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| Software Requirement Specification |
| HRM project |
| [Version] |
| Prepared by K14T - Team05  20/11/2011 |

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# Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Date | Reason for changes | Version |
| Team | 20/11/2011 | initial version | 1.0 |
| Nguyen Dinh | 29/11/2011 | Review for initial version | 1.0.1 |
| Nguyen Dinh | 04/12/2011 | Update section 1 and fix some bugs on entire document | 1.0.2 |
| Nguyen Dinh | 05/12/2011 | Update section 1 and 2.1, part of 2.2 | 1.0.3 |
| Loc Phan | 05/12/2011 | Update 2.3, 2.4, 2.6 | 1.0.4 |
| Loc Phan | 06/12/2011 | Update 2.5 | 1.0.5 |
| Nguyen Dinh | 06/12/2011 | Update 2.2 | 1.0.6 |
| Nguyen Dinh | 07/12/2011 | Review 2.3, review and update 2.4, 2.5, 2.6 | 1.0.7 |
| Nguyen Dinh | 07/12/2011 | Update part of 2.7 | 1.0.8 |
| Nguyen Dinh | 07/12/2011 | Update part 3 | 1.0.9 |

# Introduction

## 1.1 Purpose and Organization

The purpose of software requirement specification (SRS) document is to provide a technical view for all developers and stakeholders that can affect development progress. In addition, this document consolidates the functional requirements and quality attribute requirements of HRM. Before implementing the system, the SRS provides definitions and other pieces of information that contribute to a better understanding of the system. Therefore, it is a requirement for generating detail design document, requirement test cases, and all other articles that contribute to develop HRM project.

The document is organized as follows:

* Section 2 – Overall Description: provides an overall description about HRM including product perspectives, features, user, operating environment, design and implementing constraints, user document, and system features.
* Section 3 – External Interface Requirements: provides detail information about requirement in user interfaces, hardware interfaces, software interfaces, and communication interfaces
* Section 4 – Other Nonfunctional requirement: provides requirements about quality attribute including performance, security requirements etc.
* Section 5 to 7 – Appendix: for listing Glossary, analysis models, and issues list

## Document Conventions

Use the comment function in review tab of MS word ribbon to denote a concept or any information that needs to be clarified. That way, one can later on search for comments and remove them or restate the points as appropriate.

This document is expected to evolve and will be considered a “living” document for the duration of the project. Major modifications to the contents of this document must be recorded in the revision history table. The history of modifications can also be retrieved from the version control system in use.

Use colloquial and clear language to communicate with the reader; avoid long, cluttered sentences.

Be objective and succinct; avoid redundancy of information.

The format of this document is not discourse or publication paper. In addition, we have assumed the reader of this document must be familiar with software engineering terminology. Therefore, it is not necessary to add the definition of basic technical terms (e.g. UML, XML)

Follow the process and guidelines defined in the Software Configuration Management Plan [SCMP].

This document’s font is Times New Roman and font size is 11 by default

## 1.3 Intended Audience and Reading Suggestions

Intended audience

|  |  |  |
| --- | --- | --- |
| No. | Audience | Purpose |
| 1 | Mentors | For reviewing and getting overall understanding about HRM |
| 2 | Development team | For developing architecture design, detail design, implementing, and testing document. |
| 3 | Other lecturers from VLU-CMU program | For reviewing and getting overall understanding about HRM |
| 4 | Lecturers from CMU | For reviewing and getting overall understanding about HRM |

Reading suggestions: The common practice among software engineers is that the SRS is not kept up-to-date after the system is implemented. Very often, during maintenance, developers make changes and additions to the actual system but do not update the SRS. Gradually the existing code becomes disconnected from the specifications in the SRS. Having that in mind, this document was created in a way that minimizes the burden of keeping requirements specifications rigorously up-to-date:

* Information in section 2 – overall description: 2.1 to 2.6 is rarely changed from initial version since they are high-level requirement and basic concepts of HRM. On the other hand, information in 2.7 is usually changed because of the fact that it states low-level requirements; however, easy-to-change parts are referred to separate artifacts. From time to time, the latest information will be updated into this document for consistency.
* Information in section 3- external interface requirements: is sometimes changed because those interfaces are somehow stable since easy-to-change parts are ported into other document. From time to time, the latest information will be updated into this document for consistency.
* Information in section 4 – other nonfunctional requirements: Quality Attribute Requirements is somewhat susceptible to change, but changes are manageable because the amount of information is not very large.

## 1.4 Project Scope

This document only goes detail in personal information management module although there are seven modules (will be described later) in Human Resource System – HRM – that is being developed by Software Center of VLU. In addition, HRM project will be developed within six months.

## 1.5 References

[*List any other documents or Web addresses to which this SRS refers. These may include userinterface style guides, contracts, standards, system requirements specifications, use casedocuments, or a vision and scope document. Provide enough information so that the reader couldaccess a copy of each reference, including title, author, version number, date, and source orlocation.*]

# Overall Description

## 2.1 Product Perspective

Human Resource System is a new system that replaces the current Human Resource System at Van Lang University that is operated manually using Microsoft Excel. This method causes some difficulties in managing HR for VLU so that this proposed system will help Human Resource Planning and Managing Department easy to do so. This version will only describe requirements of overall system and details for personal information management module only. Other features will be described in detail later in another projects.

## 2.2 Product Features

The following figure shows an overall view of all HRM feature and how it associates with each other



*Figure 1: Features data relationship of HRM project*

As shown above, HRM consists of eight key modules/features, which is described and prioritized as followed:

|  |  |  |  |
| --- | --- | --- | --- |
| ID | Name | Description | Priority |
| HRM.FE1 | System Management | Manage HRM system; include user management, authentication, configuration, etc. This feature will be hidden and filtered by users' permission; only administrator of HRM can access this feature | 1 |
| HRM.FE2 | Recruitment Management | Take responsible for managing recruitment process. It includes interviewing, evaluating, managing probation, etc. | 8 |
| HRM.FE3 | Employee Labor Contract Management | Manage employee contract information: salary ratio, class, grade, contract date, staff name… Besides, this feature helps HR easy to manage payroll. Therefore, it has a definite link to Payroll Management module. | 3 |
| HRM.FE4 | Insurance Information Management | Collect and gather information about insurance types, and manage premium. Beside, this feature bases on salary table to update insurance types of staff (including lecturer). | 6 |
| HRM.FE5 | Assessment Management | Gather information about work of staff, lectures, discipline, reward, etc. Moreover, assessments will be updated at the end of each year. This will helps HR to calculate salary. | 7 |
| HRM.FE6 | Employee Labor Management | Receive information about staff from Personal Information Management to manage working day, working hour. This will helps HR to calculate salary. | 4 |
| HRM.FE7 | Personal Information Management | It is the most important feature. It will collect and manage information of all other features, in addition to Employee Labor Contract Management, which updates information from other features to manage. | 2 |
| HRM.FE8 | Payroll Management | Report and manage information about staff, lectures, salary etc. However, it is mainly about managing income of a staff of VLU | 5 |

*Note that the lower priority number is, the higher priority it is*

## 2.3 User Classes and Characteristics

[*Identify the various user classes that you anticipate will use this product. User classes may be differentiated based on frequency of use, subset of product functions used, technical expertise, security or privilege levels, educational level, or experience. Describe the pertinent characteristics of each user class. Certain requirements may pertain only to certain user classes. Distinguish the favored user classes from those who are less important to satisfy.*]



*Figure 2: System Context of HRM project*

|  |  |  |
| --- | --- | --- |
| Number | Actor | **Description** |
| 1 | Department | * Supply working days: staff of department will summarize information about working days and provide for system. * Recruitment management: staff provides information about recruitment, recruitment form, promotion paper. * Update profile, training plan: Staff, lectures can update information in this field and manager of department can accept this info. * Supply rivalry result: staff collects information and then summits it to system. * System provide information about official lectures, outside lectures and personal salary to department |
| 2 | Educated Department | * Educated Department is part of department. * Besides, system provide information official lectures, outside lectures, personal salary table for it. |
| 3 | Account department | * Account department is part of department. * Besides, system provide salary table. |
| 4 | HR group | * Use all feature of system except income feature, Employee labor management. |
| 5 | Salary group | * Staff of salary group is responsible for payroll management and employee management. |
| 6 | Administrator | * Administrator can create account, and assign mission to staff. |

## 2.4 Operating Environment

|  |  |  |
| --- | --- | --- |
|  | Type | |
| Client computer | Server |
| Operating System | * Windows XP SP2 * Windows Vista * Windows 7 | * Windows server 2003 * Windows server 2008 |
| Hardware | * Hard disk space: About 40 GB (full installation incl. two language modules). About 110 MB (minimal installation incl. two language modules) * Memory: more than 512 MB free memory with default cache settings * CPU: Equal or more than Pentium 4 - 2.0 GHz | * Hard disk space: 250 GB * Memory: Min 4.000 MB free memory * CPU: more than 2 CPU 3.0 GHz * Network: WinSockets-compatible TCP/IP (if you are using the TCP protocol with the BFO Server) NetBIOS-compatible LAN (if you are using the NETB protocol with the BFO Server) LAN network connection should be 100 Mb/sec or better. |

## 2.5 Design and Implementation Constraints

[*Describe any items or issues that will limit the options available to the developers. These might include: corporate or regulatory policies; hardware limitations (timing requirements, memory requirements); interfaces to other applications; specific technologies, tools, and databases to be used; parallel operations; language requirements; communications protocols; security considerations; design conventions or programming standards (for example, if the customer’s organization will be responsible for maintaining the delivered software).*]

|  |  |
| --- | --- |
| Constraint ID | Description |
| TC.PIM.1 | The system database will be developed using SQL server |
| TC.PIM.2 | Implementing using Silverlight and Telerik, WCF (Window Communication Foundation) |
| TC.PIM.3 | Network is ADSL/Mega WAN |
| TC.PIM.4 | Program and fix code on XML file or properties of XML file |
| TC.PIM.5 | Default language is Vietnamese |
| BC.PIM.6 | The end of the project is in April 30th, 2012 |

## 2.6 User Documentation

[*List the user documentation components (such as user manuals, on-line help, and tutorials) that will be delivered along with the software. Identify any known user documentation delivery formats or standards.*]

|  |  |
| --- | --- |
| File name | Description |
| User manuals | User manual is a .doc type file (Word). Moreover, this file guides how to use software easily. |
| On-line help | On-line help is a tool, which integrated in software product. In addition, it describes all system functions, and guides to how to fix common problems. |
| Concepts of Operation | This document (.doc type) allows all stakeholders to understand clearly about requirements and get agreement with each other on its requirements. |

## 2.7 System Features

[*This template illustrates organizing the functional requirements for the product by system features, the major services provided by the product. You may prefer to organize this section by use case, mode of operation, user class, object class, functional hierarchy, or combinations of these, whatever makes the most logical sense for your product.*]

### 2.7.1 System Management

Feature priority: 1

Description:

* System security management:
  + Managing users who logging in the system.
  + Managing users and user groups.
  + Change password for users.
  + Update data for each group, each user.
  + Distribute permissions to exploit the program for each group, each user.
  + Manage logs of each time user change data in database
  + Ensure that unauthenticated access is eliminated
  + Configuration

This feature is developed in parallel with Personal Information Management by Software Center of VLU

### 2.7.2 Recruitment Management

Feature priority: 8

Description:

* Detailed management about applicants’ profiles
* Keeping track of detailed information on the job interviews
* When applicants are chosen, the records will be automatically updated to official profiles of the staff
* Planning and monitoring the training plan implementation of the whole staff.
* Keeping track of the training, and the cost for training implementation.
* Keeping track of the advanced training cost and payment for each member in the teaching staff.

This feature will be developed later.

### 2.7.3 Employee Labor Contract Management

Feature Priority: 3

Description

* Detailed management about the contracts between the employees and employers: probation contracts, job training, the time limited and unlimited official contracts.
* Keeping track of renewal contract.
* Keeping track of storing profiles when employees quit working or suspend the contract.

This feature will be developed later.

### 2.7.4 Insurance Information Management

Feature priority: 6

Description

This feature gather all information about employee insurance for user to manage, including

* Strict management processes collecting social insurance unification in the entire system.
* Strict control procedures for comparison and settlement of revenues for units participating in social insurance.
* Building a database system of centralization and uniformity throughout the system. Sharing information to the department concerned departments through

This feature will be developed later

### 2.7.5 Assessment Management

Feature priority: 7

Description: This feature allows user to managing any employee information associated with assessment such as

* Managing discipline and reward of each employee or a group of employee
* Report discipline and reward information for wage changes
* Allows user to register works at each pre-defined period for each lecturer
* Etc.

This feature will be developed later

### 2.7.6 Employee Labor Management

Feature priority: 4

Description: This feature helps user to managing working day and working hour for each staff in addition to managing overview information

This feature will be developed later

### 2.7.7 Personal Information Management

Feature priority: 2

Description

* Personal information management:
* Detailed information of employees’ background such as employees’ ID number, date of birth, place of birth, gender, number of insurance, address, telephone, current accommodation, working department, title, job title etc.
* Managing family relationships information.
* Managing qualification, foreign language proficiency, information technology, politics.
* Managing employees’ storage of working records
* Managing employees’ working experience
* Keeping track of employees’ reward or penalty records
* Keeping track of employee’s wages changes.
* Tracking the information on transferring work.
* Supporting and monitoring benefits of employees associated with social insurance and health insurance.
* Tracking absent of all kinds such as illness absent, maternity absent etc.
* Report on personnel management:
  + Curriculum vitae
  + The statistics records of workers
  + Horizontal list of current excerpts and teachers
  + List of taking leaves
  + List of staffs-teachers whose contracts are expired
  + List of staffs-teachers who are going to retire
  + List of staffs - teachers are rewarded and disciplined

#### 2.7.7.1 Functional Requirement, Business Rule and List of Use Cases

See [[HRM] Functional Requirement and Business Rule](%5bHRM%5dFuntional%20Requirement%20and%20Business%20Rule.xlsx) at each appropriate sheet for correct information

#### 2.7.7.2 Use Case Diagram and Description

##### 2.7.7.2.1 Use Case Diagram

Legend:



**High level**



**Personal Information Management**



**Manage Extend Information**



**Manage Profile**



##### 2.7.7.2.2 Use Case Description

### 2.7.8 Payroll Management

Feature priority: 5

Description

The input figures for the salaries such as the minimum wage, payment for further study, long - term training, payment for working overtime, the figures of salary adjustments based on the results and how to emulate the monthly salary as required. Modules also provide the output:

* Table of income apart from salary
* General report on payment of wages
* Report on salary increase plan (quarterly and monthly)

This feature will be developed later.

# External Interface Requirements

## 3.1 User Interfaces

User interfaces are shown on each use case description. The following figure will display flow of UI

## 3.2 Hardware Interfaces

HRM systems be installed directly on the computer/laptop

## 3.3 Software Interfaces

* HRM runs on Microsoft SQL Server, Mysql, Oracle.
* Operating systems:
* Windows server 2003
* Windows server 2008
* Windows XP SP2
* Windows Vista
* Windows 7
* integrate to Microsoft Office 2010

## 3.4 Communications Interfaces

[*Describe the requirements associated with any communications functions required by this product, including e-mail, web browser, network server communications protocols, electronic forms, and so on. Define any pertinent message formatting. Identify any communication standards that will be used, such as FTP or HTTP. Specify any communication security or encryption issues, data transfer rates, and synchronization mechanisms*]

# Other Nonfunctional Requirements

| **QA. ID** | **Type** | **Description** |
| --- | --- | --- |
|  | Performance | The system will run with high performance, events occur and the system must respond in a timely fashion from 2 to 4 seconds |
|  |  |  |
|  | Security |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## 4.1 Performance Requirements

The system will run with high performance, events occur and the system must respond in a timely fashion from 2 to 4 seconds.

## 4.2 Security Requirements

This quality is very important for system because it will help the system to prevent or resist unauthorized access while providing access to legitimate users. That is presented two points of view as encode information, data and prevent hacker.

That all is showed in the product:

* Using newest information encode technology (encode information: username, password, data current between client and server)
* The product will release free defect to avoid lose information by hacker.

## Software Quality Attributes

* + 1. **Usability**

The interface will show clearly, easy to understand, and visually. The information is expressed science to create a favorable environment for user.

That all is showed in the product.

* To learn
  + Interface familiar, consistent
  + Clearly, science
  + The Menu and Button are placed suitable for user’ habit too easy to execute
* To use system effective
  + Reuse command or data already entered
  + Navigation support, comprehensive searching
* To recover from errors
  + Undo, cancel, recover from system failures

Forgotten passwords

* + 1. Scalability

The system will be easy to upgraded or added new module to the system.

* + 1. Modifiability

The system will be easy toadded, deleted and modified function.

* + 1. Availability

The system will provide 12/24availability from 7:00 AM to 19:00 PM to ensure data for workingif it is impacted from internal or external as crashed, omission, timing, no response, incorrect response.

## Other Requirement

[*Define any other requirements not covered elsewhere in the SRS. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Add any new sections that are pertinent to the project.*]

# 5Appendix A: Glossary

[*Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.*]

| **Code** | **Desription** |
| --- | --- |
| FR.<abc>.<xxx> | Functional requirement code  <abc>: Project name  <xxx>: Number of functional requirement |
| UC.<abc>.<xxx> | Use-case code  <abc>: Project name  <xxx>: Number of use-case |
| BR.<abc>.<xxx> | Business rule code  <abc>: Project name  <xxx>: Number of business rule |
| BC.<abc>.<xxx> | Business constraints code  <abc>: Project name  <xxx>: Number of business constraints |
| TC.<abc>.<xxx> | Technical constraints code  <abc>: Project name  <xxx>: Number of technical constraints |
| QA.<abc>.<xxx> | Quality attributes  <abc>: Project name  <xxx>: Number of quality attributes |
| R.<abc>.<xxx> | Report code  <abc>: Project name  <xxx>: Number of report |
| F.<abc>.<xxx> | Form code  <abc>: Project name  <xxx>: Number of form |

# 6Appendix B: Analysis Models

[*Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams*.]

# 7Appendix C: Issues List

[*This is a dynamic list of the open requirements issues that remain to be resolved, including TBDs, pending decisions, information that is needed, conflicts awaiting resolution, and the like.*]