saves Time

It obviously takes extra time and extra resources for a college to manage its own payroll manually, but as far as in house management is concerned, payroll software helps to speed every aspect of the payroll process with a range of automated features.

iv. Reliable Security

By managing payroll with software, a college removes the uncertainty that comes with the sending of private employee information to a third party. You will still need to consider the security of your own IT systems however, though you can be sure with a good payroll solution will accord with the highest IT security standards.

v. Precise Computations

It is easy to make mistakes when you manage aspects of payroll manually, but with the

right payroll management solution it becomes much more difficult to make such mistakes. Comprehensive validation procedures and checks stop you from entering the wrong information.

vi. User Friendly

When the right software is used and the payroll demands are modest, anyone with a good understanding of IT can manage a company's payroll requirements effectively. This is good for smaller businesses that want flexibility.

vii. Compatibility & Multi device access

As the institute will grow, it will be difficult for single person to handle all the account details and the payments. To facilitate the access of the system to many admins, this software would provide online access to the staff who will possess their username and password. As this system will be accessible to many people at a time, it will be easier to manage the whole organization's payroll.

4. Test Cases

4.1 Administrative Module

1.Test case: Login

Input: Employee Id, Password.
Process: Click on the login link. If administrator enters ID and password correct it goes to the admin services otherwise displays the same page with an error message.
Output: Displays the admin services page.

2.Test case: Add new employee

Input: Name, Employee Id, Email Id,designation, Date of joining.
Process: A new employee can be added into the system and admin can update his details.
Output: Registration complete and system generated password will be sent to his or her email id.

3.Test case: Salary detail

Input: Employee Id
Process: The system will generate the initial salary details according to the designation of the employee
Output: Salary components generated.

4.Test case: Loan Approval by Admin

Input: Decision of Admin according to loan application form
Process: Modification to the database according to the decision of Admin.
Output: Notification to the employee and the accountant for the result of application.

5.Test case: Leave details

Input: Decision of Admin according to loan application form.
Process: Modification to the database according to the decision of Admin.
Output: Notification to the employee and the accountant for the result of application.

6.Test case: Update Salary Component Details
Input: Rates of different salary components.
Process: The salary details of all employees can be updated by the administrator.
Output: Employee salary details will be updated.

4.2 Accountant Module

1.Test case: Login
Input: ID, Password.
Process : Click on the login link. If accountant enters valid ID and password then it goes to the accountant service page otherwise displays the same page with an error message.
Output: Displays the accountant services page.

2.a Test case: Employee Salary slip
Input: Id
Process: Based on the salary components, the payslip will be generated.
Output: Salary slip will be generated.

2.b Test case: Salary Slip
Input: Click on generate payslip
Process: Based on the salary components, the payslip of all the employees will be generated.
Output: Salary slip of all the employees will be generated.

3.Test case: Bank details
Input: Click on bank payslip
Process: Amount calculation
Output: Id, Bank Detail, Amount

4.Test case: Loan Recovery
Input: ID, Loan Amount, Number of installments
Process: Monthly installment calculation
Output: Amount that should be deducted each month

4.3 Employee Module

1.Test case: Login
Input: ID, Password.
Process: Click on the login link. If employee enters valid ID and password, it goes to the employee services page otherwise displays the same page with an error message.
Output: Displays the information to be viewed by an employee.

2.Test case: Update profile

Input: Email-id, Mobile number, Address
Process: The details of an employee will be updated.
Output: Updated profile.

3.Test case: Change password

Input: Old password, New password
Process: Employee new password will be updated in the database.
Output: New password is saved.

4.Test case: Loan Application

Input: Loan application form by employee.
Process: Loan application sent to the Admin.
Output: Notification to Admin for approval of loan.

5.Test case: View salary slip

Input: Month, Year.
Process: The salary slip of the employee for the specified month and year will be fetched from the database.
Output: The salary slip of an employee for the specified month and year can be viewed.

5. References