** BESTLINK COLLEGE OF THE PHILIPPINES**

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**Airlines Personnel Management Information System**

A Project Proposal

Presented to

The Faculty of Information Technology Department

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In Partial Fulfillment

Of the Requirements for the Subject

Project Study 1 (PS1)

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**LIST OF ACRONYMS**

**LIST OF ACRONYMS**

**GUI –** Graphical User Interface

**HR –** Human Resource

**HRIS –** Human Resource Information System

**HRM –** Human Resource Management

**LAN –** Local Area Network

**PMIS –** Personnel Management Information System

**DECLARATION**

I certify that this project study does not incorporate, without acknowledgement, any material previously submitted for a Degree or Diploma in any University and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text. I also hereby give consent for my project study, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organizations.

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**CHAPTER 1**

1. **Introduction**

The Airline industry is an extremely competitive and high-technology service industry. This sector is a combination of the application of the information technology, tourism, engineering designs and most especially the aspect of skilled individuals and human resource which makes up the main force of the company. With this concern comes the development of highly efficient Personnel Management System.

Personnel Management is the [management](http://en.wikipedia.org/wiki/Management) of an [organization](http://en.wikipedia.org/wiki/Organization)'s [workforce](http://en.wikipedia.org/wiki/Workforce), or [human resources](http://en.wikipedia.org/wiki/Human_resources). It is responsible for the [attraction](http://en.wikipedia.org/wiki/Employer_branding), [selection](http://en.wikipedia.org/wiki/Recruitment), [training](http://en.wikipedia.org/wiki/Training_and_development), [assessment](http://en.wikipedia.org/wiki/Performance_appraisal), and [rewarding](http://en.wikipedia.org/wiki/Remuneration) of employees, while also overseeing organizational [leadership](http://en.wikipedia.org/wiki/Leadership) and [culture](http://en.wikipedia.org/wiki/Organizational_culture) and ensuring compliance with [employment and labor laws](http://en.wikipedia.org/wiki/Labour_law).

To maintain a good personnel management, it is essential for every company to have a Personnel Management Information system.

A personnel management information system is a set of procedures and applied technology that human resources workers use to track and organize data about the employees within a business or organization. This area of personnel management entails both the use of a computer software program and of routine practices for entering and updating relevant data.

This project study seeks to establish a system for personnel management by taking a technical approach on the human resource management tasks and strategies being implied in an organization, particularly of an airline company.

* 1. **Project Overview**

The group’s proposed project, Airline Personnel Management Information System, is a part of a whole project integration mainly composed of eleven (11) working sub-systems that will be connected together to develop a holistic Airline Management System.

 The proposed project is responsible for the human resource component of the organization, building up the company’s administration and operation processes. An airline company is a large industry composed of a wide variety of employees, thus, the HR’s Personnel Management Information system shall encompass all the needs to properly maintain and manage information concerning the human resource workforce.

 The proposed project is set to address the needs of the airline company’s HR department with regards to keeping records and managing the company’s employees. This shall not only design a working HR Information system, but all in all develop a fully functional and advanced Personnel Management Information System fit to the needs and requirements of an organization particularly of an airline company, with regards the day-to-day HR process flow starting from the Management of Employee records, Monitoring of Employees’ Work Performance, Benefits and Compensations, Trainings, up to the Employee’s Assessment.

**1.2 The Problem Domain**

 **1.2.1 Statement of the Problem**

**1.2.1.1 Is the existing system efficient enough to fulfill the needs of the company’s HR department?**

 Difficulty problems arises such as keeping track of records of present and previous data of employees and an unorganized records and process management may lead to confusion and inefficient work results..

**1.2.1.2 Does the system use little time for the work to be processed?**

One of the specific problems faced by the establishment in the existing system is the time being consumed in processing certain activities and achieving a more efficient job in the least probable time. The fact that the information were only being recorded in a Microsoft Exel sheets, the process requires more time to be done resulting to waste of employees’ significant time and also causes slow transactions.

 **1.2.1.3 Are you having problems with regards to the security of the information being stored in your system?**

 In the existing system, security is a big question since information is only being encoded in Exel forms, thus, the security of information is limited, and in instances the Exel files tend to crash, cases of uncertainties and confusion usually occur.

**1.3 Objectives of the Project**

**1.3.1.1 Efficiency and Accuracy**

The group aims to develop an enhanced Airline Personnel Management System that is able to perform tasks sufficient to the needs of a modern airline company’s HR department. The main goal is to create an information system that will give high efficiency meeting the users’ expectations and requirement.

**1.3.1.2 Speed and Usability**

The developers aim to design a system with high usability, less time consumption and user-friendly. Therefore, the system’s graphical user interface (GUI) has to be simple, understandable, easy to navigate and efficient to use. The database has to have capabilities enough to store vast personnel management records, and data retrieval should be fast and sufficient.

**1.3.1.3 Security**

The group aims to develop a system with a high security essential for an airline company’s HR information records. Only authorized personnel of the HR Administration shall have access to the system’s full content.

**1.4 Significance and Scope of the Project**

 **1.4.1 Significance of the Project**

 The project is expected to provide insights into the aspect of human resource management as well as to give further understanding on the role of a Personnel Management Information System (PMIS) to the development of an organization, an Airline company to be particular. This will also be beneficial to the present and future researchers concerning an Airline Personnel Management System. Finding the role of PMIS in HR management in private sector organizations would be very important and would contribute to that specific body of knowledge.

* + 1. **Scope of the Project**

This study aims to create a Personnel Management Information System which covers the business' HR processes. This study will be based in management and technical aspect of the business.

* + - 1. **Personnel Information Management (201 Form)**

The project shall cover the management of employee records. Addition, updating and storing of employee information is the main concern of the PMIS.

* + - 1. **Employee Performance Evaluation Management**

 Monitoring of employees’ daily work performance is a must in any Personnel Management Information System. The project shall cover the monitoring of employees’ work efficiency, their daily attendance, computerized self and HR assessment evaluation and employee appraisal management.

* + - 1. **Employee Benefits and Compensation Management**

Setting up of salary rates, deductions, benefits and incentives depending on the level or position of each employee shall be determined in the system project. The PMIS shall make sure that each employee will be properly paid according to their job description.

Leave management is also a part of this scope, it ensures that all leaves taken and leave requests will be properly accounted for. Leave management includes organization of leave policies, yearly leave counts and holiday set-up, leave applications of employee and admin personnel, approval/rejection of leaves by the HR admin, cancellation of applied leaves, leave encashment and leave reports.

Seminars and trainings are also included, this is to ensure the employees’ work efficiency, the company shall provide seminars and trainings to enhance work productivity. It is the HR department’s task to give seminars and trainings, as well as keep records of such trainings taken and requisition if further trainings are needed.

**CHAPTER 2**

**2.0 Review of Related Literature**

 **2.1 Related Literature**

**2.1.1 Foreign Literature**

**1. “Developing Competency Models to Promote integrated human resource practices”**

According to the book of Rodriguez, D., Patel, R., Gregory, D. (2002) entitled “Developing Competency Models to Promote integrated human resource practices” stated that the Office of Personnel Management (OPM) has developed robust competency models that can form the foundation for each of these initiatives. OPM has placed these models into automated systems to ensure access for employees, human resources professionals, and managers. Shared access to the data creates a shared frame of reference and a common language of competencies that have provided the basis for competency applications in public sector agencies.

**2. “Information Empowers”, Oracle Human Resource Management System**

According to the article entitled “Information Empowers”, Oracle Human Resource Management System” says that “Our people are our most important asset” An effective HR transformation requires the adoption of a comprehensive human capital management (HCM) strategy. To build a more effective workforce your firm must develop a cohesive HCM strategy that is tightly linked to your overall business goals and objectives.

**3. “Human Resource Management Strategy in the Global Airline Industry - A Focus on Organizational Development”**

According to the book of Appelbaum, S. H., Fewster, B. M. (2006) stated that the most obvious effects that human resource information systems will have on your company will occur in the HR department. Once you've successfully implemented human resource information systems you can expect your HR workers to be more motivated and less stressed, as well as able to focus their efforts on various tasks that they had little time for prior to the human resource information systems.

**2.1.2 Local Literature**

 **1. “Outsourcing in the Philippines”**

According to the article of Stranathan, (2013) entitled “Outsourcing Human resource in the Philippines” says that getting the right people in your company, training them, and keeping them happy and productive is a vital business imperative, not simply a "nice to have". Companies must either take HR seriously in-house, or find an expert human resource outsourcing provider that can do it right - as it can directly affect the viability of your business.

**2. “Strategic HR Practices in Some Organizations in the Philippines”**

According to the book of Supangco, (2012) entitled “Strategic HR Practices in Some Organizations in the Philippines” stated that Strategic management is an important factor in gaining competitive advantage not only in a domestic market, but also especially in a market that is global. HR practices in the basic HR functions, namely: staffing, training and development, and compensation.

**3 “Cultivating innovation through human resources management”**

 According to the article of Ballesteros (2012) entitled “Cultivating innovation through human resources management” stated that Essential training and development practices include encouraging employees to take responsibility for their own career and personal development. Effective employee relations, and Compensation / benefits. Finding the right fit will benefit both the company and new hires in the long run. It is also essential for training managers, management representatives and supervisors to strengthen their core competencies and commit to building strong entrepreneurial mindset and culture among members of the rank and file.

**2.2 Related Studies**

**2.2.1 Foreign Studies**

 **1. “Human Resource Management System: Case Study”**

Based on the undergraduate research study of Webdunia, (2012) entitled “ Human Resource Management System: Case study” explains that HRMS aims at maintaining integrated information for various functions of the Human Resource Department including Employee Records, Leave, and Attendance etc….

 **2. “Human Resource Management System”**

Based on the undergraduate research study of A.S.Syed Navaz, A.S.Syed Fiaz, C.Prabhadevi, V.Sangeetha, (2013) entitled “Human Resource Management System” is basically concerned with managing the Administrator of Human Resource Department in a company. A Human Resource Management System (HRMS), refers to the systems and processes at the intersection between human resource management (HRM) and information technology.

**3. “Human Resource Information Systems (HRIS): Replacing or Enhancing HRM”**

Based on the undergraduate research study of Kristine Dery, David Grant and Sharna Wiblen, (2006) entitled “Human Resource Information Systems (HRIS): Replacing or Enhancing HRM” explains that the role of HR can be enhanced through the combination of improved access to metrics and the automation of existing administrative functions thus enabling HR to make a greater contribution at a strategic level. However, the same capabilities also threaten the role of HR specialists as traditional HR work is both automated and distributed to line management.

**2.2.2 Local Studies**

 **1. Astra Human Resources Information System**

Based on the study of (AP) Astra Philippines entitled “Astra Human Resources Information System (AHRIS)” explains that astra human resource is a user friendly web-based employee information management system. The system automates and improves the delivery of HR services, including managing the employee records, facilitating requests for leaves, overtime and training, tracking the employees' performance and skills, and allocating and managing the company's resources.

**2.3 Synthesis**

 The growing industry of Airline companies has become in need of competitive individuals to support the growth of their organization. Upon conducting the research, the group has observed that more and more systems about HR management has been developed, thus creating an easy environment and work process for the companies.

**CHAPTER 3**

**3.1 Software Requirements Specification**

 **3.1.1 Introduction**

 **3.1.1.1 Goals and objectives**

The purpose of this document is to describe requirements for an Airline Personnel Management Information System that will serve as a foundation for the final product. It is of importance that an agreement of these requirements will be reached so that everyone’s expectation will be met. This document uses written descriptions as well as different types of modeling diagrams to illustrate the high level structure of the system. Although some of these diagrams may seem to convey similar information they typically do so from an alternate perspective. This gives different stakeholders a view of the requirements that is better suited to their area of responsibility.

 The system is a LAN-based application. Only authorized personnel and user will gain access to the system by means of a log in engine. By designing around a standardized language like Java, the application will run on the most popular computer platforms. A centralized database connected to the system will allow the users to store large amount of information.

 The Airline Personnel Management Information System is intended to provide an enhanced, computer-based system that will assist an Airline HR department’s employee management.

 **3.1.1.2 Statement of Scope**

This section contains a general description of the software functionality followed by detailed requirements that will be traced throughout the project.

 Before gaining access to the Airline PMIS, the user will be required to enter their user name and password. The main user f this system is the HR admin who will have unlimited access privileges within the system.

 Administrators are responsible for adding new employee information to the system, as well as viewing and updating the existing records. When an employee is subject to evaluation, the administrator will provide assessment tests which will be an application available on the PMIS and to be answered and submitted by the employee himself and the administrator. The administrator is also responsible for the tracking and evaluation of leave applications, requesting and giving seminars and trainings for the employees and providing the retirement and termination scope of the employees.

Once an employee was hired in the company, his/her information will be stored on the PMIS database for record keeping. He/she will be subjected to evaluation and trainings. In the duration of his/her work, the company will decide whether to promote, demote or terminate him/her. The end process is his/her termination or retirement the system will keep all records of employee information including their evaluation, leave applications, compensation, benefits and incentives as well as retirement scope. There will be a generation of daily, weekly, monthly and annual report coming from the system.

 **3.1.1.3 Software context**

With the increasing effect of globalization and technology, organizations have started to use information systems in various functions and departments in the last decades. Human resources management is one of the departments that mostly use management information systems. HR information systems support activities such as identifying potential employees, maintaining complete records on existing employees and creating programs to develop employees’ talents’ and skills. HR systems help senior management to identify the manpower requirements in order to meet the organization’s long term business plans and strategic goals. Middle management uses human resources systems to monitor and analyze the recruitment, allocation and compensation of employees. Operational management uses HR systems to track the recruitment and placement of the employees. HRIS can also support various HR practices such as workforce planning, staffing, compensation programs, salary forecasts, pay budgets and labour/employee relations.

 Along with the upsurge of computerized management information systems (MIS) in industrialized countries’ enterprises in the 1980s, HR functions increasingly started to deploy human resource information systems in their daily work. HRIS were primarily seen as MIS sub functions within HR areas intended to support the “planning, administration, decision- making, and control activities of human resource management. During the 1990s, along with the adoption of more complex HR practices focused on a company’s overall performance goal, HRIS correspondingly evolved into more sophisticated information expert systems featuring analytical tools to support decision-making in managing human capital (Ostermann, Staudinger & Staudinger, 2009). Information technology in the past decade drastically changed the human resources function. Providing support for mainly administrative activities such as payroll and attendance management in the beginning, information technology today enhances many of the recruitment function’s sub processes such as long and short-term candidate attraction, the generation, pre-screening, and processing of applications or the contracting and on boarding of new hires. Online job advertisements on corporate web sites and internet job boards, online CV databases, different forms of electronic applications, applicant management systems, corporate skill databases, and IS supported workflows for the contracting phase are only few examples of the various ways by which information systems today support recruitment processes (Keim & Weitzel, 2009).

In HR planning process it is easier to follow workforce gaps, the quantity and quality of the labour force and to plan future workforce requirements with the help of HR knowledge systems (Dessler, 2005). HRIS can support long range planning with information for labour force planning and supply and demand forecast; staffing with information on equal employment, separations and applicant qualifications; and development with information on training programs, salary forecasts, pay budgets and labour/employee relations with information on contract negotiations and employee assistance needs (Shibly, 2011).

**3.1.1.4 Major constraints**

The Airline PMISserver codes will be written in the Java

**3.1.2 Usage Scenario**

 **3.1.2.1 User Profiles**

 The following definitions describe the actors in the system.

Administrator An administrator has the responsibility for registering new User Account. They have the authority to access the system including Add, Edit, View and Changing password & user.

System The system refers to the tangibles and Intangible parts of the system that controls the application.

Server The server is a remote computer system that maintains the database and serves pages to the system.

* + - 1. **Use-cases**

1. Log onto the System

2. Personnel Information Management (201 File)

3. Personnel Designation

4. Personnel Evaluation Management

5. Personnel Benefits Management

**3.1.2.3 Use – Case Diagram**

The use-case diagram in Figure 1 shows the actors that were described in section 2.1. in order to minimize the complexity of this diagram, several connections were left out.

 **3.1.2.3.1 Over-all Use Case Diagram of Airline PMIS**

administrator

**3.1.2.2.2 Use Case Definition**

Use Case: Log onto the System

Primary Actor: Administrator

Goal in Context: To gain access to the system

Preconditions: Must have a valid UserID and Password

Trigger: An access to perform their jobs.

Scenario: The System Prompts for a Valid UserID and Password

 The administrator enter their Username and Password

 The System Sends UserID and Password to the Server

The Server sends back the password registered to the UserID

The system verifies the password and sets the users authorization

The administrator is given access to use the system to perform their job.

Use Case: Personnel Information Management

Primary Actor: Administrator

Goal in Context: To manage the information about the employee

Preconditions: Must have a valid UserID and Password

Trigger:

Scenario: The Administrator must log onto the system

The Administrator selects Personnel Information Management from the main menu.

The administrator has the option if He/She wants to add, search, update, the information about the employee

The administrator must save all the changes

The administrator receives confirmation that the changes have been save

Use Case: Personnel Evaluation Management

Primary Actor: Administrator

Goal in Context: To Evaluate the Employee according to the performance

Preconditions: Certified employee of the Company

Trigger:

Scenario: Log onto the system

Select Personnel Evaluation Management from the main menu

View between performance/task Monitoring and Employee Evaluation

 Decide if Promote or Demote

The administrator must save all the changes

The Administrator receives confirmation that the changes have been saved.

Use Case: Personnel Benefits Management

Primary Actor: Administrator

Goal in Context: To give benefits for the employee

Preconditions: Certified employee of the company

Trigger:

Scenario: Log onto the System

 Select Personnel Benefits Management from the main menu

 view Personnel status, salary, and position.

Assign the right benefits according to the salary, status , and position.

The administrator must save all the changes

The Administrator receives confirmation that the changes have been saved.

Use Case: Personnel Designation Management

Primary Actor: Administrator

Goal in Context : To assign an employee

Preconditions : Certified employee of the company

Trigger :

Scenario : Log onto the system

 Select personnel Designation Management from main menu

 View vacant position

View Personnel Qualification, Educational background, seminars and trainings

 Designate position

The administrator must save all the changes

The Administrator receives confirmation that the changes have been saved.

* + - 1. **Activity Diagrams**

**Figure 2. Activity Diagram for logging on to the system**.

 [incorrect] [less than 3]

 [more than 3]

 [correct]

**Figure 6.Activity Diagram for Personnel information management**

 [No]

Save

 [Yes]

Figure 7.Activity Diagram for Personnel Designation Management

View

**Figure 8.Activity Diagram for Personnel Benefits Management**

**Figure 9.Activity Diagram for Personnel Evaluation management**

Decide

Choose

 [demote]

 [promote]

**3.1.3 Data Model Description**

**3.1.3.1 Data objects**

**Administrator Data Object**

UserID A unique user id/name assigned to the administrator.

Password The administrator password used to log on to the computer system.

LastName The administrator last name

First Name The administrator’s first name.

MiddleName The administrator middle name.

.Email An Email address of administrator.

**Employee Data Object**

EmpNumber A unique number assigned to the employee.
FirstName The employee`s first name.

MiddleName The employee`s middle name.

LastName The employee`s last name.

Address The address of the employee.

Gender The employee`s gender

CivilStatus The employee’s civil status.

ContactNo. The contact number of the employee.

Email An email address for the employee`s.

Classification The job classification of the employee, either Contractual, Probationary or Regular

Position The employee’s job position

Designation The employee’s department designation.

HireDate The employee’s hiring date

EoCDate The employee’s end of contract date

Salary The employee’s salary rate

**Jobs Data Object**

JobID The specific job identification number

JobTitle The name/title of the job

JobDescription The description and nature of the job

JobStaus The status of the job, either full-time, part-time, contractual or regular

Salary The assigned salary rate for a specific job title

**Department Data Object**

DeptID The specific department identification number

DeptName The department’s name/title

DeptDescription The department’s title description

DeptHead The name of the department’s head personnel

**Leave Data Object**

LeaveType The type of leave applied

LeaveApplicationDate The date of leave application

LeaveStatus The status of the applied leave, either Approved, Rejected or Cancelled

LeaveBeginDate The actual start date of leave

LeaveExpectReturn The expected date of return of the employee on leave

LeaveActualReturn The actual return date of the employee on leave

**Seminars and Trainings Data Object**

SeminarTitle The name of the seminar

SeminarDescription The description of the seminar

TrainingTitle The name of the training

Date The date of the training/seminar.

CertificateNumber The certificate number issued to each employee who attended the seminar/training.

**3.1.3.2. Relationships**

In order for a Administrator to have an account with the Human Resources of the Airline Company.

They must have at least one employee. Since a company has a multiple employee a one-to-many relationship exists. The administrator and employee cannot exist alone in the Human Resource System. In general all employees must have an HR admin.

An Administrator will receive a new applicant or employees so a one-to-many Relationship exists.

Each time an employee edits a record in the change data object. Most employees will make multiple changes so there is a one-to-many relationship between employees and change data objects. An employee may not may any changes and can therefore exist alone. However, a change object must be associated with an employee and therefore cannot exist alone.

**3.1.3.3 Complete Data Model**

 **Figure 9. Relationship Diagram for Airline PMIS**

The relationship between the data objects described in 3.2 are shown in Figure 9.

**DEPARTMENT**

**DEPARTMENT**

-DeptID
-DeptName
-DeptDescription
-DeptHead

**JOB**

**JOB**

-JobID
-JobTitle
-JobDescription
-Salary

**EMPLOYEE**

-EmpNumber
-LastName
-FirstName
-MiddleName
-Address
-Gender
-Birthday
-Age
-CivilStatus
-ContactNumber
-Email
-Classification
-Position
-Designation
-HireDate
-EoCDate

**SEMINARS & TRAININGS**

**LEAVE**

-SeminarTitle
-SeminarDesc
-TrainingTitle
-TrainingDesc
-Date
-CertificateNum

-LeaveType
-LeaveAppDate
-LeaveBeginDate
-LeaveExpect
Return
-LeaveActual
Return

**3. 1.4. Functional Model Description**

 **3.1.4.1 Figure 10. Airline PMIS Class Diagram**

 1 1

**JOB**

-JobID
-JobTitle
-JobDescription
-Salary

+AddJob()
+RemoveJob()

**DEPARTMENT**

-DeptID
-DeptName
-DeptDescription
-DeptHead

+AddPersonnel()
+RemovePersonnel()

**EMPLOYEE**

-EmpNumber
-LastName
-FirstName
-MiddleName
-Address
-Gender
-CivilStatus
-ContactNumber
-Email
-Classification
-Position
-Designation
-HireDate
-EoCDate

-Salary

+Promote()
+Demote()
+AddEmployee()

 1 1 0..1 0…1

**LEAVE**

-LeaveType
-LeaveAppDate
-LeaveBeginDate
-LeaveExpect
Return
-LeaveActual
Return

+Approve()
+Reject()
+Cancel()
+AddLeave

**SEMINARS & TRAINING**

-SeminarTitle
-SeminarDesc
-TrainingTitle
-Date
-CertificateNum

+AddSeminar()
+AddTraining()

**3. 1.4.2. Software Interface Description**

 **3. 1.4.2. 1. External machine interface**

The software will be capable of printing reports on a local or network printer.

**3. 1.4.2. 2. External system interface**

The Personnel Management Information System will communicate with a Web server on the internet through a high speed network connection such as DSL, cable or a T1 line.

**3. 1.4.2. 3. Human interface**

The web pages shall permit complete navigation using the keyboard alone, In addition to using mouse and keyboard combinations.

 **3. 1.4.3. Reports**

 **3. 1.4.3. 1. Inventory of Reports**

 **3. 1.4.3. 2. Layout of Reports**

 **3. 1.4.3. 3. Data Dictionary of Reports**

**3. 1.5. Behavioral Model Description**

 **3. 1.5. 1. Description for software behavior**

 **3. 1.5.1.1. Events**

 **Administrator Class Events**

 Administrator logs onto the system

 Administrator views records

 Administrator updates employee records

 Administrator updates seminars/training records

 Administrator gives employee evaluation

 Administrator gets generated report from the system

 Administrator logs out of the system

 **Employee Class Events**

The employee is hired

 The employee is designated In a position in the company

 The employee is added to the company’s personnel records

 The employee starts working in the company

 The employee undergoes seminars and training

 The employee gets promoted/demoted

 The employee retired/is no longer working in the company

 **Department Class Events**

 An employee is added to the department

 An employee is removed from the department

 **Job Class Events**

Job position has to be filled

 New employee is placed into the position

**Seminars and Training**

 A new seminar/training is scheduled

 Employees attend the seminar/training

 Employees are given certificates after

 attending the seminar/training

**Leave Class Events**

Employee fills up leave form

Employee filed for leave

The leave is approved

Employee begins leave

Employee returns to work

Leave amount is encashed

**3. 1.5.1.2. States**

**Admin States Description**

Logged in The admin is logged in the system

Working The admin is doing series of routine work through the system

Logged out The system logs out of the system

**Employee States Description**

HiredAn employee has been hired and new account must be set up

Promoted The employee has been promoted and their access privileges may need to change

Terminated The employee has been terminated and must be blocked from using the system

Resigned The employee has resigned and must be blocked from using the system

**Job States Description**

Open The job is currently vacant

Closed The job position is already filled

**Department States Description**

Full All the job titles in the department

is already filled

Hiring A position is vacant and in

need of employee/s

**Seminar/Training Description**

**States**

Active The seminar/training is ongoing

Done The seminar/training is already finished

**Leave States Description**

Requested An employee requested for leave

Filed The employee submitted the leave form

Pending The leave applied is waiting for approval

Approved The leave application is approved

**3. 1.5. 2. Statechart Diagrams**

A statechart diagram for the entire system is shown in Figure 11. After the admin logs n the system, he will check for reminders and update the records as needed. The user will then select the hyperlink to load a particular page. Figure 12 contains statechart for the admin to log in the system. Figure 13 contains the statechart for the employee. Upon being hired, the employee will then start to work on the company, in the duration of his work, he will either be promoted or demoted depending on his work performance. The end of his work process is either termination or retirement. Figure 14 shows the statechart diagram for the Leave process wherein the employee requests for the leave form, after filing up the form he will then submit it to the HR admin. The application will be on pending state, and then will be noticed if the leave application is approved or rejected. Upon approval, the employee will then take his leave, the admin will record his return report to work.

**Figure 11. Overall PMIS State Chart Diagram**

Idle

Password entered [incorrect >= 3**]**

Viewing

 [incorrect = 3]

Blocked

Verifying

 [Password = correct]

Adding

Checking Data

Updating

[Print

Printing

Getting
Report

Evaluating

Waiting

Log off

Printing complete

Signing Out

**Figure 13. Admin Class Statechart Diagram**

Logged out

Working

Logged in

**Figure 14. Employee Class Statechart Diagram**

Promoted

Terminated

Off Work

On Work

Hired

Demoted

**Figure 15. Leave Class Statechart Diagram**

Approved

Spent

Pending

Filed

Requested

Rejected

**3. 1.6. Restrictions, Limitations, and Constraints**

1. All server code will be written in the java.

2. Username and password will only composed of 5 to 15 characters.

3. Username will be a combination of alphanumeric, full alphabet or has special characters.

4. Password will be in numeric form.

5. Password will be encrypted.

6. Username will be visible.

**3. 1.7. Validation Criteria**

 Software validation will ensure that the system responds according to the user expectation; therefore it is important that the end users be involved in some phases of the test procedure coming from the system.

**3. 1.7. 1. Classes of tests**

Unit testing will be conducted on all of software sub-system including

1. Viewing and Updating of information

2. Viewing and printing reports

3. Logging on the system

Test result will be based on equivalence categories. These categories will include values that the function of the system must process.

* + - 1. **Expected software response**
1. The software displays appropriate error message when a value is not accepted by the system as entered.
2. The software should not be capable of deleting record even if an employee is terminated or has already retired.
	* + 1. **Performance Bounds**
3. The system shall support numbers of users depending on the company’s needs at any given time.
4. The data storage shall be able to contain information enough to support the records of an organization consisting of wide numbers of employees.