

---

# **Software Requirements Specification**

**for**

# **Human Resource Management System**

**Prepared by Group 11**

**Department of Computer Science & Engineering  
University of Moratuwa**

**14/11/2019**

# Table of Contents

|  |           |
|--|-----------|
| <b>Introduction</b>                          | <b>3</b>  |
| <b>Purpose</b>                               | <b>3</b>  |
| <b>Product Scope</b>                         | <b>3</b>  |
| <b>Overall Description</b>                   | <b>3</b>  |
| <b>Product Perspective</b>                   | <b>3</b>  |
| <b>Product Functions</b>                     | <b>3</b>  |
| <b>Operating Environment</b>                 | <b>4</b>  |
| <b>Design and Implementation Constraints</b> | <b>4</b>  |
| <b>Assumptions and Dependencies</b>          | <b>4</b>  |
| <b>System Features</b>                       | <b>5</b>  |
| <b>Organisation Information Management</b>   | <b>5</b>  |
| <b>Employee Information Management</b>       | <b>5</b>  |
| <b>Leave Management</b>                      | <b>7</b>  |
| <b>Permission Management</b>                 | <b>8</b>  |
| <b>Report Generation</b>                     | <b>9</b>  |
| <b>Other Nonfunctional Requirements</b>      | <b>10</b> |
| <b>Performance Requirements</b>              | <b>10</b> |
| <b>Safety Requirements</b>                   | <b>10</b> |
| <b>Security Requirements</b>                 | <b>10</b> |
| <b>Software Quality Attributes</b>           | <b>10</b> |
| <b>Business Rules</b>                        | <b>10</b> |

# 1. Introduction

## 1.1 Purpose

To implement a human resource management system with three main modules

- PIM (Personal Information Management)
- Absent management
- Reporting module

## 1.2 Product Scope

The project focuses on creating a backend application which can be customized for user preferences. It should include database design and PoC programs for testing purposes. The database design should include the capability to define new attributes for the employee and fine grained authorization for different types of users to access different levels of database and restrict functionalities accordingly.

PIM module is to keep track of employee details. It should be able to customize. Absent management module is to keep track of leaves taken by employees. Reporting module is focused on providing reports related to the given scenario like employee reports, leaves report etc.

Data insertion will be done manually and UI/UX is not focused in the project.

# 2. Overall Description

## 2.1 Product Perspective

The product is supposed to be a closed source project. It is a web based PIM system implementing the client-server architecture. This system provides an easy to use solution for managing employees, their data and leaves in an organization.

## 2.2 Product Functions

- PIM module functionalities:
  - create employee accounts
  - define new attributes for employee.
- Reporting module functionalities:
  - adding custom fields for reports.
- Absence management module functionalities:
  - add a leave. (by employee)
  - approve the leave. (by supervisor)
  - leave count configuration

## 2.3 Operating Environment

This system is developed for all the operating systems and versions such as windows, IOS, Linux etc. MySQL should be included in the device.

## 2.4 Design and Implementation Constraints

- *The final user interface should be attractive and comfortable for the users.*
- *The initial version should be a proof of concept software without UI/UX considerations.*

## 2.5 Assumptions and Dependencies

- *Factors that may affect the requirements specified in this document include*
  - *Hardware used by the organization is assumed to support new technologies used to develop this system.*
  - *Networking infrastructure of the organization is assumed to support simultaneous connections to the system.*
  - *Users are assumed to be proficient in the English language as localization will not be supported in the initial versions.*

### 3. System Features

#### 3.1 Organizational Information Management

##### 3.1.1 Description and Priority

The system will store information such as name, address, registration number of the organization. Users of the system should be able to view this data

Priority – Medium

##### 3.1.2 Stimulus/Response Sequences

**Stimulus** : Admin requests to add organization information.  
**Response** : The system checks user permissions and updates the default information with the provided information.

**Stimulus** : Admin requests to update the organization information.  
**Response** : The system authenticates the administrator and updates organization information.

**Stimulus** : User requests to view organization information.  
**Response** : The system checks user permissions and shows organization information.

##### 3.1.3 Functional Requirements

| Functional Requirement          | Description   |
|---------------------------------|---|
| Organization Information Update | The system shall allow the admin user to update the previous values of organization information with the provided values. |
| Organization Information View   | The system shall allow the employees to view organization information.  |

#### 3.2 Employee Information Management

##### 3.2.1 Description and Priority

The system will have an administrator account to manage the system. The administrator will be able to login and create an HR manager. The HR manager will be able to add employee records, and create employee accounts associated with these records. HR manager will also be able to add new custom fields for employee records.

Priority : High

##### 3.2.2 Stimulus/Response Sequences

- Stimulus** : Admin requests to create an HR manager account.  
**Response** : The system will authenticate the admin and create the HR manager account.
- Stimulus** : HR manager requests to add an employee data record.  
**Response** : The system will check submitter's permissions and if valid add the employee record.
- Stimulus** : HR manager requests to edit an employee data record.  
**Response** : The system will check submitter's permissions and if allowed updates the employee record.
- Stimulus** : HR manager requests to create an employee account associated with an employee data record.  
**Response** : The system will check the submitter's permissions and if allowed and valid creates an employee associated with the referenced record.
- Stimulus** : HR manager requests to add a custom field for employee records.  
**Response** : The system will check the submitter's permissions and if allowed and valid add custom fields for employee records.
- Stimulus** : HR manager requests to remove a custom field from employee records.  
**Response** : The system will check the submitter's permissions and if allowed removes the custom fields for employee records.

### 3.2.3 Functional Requirements

| Functional Requirement | Description   |
|------------------------|---|
| Administrator Account  | The system shall have an administrator account with default credentials.  |
| Create HR Manager      | The system shall allow the administrator to create an HR manager.   |
| Add Employee Record    | The system shall allow the HR manager to add employee records containing employee's name, birth date, marital status, dependent information, emergency contact information, pay grade, job title, employment status, department and supervisor. Pay grades, job titles, and employment status should be extensible. |
| Edit Employee Record   | The system shall allow the HR manager to update employee records.   |
| Add Custom Field       | The system shall allow the admin to add custom fields to employee records.  |

|                         |   |
|-------------------------|---|
| Remove Custom Field     | The system shall allow the admin to remove custom fields.   |
| Create Employee Account | The system shall allow the HR manager to create employee accounts associated with employee records. |

### 3.3 Leave Management

#### 3.3.1 Description and Priority

The application will allow the employees to apply for leaves through it and these leave requests will then be approved/declined by their supervisor. There are 4 static types of leaves Annual, Casual, Maternity and No-pay. Each employee will have a predefined number of mandatory no-pay leaves and each pay-grade will have different number of leaves. The number of mandatory no-pay leave count and the number of leaves for each leave type should be configurable for each pay-grade.

Priority : High

#### 3.3.2 Stimulus/Response Sequences

**Stimulus** : Employee requests to apply for a leave.

**Response** : The system authenticates the user and sends leave request to the supervisor.

**Stimulus** : Supervisor requests to accept/decline an employee's leave request.

**Response** : The system authenticates the supervisor and change the status of the leave request, updates employees leave count and notifies the employee.

**Stimulus** : HR manager requests to update the number of leaves of a specific leave type of a pay-grade.

**Response** : The system authenticates the HR manager and updates the number of leaves.

**Stimulus** : HR manager requests to update the number of mandatory no-pay leaves.

**Response** : The system authenticates the HR manager and updates the number of mandatory no-pay leave count.

#### 3.3.3 Functional Requirements

| Functional Requirement | Description   |
|------------------------|---|
| Apply Leave            | The system shall allow employees to submit leave requests to their supervisor using the system. |
| Approve/Decline Leave  | The system shall allow supervisors to see their   |

|                       |   |
|-----------------------|---|
|                       | subordinates' leave requests and approve/decline them.  |
| Configure Leave Count | The system shall allow the HR manager to configure leave counts for each leave type in each pay grade and configure the mandatory no pay leave count. |

### 3.4 Permission Management

#### 3.4.1 Description and Priority

The system will have a set of permissions for each module and sub-module. These permissions will be granted/revoked to/from other user types by the administrator.

Priority : High

#### 3.4.2 Stimulus/Response Sequences

**Stimulus** : Admin requests to give a permission to a user type.  
**Response** : The system authenticates the admin and if valid, grant the requested permissions.

**Stimulus** : Admin requests to revoke permission from a user type.  
**Response** : The system authenticates the admin and if valid, revoke the requested permissions.

#### 3.4.3 Functional Requirements

| Functional Requirement | Description  |
|------------------------|--|
| Grant Permission       | The system shall allow the administrator to add permissions to a user type.    |
| Revoke Permission      | The system shall allow the administrator to remove permissions to a user type. |



## 3.5 Report Generation

### 3.5.1 Description and Priority

The system will be able to generate the following reports,

- Employee by department
- Total leaves in given period by department
- Employee reports grouped by job title, department, pay grade etc.
- Reports based on custom fields

Priority: High

### 3.5.2 Stimulus/Response Sequences

**Stimulus** : HR manager selects and requests a report.

**Response** : The system validates permissions and displays the requested report.

### 3.5.3 Functional Requirements

| Functional Requirement | Description   |
|------------------------|---|
| Generate Report        | The system shall allow the HR manager to generate the following reports, <ul style="list-style-type: none"><li>• Employee by department</li><li>• Total leaves in given period by department</li><li>• Employee reports grouped by job title, department, pay grade etc.</li><li>• Reports based on custom fields</li></ul> |

## **4. Other Nonfunctional Requirements**

### **4.1 Performance Requirements**

- Response time and processing time must be short.
- System can be used concurrently when updating records
- System should work with appropriate workload.
- The typical throughput required and the times it will be taking place.
- Multi users must have access to the system.
- When using different operating systems, performance should be the same.

### **4.2 Safety Requirements**

- External parties will not be allowed to see employee information.
- Sensitive information about the organization will only be visible to employees with higher authority.
- Sensitive information about the organization can only be modified by employees with higher authority.
- In disaster like power failure, the current state should be saved automatically.

### **4.3 Security Requirements**

- Employees can only access permitted data
- Employees can only perform permitted actions.
- When user forgot password, give chance to reset password by sending a verification code to email.
- Stored passwords will be hashed.
- All the employees can see their details but can't change them.
- Employee accounts can only be created by HR manager.

### **4.4 Software Quality Attributes**

- The designed interface is easy to use and can be used without special training.
- The designed system will not be an overhead to the existing workflows of the organization.
- The system will be designed and developed to work correctly
- The system will be designed with high maintainability and easy extensibility and modifiability.

## **4.5 Business Rules**

- Only authorized users can access certain modules and sub-modules, and perform certain tasks.

Other business principles are to be determined afterwards.

### **Group Members:**

- **170275K - M.G.V.D. Jayawickrama**
- **170676P - G.R.A. Weeraprameshwara**
- **170393U - P.T.R. Muthukumarana**
- **170517G - R.Y.J. Rathnayaka**