



**WEB BASED
HUMAN RESOURCE MANAGEMENT
SYSTEM FOR
OCEAN LANKA (PVT) LTD**

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**This dissertation is submitted in partial fulfillment of the requirement of the
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DECLARATION

Declaration

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ABSTRACT

Ocean Lanka (Pvt) Ltd is well established and respected one of the leading weft knit fabric Manufactures and Suppliers in the Sri Lanka. At present, Ocean Lanka produces quality weft knit fabric under one roof and they supply fabric not only for Sri Lankan apparel industry but also for foreign market.

Even though the office is responsible for numerous complicated tasks, until very recent times they have relied on a conventional manual file based system which was figured out to be inefficient and time consuming by the operational management. Not only the inefficiency and lack of robustness, but also redundancy of data and unavailability of timely information have been a major problem for the day to day operations of the Ocean Lanka.

This Web based Human Resource Management System will be developed as a solution for the inefficient, time consuming and error prone current manual system. Main goal of this system is to make the human resource management process more efficient with less man power.

This proposed system which covers most of the main processes of Ocean Lanka (Pvt) Ltd like employee management, loan management, payroll management, training management ,leave management and report generation. The system runs on XAMPP platform which uses windows as the host, Apache server as the web server, MYSQL as the database management system and the coding was done using the popular server side scripting language PHP.UML diagrams were used to analyze the requirement and draw design .The system has been developed based on MVC architecture, Which stand for ‘Model, View and Controller’

The proposed system would assist the Ocean Lanka in providing with features which handle tasks with ease of use as well as washing the weakness of the current manual system.

ACKNOWLEDGEMENT

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I express my gratitude to University of Colombo School of Computing for offering this invaluable degree program for the innovative people who look for opportunities in the IT industry and to all staff members who guided us from the beginning of the program.

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I am extremely thankful to Mr. Ruwansiri Malikaarachchi (Assistant Manager- Human Resources) & Mr. Indika Dissanayake (Manager- Color Team) for giving me the opportunity to develop the system for Ocean Lanka (Pvt) Ltd.

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LIST OF ACRONYMS

OL	- Ocean Lanka.
OLHRMS	- Ocean Lanka Human Recourse Management System.
UML	- Unified Modeling Language.
RUP	- Rational Unified Process.
MVC	- Model Controller View architecture.
OOD	- Object Oriented Design.
HTML	- Hypertext Mark-up Language.
PHP	- PHP Hypertext preprocessor.
SQL	- Structured Query Language.
PDF	- Portable Document Format.
AJAX	-Asynchronous JavaScript & XML
HR	- Human Resource

Chapter 1: INTRODUCTION

1.1 INTRODUCTION

Ocean Lanka is a well-established and fast moving company manufacturing and supplying weft knit fabrics to the Sri Lankan apparel industry for a growing number of international brands, including Victoria's Secret, Next, Marks and Spencer and Nike. Its exciting product offer has attracted customers from overseas and we welcome any opportunity to supply fabric to the export market.

Ocean Lanka ensures the highest value for their customers, employees and suppliers Guided by their strategic sustainability, product and speed; deliver profitable growth through customer service, innovation, quality, commitment and determination.

Currently under the supervision of the Director of the Ocean Lanka – Dr.Austin Au and an outshining performance of a dedicated staff, is reaching an outstanding level where every single shortcoming is replaced with a satisfactory, reliable service

1.2 MOTIVATION OF THE PROJECT

Ocean Lanka (Pvt) Ltd presently has a manual HRM system, which lead them to face many problems when managing a large amount of employee details. The identified drawbacks from the current manual procedures are as follows.

- Poorly maintained information and report etc.
- Lack of centralize database
- Data redundancy
- Time consuming.

To overcome the above mentioned problems, the client requested a computerized HR system which motivated me to develop this system. This HRM system will be a better solutions for the current manual system and this is a great chance for me to use my

theoretical IT knowledge which I gathered throughout the past few years in a practical software environment in order to come up with more user friendly system.

1.3 OBJECTIVES OF THE PROJECT

The main objective of this HRMS is to supply a better solution for managing employees of the organization efficiently and effectively. Other than that, some objectives can be identified according to the user satisfaction.

Some of the major objectives are listed below

- To create and maintain a database of the all employees.
- To provide essential HR Management task and improve the efficiency of the procedures.
- To Overcome the inefficiencies of the current system (E.g.-:Data redundancy, Data inaccuracy)
- Generate reports and let the decision makers to make effective decision in a timely manner.
- Manage the users who can access the system.
- To decrease overtime

1.4 SCOPE OF THE PROJECT

System Administration

Create separate user level for administrator and employee and managing access privileges.

Employee Information Management

Managing employee information effectively (E.g.-: Handling personal information, Promotion, Resignation, and Recruitment).

Leave Management

Managing leave information of employees.

Training Management

Facilitating to employees to apply training courses according their working field.

Payroll Management

Generating all employees' pay sheet and relevant calculation.

Loan Management

Facilitating employee to apply loan and benefit according to their salary scale.

Report Management

Generating report from all relevant data and providing printout facility where it is necessary.

Backup and Restore

Facilitating data backup and restore option.

1.5 STRUCTURE OF THE DISSERTATION

1.5.1 Analysis

This chapter discusses “what to build”. It includes a clear description about the problems which were encountered and identified solutions for those problems. Furthermore, the high level requirements are analyzed and specifically well-known and ready to be designed in this phase. Use case diagrams and more figures make the proposed system understand easily.

1.5.2 Design

This chapter includes descriptions of both the logical and physical stages of the design process. The use case diagrams of the current system which are used for the logical design stage are included in this chapter. The latter stage of the chapter describes the mapping of the logical design to the physical design.

1.5.3 Implementation

The development process of the coding of the project is described in this chapter. In addition, the major coding parts are also presented here.

1.5.4 Evaluation

This chapter describes how the system was tested and how the various test cases were used to test various modules. And this includes a critical discussion on the achievements of the functional and non-functional requirements.

1.5.5 Conclusion

This chapter provides a critical evaluation of the project. And also, this gives a piece of information of the lessons learnt during the project, the problems encountered during the development process and the possible enhancements in the future.

Chapter 2: ANALYSIS

2.1 INTRODUCTION

“Requirement Engineering is a process that involves all of the activities required to create and maintain system requirements documents. These are four generic, high level requirements engineering process activities. This include [1]

- System feasibility study
- Elicitation and analysis requirement
- Specification of requirement and their records
- Requirement validation

In this chapter analysis and elicitation of requirements will be discussed and top level use case diagrams are presented for ease of understanding.

2.2 FACT FINDING TECHNIQUES

Fact finding techniques can be used to identify and understand the user and system requirement. In this project facts were gathered by using following techniques.

- **Interviews** - A number of interviews were conducted with the managers of the departments and then with the system users as the main fact finding technique. This technique was valuable to verify and clarify difficulties with manual system.
- **Observation** - This technique is very valuable to clarify some of the requirements and to gather highly reliable information where user fails to state it due to complexity. Also this technique was very helpful to see exactly what is being done by the department.
- **Document Review** - Different type of forms and document such as pay sheet, loan files, terminated employee files, personal record files etc. were analyzed to clarify ambiguous requirement discovered from conducting interviews.
- **Questionnaire** - This is another method to gather information from the various employees about how the proposed system will be developed. Set of free formatted and fix formatted questions were given in order to get responses.

2.3 ANALYZING MANUAL SYSTEM

To identify the domain of the HR System, it was required to do a domain analysis to get to know what the main functionalities are. Following are main functionalities are the system.

- Employee Information Management
- Leave Management
- Payroll Management
- Loan Management

Given below is the High level use case diagram for existing system.

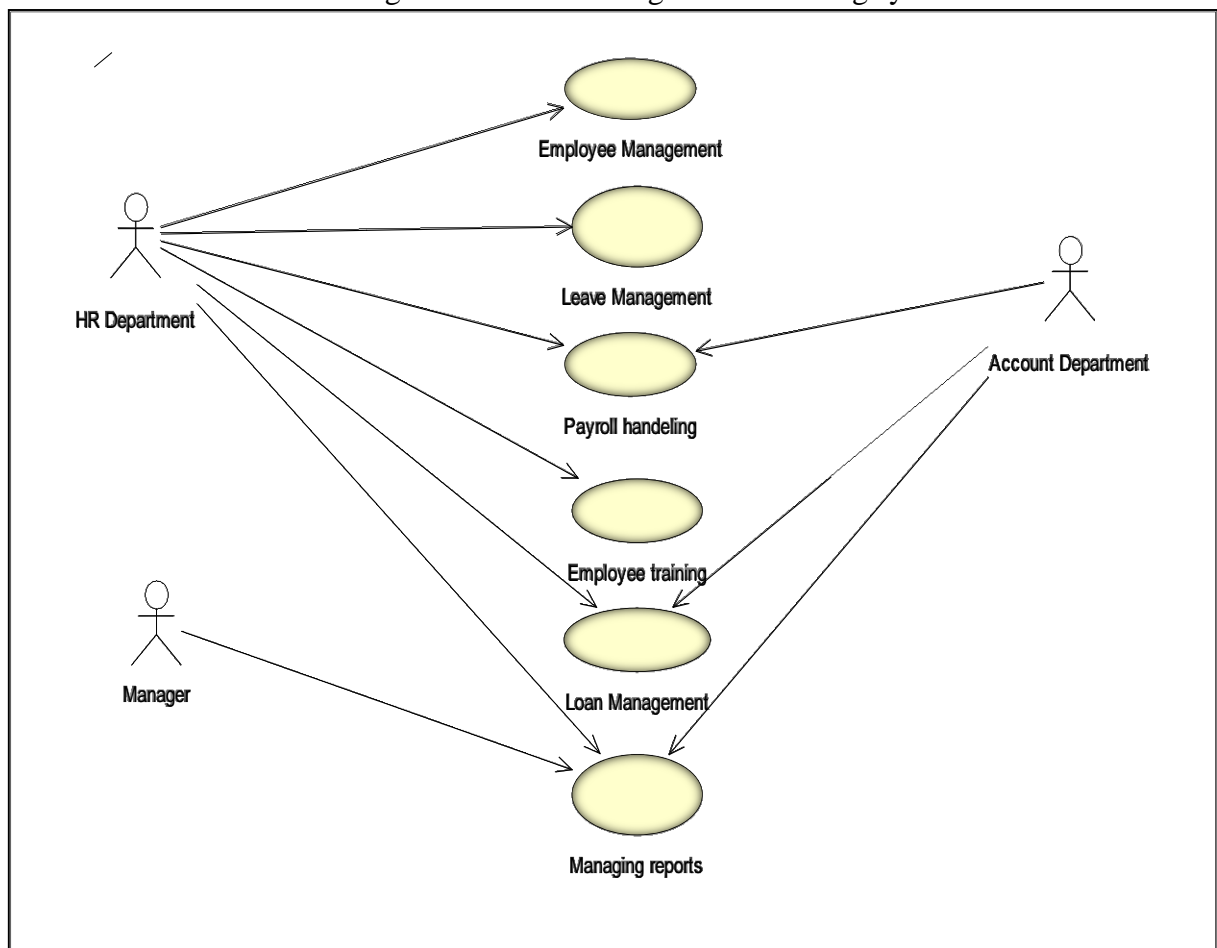


Figure 2. 1 Use Case Diagram for Existing system

Employee Information Management

All the relevant personal information, details of educational qualification, are collected by the HR department when assigning a new employee. Separate personal file is maintained for the each employee and the information will be updated when it is needed.

Leave Management

All the leave details of employees are handled by staff in the HR department. There is a manual form filling and approval process for particular function. Filled forms approved by the department head and then they are forwarded to HR department. Leave forms are finally approved by the head of the HR department.

Payroll Handling

In this process, monthly salaries with details of deduction due to loans, EPF, ETF and other functions will be calculated manually. Payroll details are recorded in hard copies and this process is time consuming.

Employee Training Management

Training opportunities are offered for selected employee of the particular department. HR department receives information from particular institute who offers training program.

Loan Management

Applying for loans and the process of approving are done manually by form filling. Filled loan application forms with the approval of the guarantor and the Head of department should be submitted to the HR department then HR department will verify the salary details of the employee and consider whether the request to be approved or rejected. Further process is done by Finance department.

2.4 FUNCTIONAL REQUIREMENT OF THE PROPOSED SYSTEM

“The functional requirements for the system describe the functionality or service that the system expected to provide. These depends on the type of the software which is being developed, the expected users of the software and the type of the system which is being developed” [1]

Employee information Management

User function

- I. View complete user profile

Administrative Function

- I. Add details of new employee
- II. Update employee details
- III. Resign / Promote employee
- IV. View information all the employee

Leave Management

User function

- I. Apply for leave
- II. View ,Cancel pending leave request
- III. View leave history
- IV. View, Confirm or reject leave acting request

Administrative Function

- I. View, approved or reject all leave requests

Payroll Management

User function

- I. View and printer user pay sheet

Administrative Function

- I. View and print any pay sheet
- II. Change fix payroll figures

Employee Training Management

User function

- I. View available training program
- II. Apply for training program
- III. View, Cancel pending training program application of the user

Administrative Function

- I. View approved or reject training requests of all users
- II. Add / Edit / Delete all the training program

Loan Management

User function

- I. Apply for loans
- II. View, Cancel pending loan application of the user
- III. View, Confirm or reject loan guarantor request

Administrative Function

- I. View approved or reject loan of all users

Report Generation

User function

- I. View all kind of report generated
- II. Print reports if necessary

Administrative**User function**

- I. Change user account password

Administrative Function

- I. Change password of all users
- II. Backup data

2.5 NON-FUNCTIONAL REQUIREMENT OF THE PROPOSED SYETEM

“Non-Functional requirements are product requirements which concern the system being developed, process requirements which were applied to the development process, and external requirements. They often relate to the emergent properties of the system so therefore apply to the system as a whole” [1]

User-Friendliness

The user interface of the system should be user-friendly and easy to use since the system will be accessed by different level of users with average skills. The main goal is to provide simple and easily understandable interface which the users can easily get used it.

Accuracy

Accuracy of the system is very important as the system consist of various kind of reports.

Security

Since the system deal with personal information the ability to protect them from unauthorized access is highly required.

Reliability

Reliability depicts the system's ability to perform the required function under stated condition for a period of time.

Effectiveness

The system should effectively manage the time since the computerization need to reduce process time needed for manual human resource process.

Usability

The ability of the system to be easily understood, learn and easily used.

2.6 EXISTING SIMILAR SYSTEMS

Orange HRM

Figure 2. 2 Logo of the Orange HRM

Orange HRM is the world most popular and used open source human resource management software. The Orange HRM product suite include an array of modules that provide personal information (PIM), Employee Self-Service, Leave, time and attendee tracking, Performance evolution and recruitment. Today Orange HRM is being used by most of the people in the world wide, while larger companies have used to open source version and customize the system to meet their human resource management standard and requirement. [2]

Simple HRM



Figure 2. 3 Logo of the Simple HRM

Simple HRM is an intuitive, easy-to-use and affordable Open Source HRM solution for Small and Medium Enterprises worldwide. It provides many features like Employee Information, Leave, Travel, Benefits, expense Management. [3]

Chapter 3: DESIGN

3.1 INTRODUCTION

System design is the process of defining the architecture, component, modules, interfaces and data for a system to satisfy specified requirement. System design could be seen as the application of systems theory to product development [4].

3.2 DESIGN TECHNIQUES

From many kind of practices, there are two main design techniques. They are structured approach and object oriented approach. As Object Oriented Design (OOD) techniques supports component based approach and deliver many qualities such as Abstraction, Inheritance, Generalization, Polymorphism , Encapsulation, Message sending, Modularity, and Multiplicity it was decided that to select OOD as the design technique for proposed system.

3.2.1 Object oriented design

Object oriented design is concerned with developing an object oriented model of a software system to implement the identified requirement. The object is an object oriented design are related to the solution to the problems [5].

Unified Modeling Language (UML) is one of the most suitable tools in the system development. UML consist of sum of graphical element that combine from diagrams. The purpose of the diagram is to existing multiple model of the system.

3.3.2 Unified modeling language (UML)

The Unified Modeling Language (UML) is a general purpose modeling language in the software engineering field. Which is design to provide a standard way to visualize the design of the system [6].

The UML diagrams used for the designing process of the system as follows;

Use case diagram - A use case diagram shows different type of the users of a system and how they cooperate with the system.

Class diagram - Shows types of the object and their relationship in the system.

Activity diagram - An activity diagram shows a business process or software process as a flow of works through a series of the action [7].

Sequence diagram - Shows the object interaction arrange in time sequence.

State chart diagram - Represent point of entry in to a state or exit out of state.

3.3 SELECTED PROCESS

“The Rational Unified Process is an iterative software development process framework created by the Rational Software Corporation, division of IBM since 2003. RUP is not a concrete prescriptive process but rather than an adaptable process framework, intended to be tailored by the development organization and software project team that will select the element of the process that are appropriate for their needs RUP is the specific implementation of the unified process”. [8]

Figure 3.1 shows the RUP Model

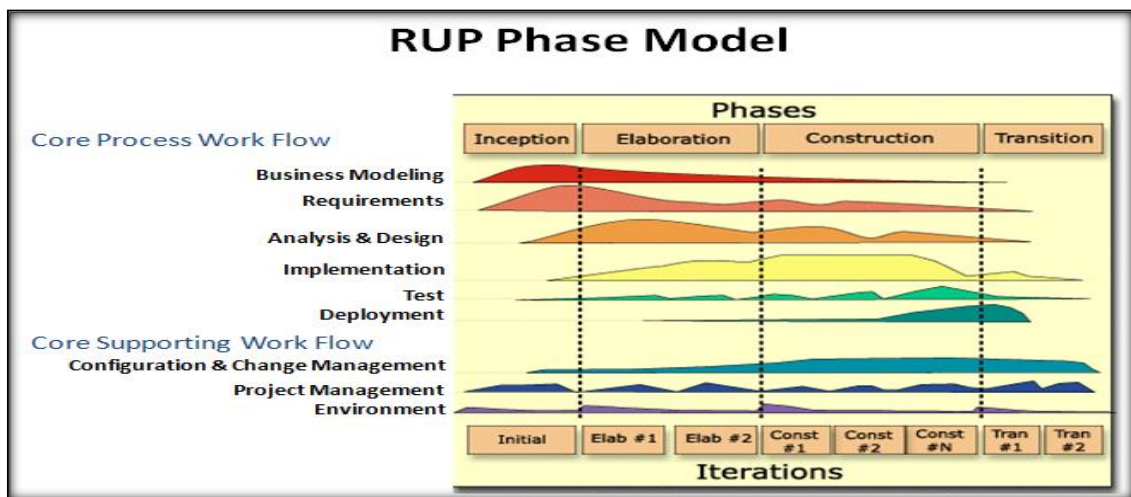


Figure 3. 1 Rup Model

RUP has four main phases as follow;

- **Inception phase** - Establishing the business case for the system and define the project scope
- **Elaboration phase** - Understanding the problem domain and establishing the architectural framework in the system.
- **Construction phase** - Component and application features are developed, integrated and tested
- **Transition** - Deploying the system in to the user community.

3.4 DESIGN ARCHITECTURE OF THE PROPOSED SYSTEM

PHP programming language was nominated to make proposed framework. To make the progress simple and strait forward Model-View-Controller engineering was utilized as a part of the advancement procedure in the framework

MVC has three main phases as follow

- **Model** - The model be able to the behavior and data of the application domain, respond to request for information about its state (usually from view) and reply to instruction to change state. (usually from controller)
- **Controller** - The controller interrupt the mouse and keyboard inputs from the user.
- **View** - The view presented information to system user.

Figure 3.2 shows the MVC Architecture

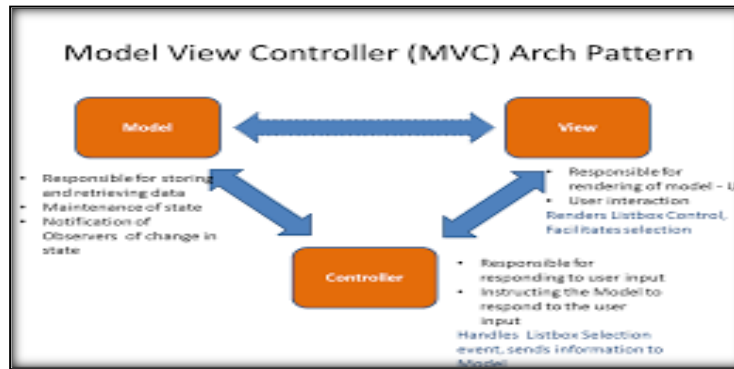


Figure 3. 2 MVC Architecture

3.5 ALTERNATIVE SOLUTION

- **Open source software** - There are many open source HR systems easily available to use with various HR functions. Since every company has its own sole set of needs and functions, finding appropriate system accomplishes all the specific requirement of the client was not possible.
- **Stand-Alone Software** - A stand-alone system can be taken as the solution, it has several restrictions like platform dependency, needs of advance hardware requirement, maintaining problems, when upgrading the application with new version it is needed to install all computers manually.

3.6 REASON FOR WEB-BASED SYSTEM

- Since the client already has intranet facility, developing a web based system was perfect solution as it allows connecting with each other easily through the network.
- When it comes to upgrading and maintaining, web based system has more benefits comparing with stand-alone system because it doesn't need to upgrade all the other computers.
- Web based system is little time consuming compared with stand-alone systems because browsing through the pages in web browser is faster than loading one page in stand-alone system.

- With the integration of MVC architecture, variations of the system can be done individually in each module without changing the entire system.
- Platform independency is additional benefit of web base systems.

3.7 CLASS DIAGRAM FOR PROPOSED SYSTEM

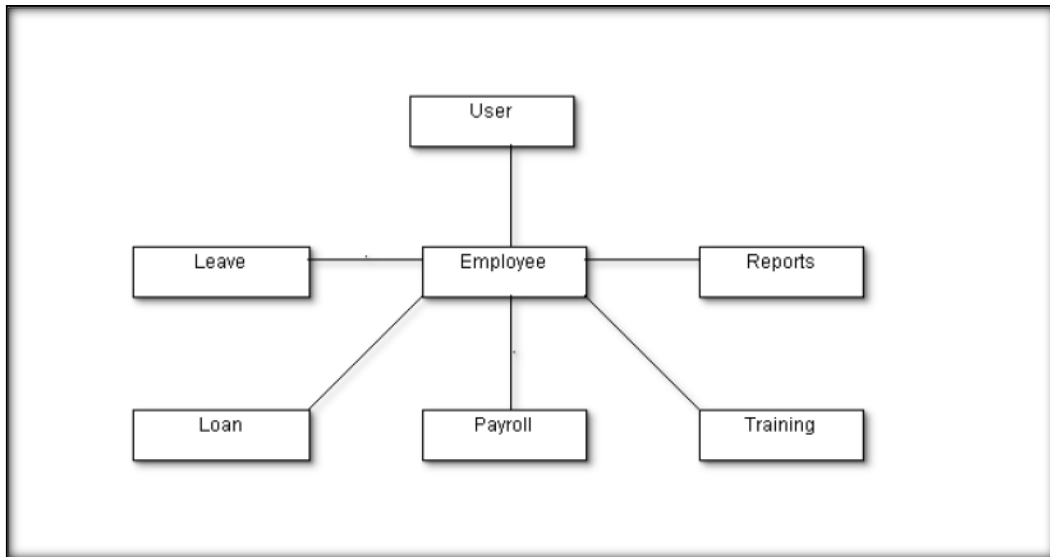


Figure 3. 3 Class diagram for proposed system

3.8 HIGH LEVEL USECASE DIAGRAM FOR PROPOSED SYSTEM

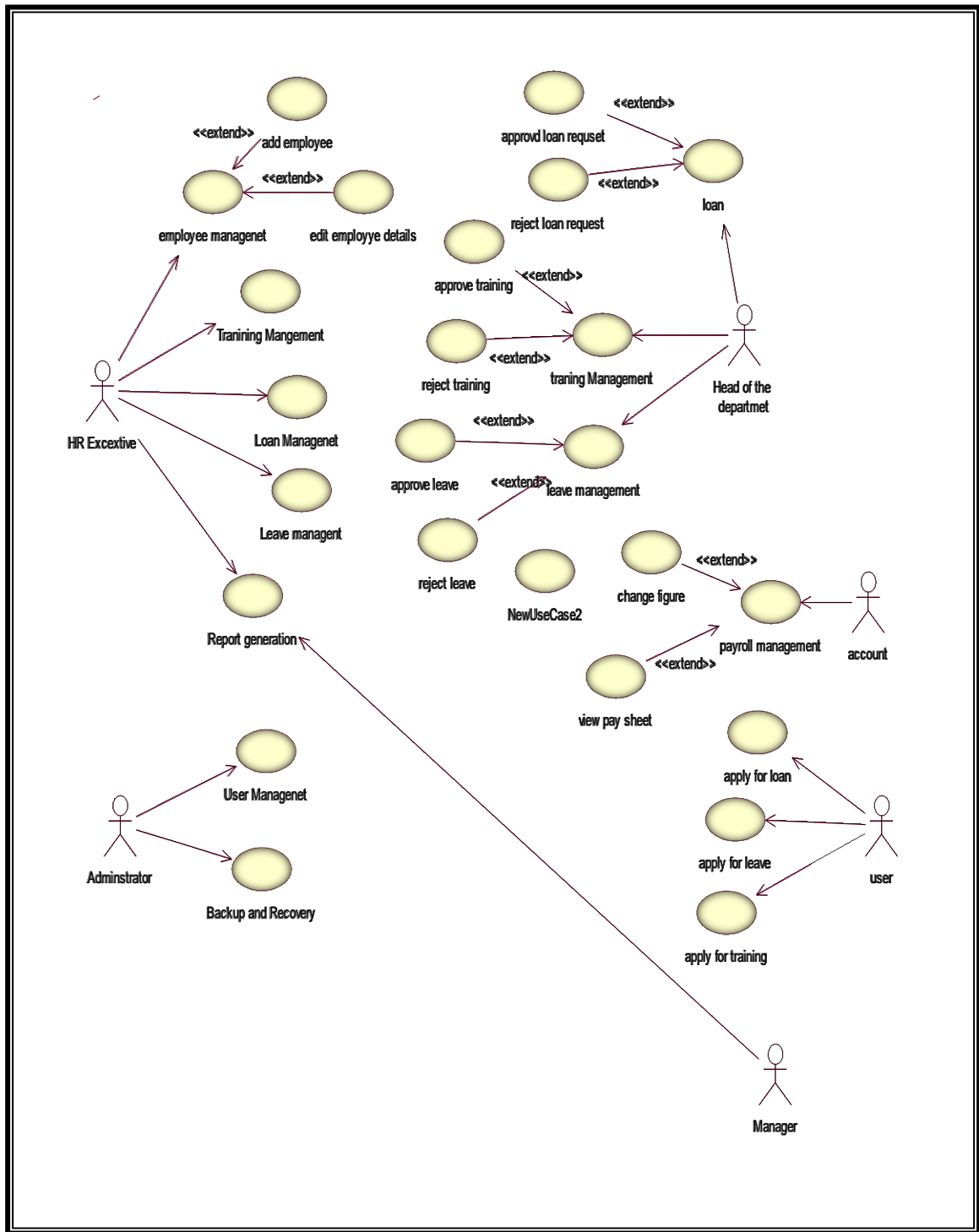


Figure 3. 4 High-level use case diagram for proposed system

3.9 ACTIVITY DIAGRAM FOR TRAINING PROCESS

Figure 3.5 shows the training management process of the system

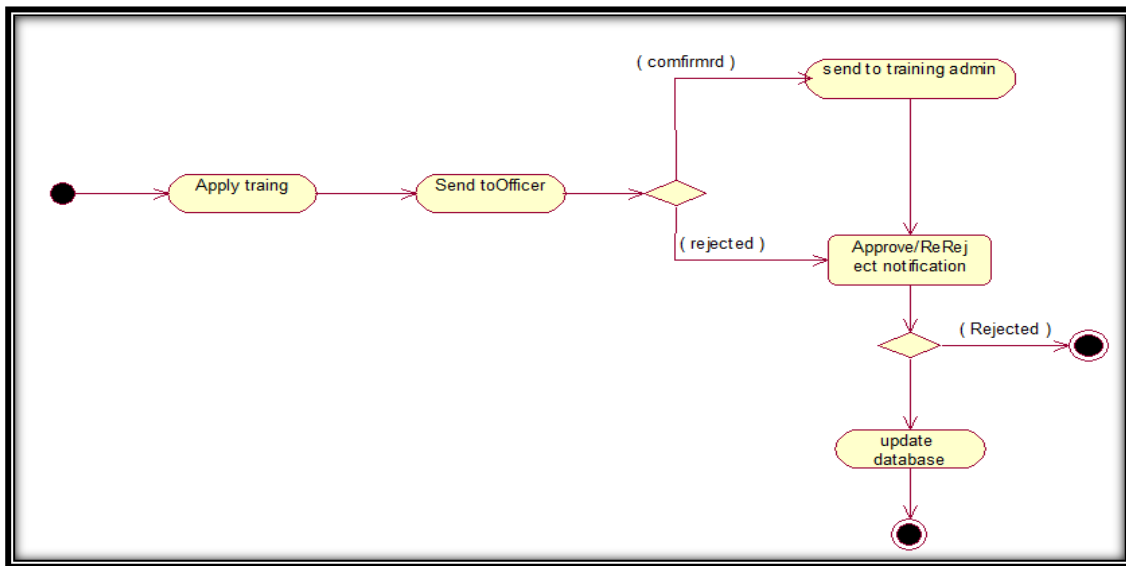


Figure 3. 5 Activity diagram For Training management

3.10 SEQUENCE DIAGRAM FOR REPORT VIEW

Figure 3.6 shows sequence diagram of report view process

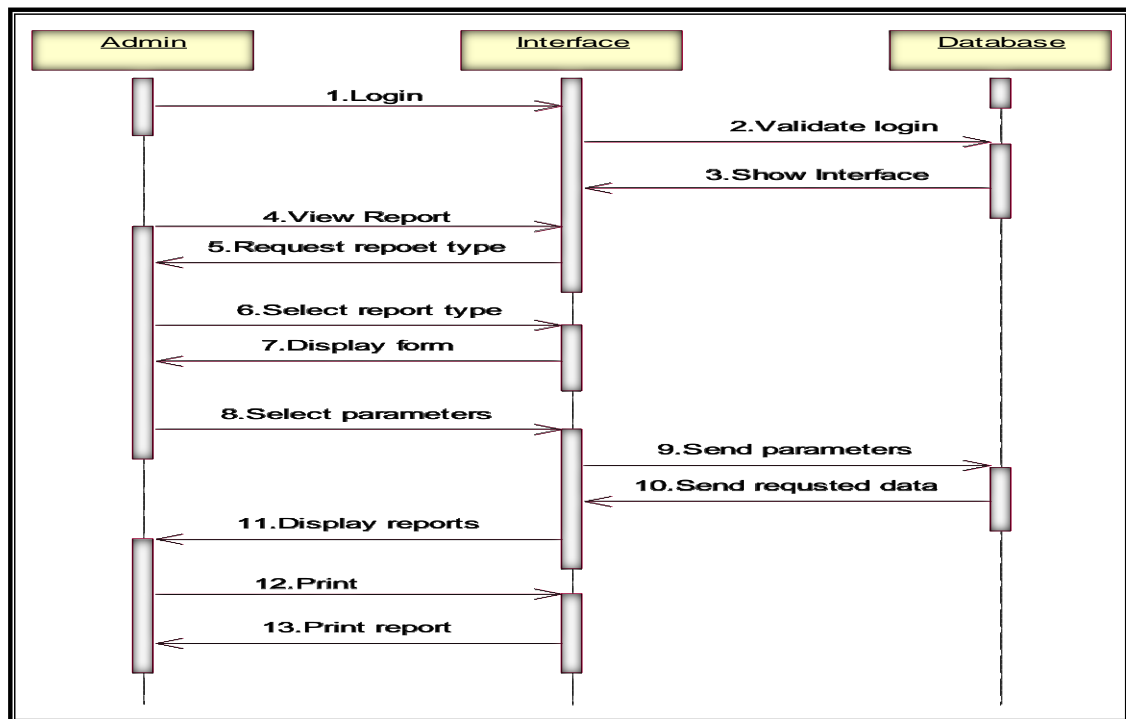


Figure 3. 6 Sequence diagram for Report view process

3.11 DATABASE DESIGN

Database design is the process of producing a detailed data model of database. This data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a data definition language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity. [9]

Figure 3.7 shows the database design for proposed system

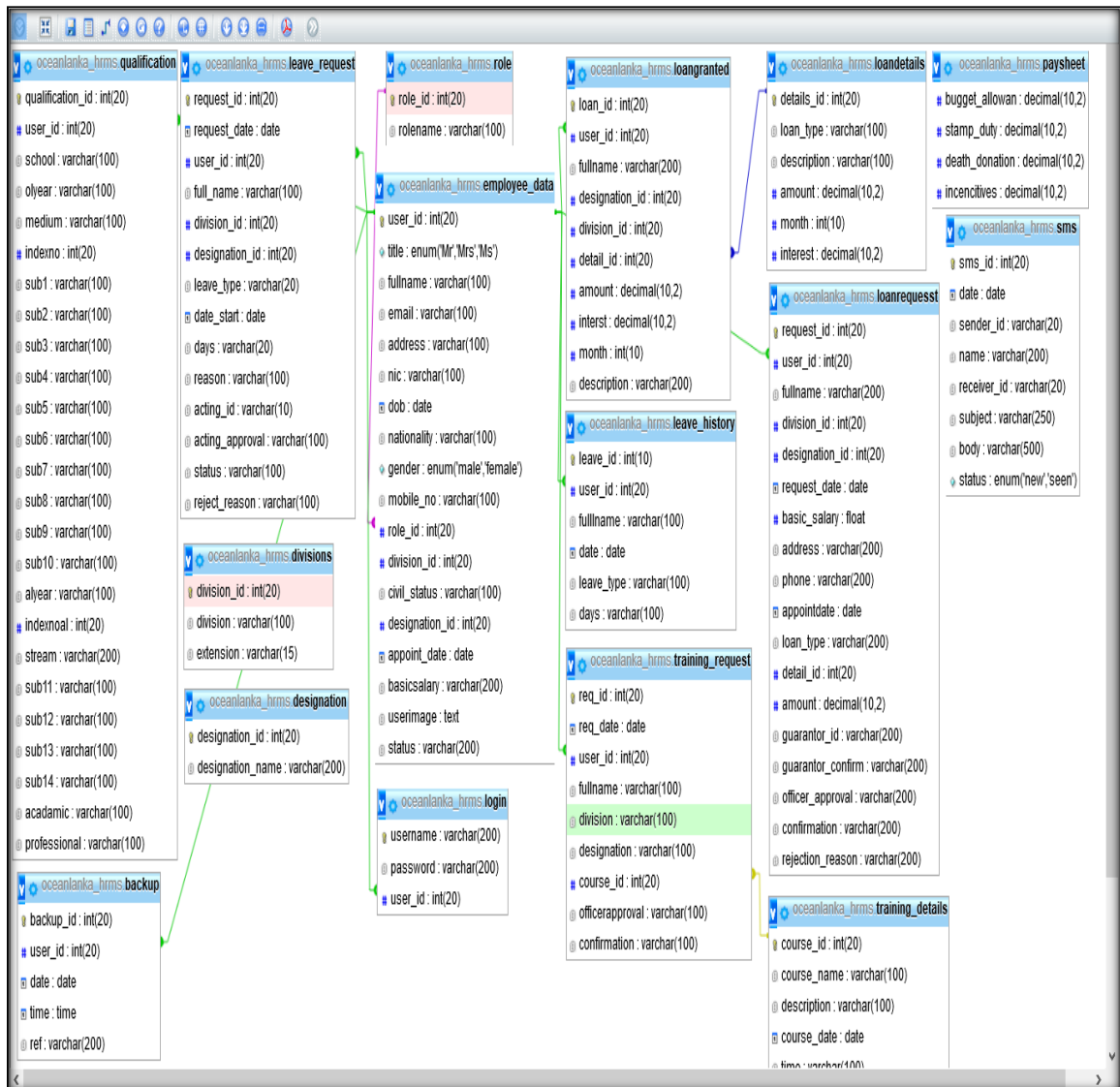


Figure 3. 7 Database diagram of the proposed system

3.12 USER INTERFACE DESIGN

User interface design is one of the significant areas success of the system mostly because functioning of the system is working correctly and if the interface used in the system is not user friendly system users are not pleased to work with the system. Therefore, user interface used in the HRMS is very simple with simply understandable command.

3.12.1 Login form

To access the logging form of the system given below in figure 3.8, the system user should submit the credential through the login form.



Figure 3. 8 Login Form

3.12.2 Dashboard page

After successful login, user will be directed to the dashboard page. It will appear user tasks according to the user level. Figure 3.9 shows the dashboard of the system

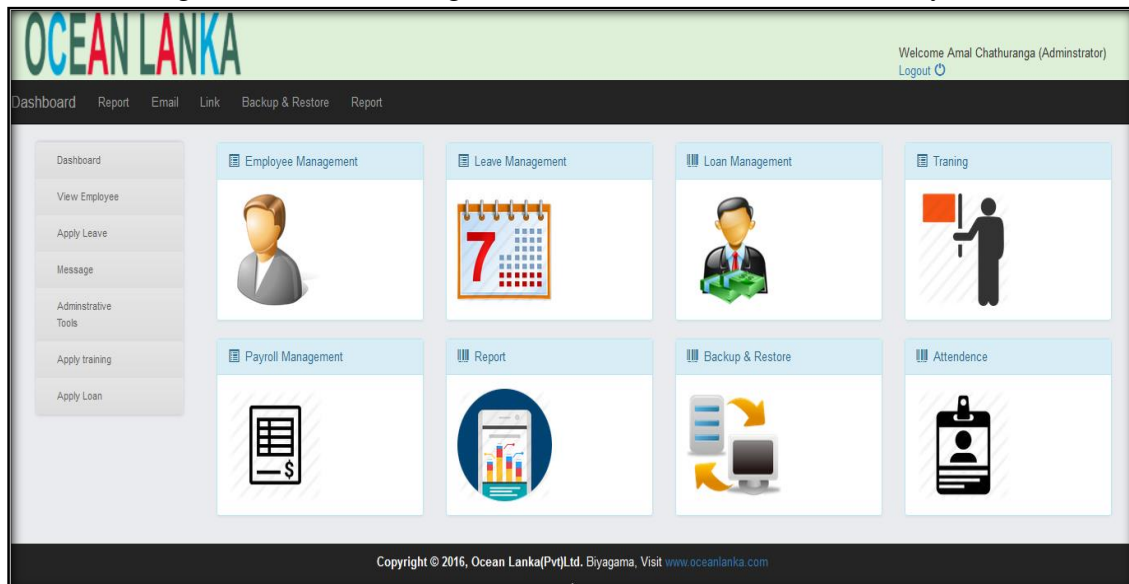


Figure 3. 9 Dashboard page

3.12.3 Data table

Figure 3.10 shows data table of the system and it provides search, edit, and view and delete functions

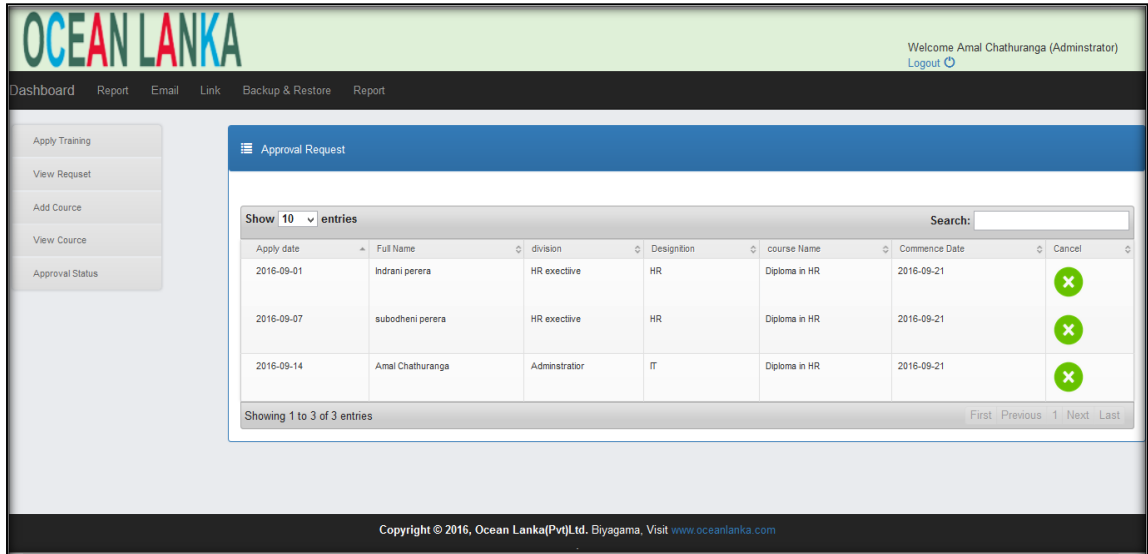


Figure 3. 10 Data Table

3.12.4 Forms

Figure 3.11 shows data table of the system and it provides search, edit, and view and delete

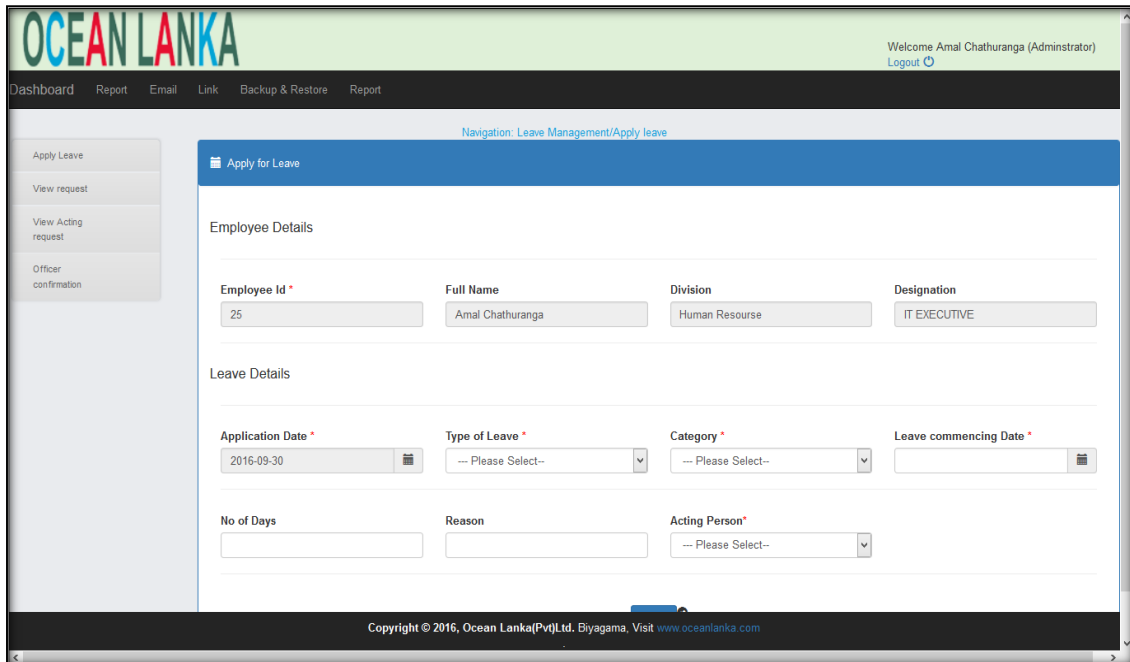


Figure 3. 11 Forms

Chapter 4: IMPLEMENTATION

4.1 INTRODUCTION

The goal of the implementation phase of the software is to implement the design in the finest possible manner. Through this phase it develops all requirements mentioned in the requirement specification and more reliable and maintainable software systems. The HRMS system was developed by using modern development tools and object-oriented programming techniques in coding.

4.2 IMPLEMENTATION ENVIRONMENT

4.2.1 Software

When considering software used in the development, almost all the software and tools are open source and they are freely available.

- **PHP and HTML**

PHP (PHP Hypertext pre-processor) was used as the server scripting language together with HTTP (Hyper Text Markup Language) which was used as client side scripting language

- **MYSQL**

MYSQL was used to implement the database.

- **XAMPP**

XAMPP was used to develop the system. (Linux server/Microsoft windows server 2008, MYSQL Server 5.6.16, PHP 5.5.11, Apache Server)

- **NetBeans**

NetBeans IDE 8.0.1 was used as the development tools for coding.

- **Adobe Photoshop**

Image creation and edition were done by Photoshop CS5.

- **Windows Operating System**

The development of the system was done using Windows 8.1 operating system.

- **Firebug and Color Picker**

These extensions were very helpful during implementation of the system. Firebug was used to edit, debug and view the HTML scripts and CSS styles while appeared on the browser. Color picker was used during designing to pick colors and to give a rich look to the system

4.2.2 Hardware

The hardware used in the development is Intel Core i5 processor, 8 GB RAM and 1TB hard disc.

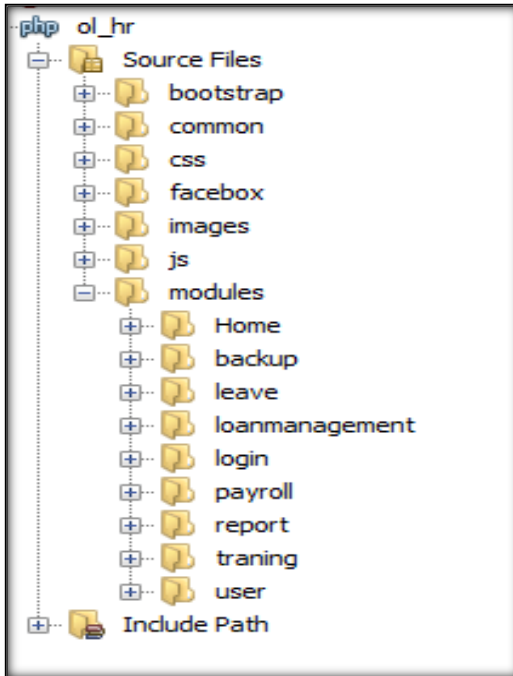
4.2.3 Reused Module

- **Date Picker** - Pick the date from an interactive calendar in a small overlay.
- **PHP mailer** - email sending library for PHP [10]
- **Facebox** - Facebox is a light box, developed by JQuery and it was used to reduce the navigation as well as for more interactivity.
- **Data tables** - These tables show in the client side which have the pagination ability inbuilt and searching facility by any field in the tables.
- **Fusion charts** - This is a tool for developing charts which are useful in creating management decisions.
- **Dom PDF** - A library which was used to create PDF documents from the given PHP script.

4.3 THE ACTUAL IMPLEMENTATION

The system was divided into 8 modules and each module was developed by separately by following MVC (Model, View, and Controller) architecture. This guarantees high cohesion and low coupling between modules.

Figure 4.1 shows MVC file architecture in the system.



- Model - Model is the place where all the database connections and operation are handled.
- View - Contains all the interface files
- Controller - Controller manages user interaction with the model by taking the inputs from the user and instructing the model and view to perform actions based on the inputs.

Figure 4. 1 MVC folder architecture

4.4 MAJOR CODE SEGMENT

4.4.1 Database Access

The System is connected to the database through the following code segment on connection.php file. Figure 4.2 shows dbconnection .php file

```
<?php

class dbconnection{
    function connection(){
        $hostname="localhost";
        $un="root";
        $ps="";
        $db="ol_hrm";

        $con=new mysqli($hostname,$un,$ps,$db); //Connection string
        //Sql query
        return $con;
    }
}
?>
```

Figure 4. 2 dbconnection. php file

4.4.2 Login to system

```

<?php

class login{
    function loginValidate($u,$p){
        include '../common/dbconnection.php';
        $obj=new dbconnection();
        $con=$obj->connection();

        $sql = "SELECT * FROM login l,employee_data u,role r WHERE l.username='$u'
            AND l.password='$p' AND l.user_id=u.user_id AND u.role_id=r.role_id";
        $result = $con->query($sql); //To execute the query
        return $result;
    }
}
?>

```

Figure 4. 3 login model

4.4.3 Login controller

```

<?php
if(!isset($_SESSION)){ //If session is not existing
    session_start(); //Start the session
}
if($_POST['username']!="" && $_POST['password']!=""){
    $uname=$_POST['username'];
    $pass= sha1($_POST['password']);
    include '../model/login.php';

    $obj=new login();
    $r=$obj->loginValidate($uname, $pass); //calling method of class
    $nor=$r->num_rows;
    if ($nor>0){
        $row=$r->fetch_assoc(); //A record has been assigned into an array
        $_SESSION['userinfo']=$row; //An array Assigns into a session
        $_SESSION['session_id']=time()."_" . $row['user_id']; //Unque ID
        header("Location:../view/dashboard.php");
    }
    else{
        $msg="Invalid User Name or Password";
        header("Location:../view/index.php?msg=$msg");
    }
    else {
        $msg="Blank User Name or Password";
        header("Location:../view/index.php?msg=$msg");
    }
    echo $msg;
}
?>

```

Figure 4. 4 Login controller

4.4.4 ADD/EDIT/DELETE Function

```

<?php
include '../.../common/dbconnection.php';

$obj=new dbconnection();
$con=$obj->connection();
$GLOBALS['con']=$con;

class traning{

function addCourse($courseName,$description,$commencingdate,$time,$duration,$venue,$seat)
{
    $con=$GLOBALS['con'];
    $sql="INSERT INTO training_details VALUES ('','$courseName','$description','$commencingdate','$time','$duration','$venue','$seat') ";
    $result=$con->query($sql);
    return $result;
}

function deleteCourse($course_id)
{
    $con=$GLOBALS['con'];
    $sql="DELETE FROM training_details WHERE course_id='$course_id'";
    $result=$con->query($sql);
    return $result;
}

function updateCourse($course_id,$courseName,$description,$commencingdate,$time,$duration,$venue,$seat)
{
    $con=$GLOBALS['con'];
    $sql="UPDATE training_details SET course_id='$course_id','course_name='$courseName','description='$description','
        . 'course_date='$commencingdate',time='$time',duration='$duration',venue='$venue',seats='$seat'";
    $result=$con->query($sql);
    return $result;
}
}

```

Figure 4. 5 Coding for add/edit/delete

4.4.5 Reused component

Reused component are listed given below.

- Facebook

```

<script type="text/javascript">

    jQuery(document).ready(function($) {
        $('a[rel*=facebox]').facebox({
            loadingImage: '../.../js/facebox/loading.gif',
            closeImage: '../.../js/facebox/closetlabel.png'
        });
    });
</script>

```

Figure 4. 6 Facebook

- Datatable

```
<script>
    $(function() {
        $("#datepicker").datepicker({
            changeMonth: true,
            changeYear: true,
            maxDate: 0,
            dateFormat: 'yy-mm-dd'
        });
    });
</script>
```

Figure 4. 7 Data table

- ❖ For more code segment please refer Code listing in Appendix F.

Chapter 5: EVALUATION

5.1 INTRODUCTION

Software testing is a procedure of verifying and validating the system with a planned purpose. Testing is not about searching errors, its measures of how well the system is fitting to the planned purpose and error finding is one of the components of it. Verification and Validation are the main part of the testing. Validation is intended to answer the question whether we have structured the system what was intended by the user whereas verification is intended to answer the question “have we developed the system in corrected path?”

5.2 TESTING

Testing a code segment is testing an error to find out whether it performs in the code. A correct test cases has high chance of finding an error and the test case can be used to discover the unseen disputes in the system. In this phase the errors should be identified systematically and the process of identifying should be as simple as possible. The test data can be used to ensure the reliability and excellence of the system and the testing can be done to verify that the system meets correct requirement.

The testing starts with the implementation while developing the code that the system should be verified to check for the errors.

Unit Testing

Unit testing is targeted on the verification of the lowest unit of the system, as well as internal processing logic and internal data structures. This is accepted out as a part of coding task. The approaches are blackbox testing and white box testing. White box testing is most popular approach in unit testing but if the component is less-critical and too large, blackbox testing can be done.

White box Testing – This process is clearer since the code is reviewed and tested here.

Black box Testing – Only input and output outcome are taken into consideration and but not the system design or code. This technique is checked the intended output for each input.

Integration Testing

Integration testing is carried out after the individual system modules have been unit tested. After the unit testing, each individual module has to be integrated together to build the final system. Even though these separate code fragment pass the unit test, problems might happen when integrating them together. So integration testing include testing the integration of the individual modules to avoid such conflicts.

Regression Testing

A chance in the software should not be arisen for any errors to the system and a change one part of the software should not affected other part of the software. This tries to achieve through the regression testing.

System Testing

After completion of unit and integration testing, the complete system has to be tested in more truthful environment like to actual implementation to identify the errors which may occur in truthful environment.

User Acceptance Testing

At last the System ought to be tried with the clients so as to discover whether the functionalities said in the system detail are incorporated into the framework and to see whether the system can do its real environment.

5.3 TEST PLAN

ID	Function	Testing procedure	Expected output	Test Priority
Login				
1	Login into the system (Negative)	Enter an Invalid user name or password	An error message will appear 'Invalid user name or password'	High
2	Login in to system	Enter registered username and password	User will be logged in to system(dashboard page)	High

3	Logout of the system	Click the logout link in the top bar	User logout in the system redirected index page	High
4	Unauthorized access in the page	User try to access to the system through URL without login in.	Redirected to the Login page	High
5	Unauthorized access in the page(logged in no privileges)	Try to access particular page throughout a URL without the privilege view	Redirected to the Login page	High
Home				
6	View messages received	Click link in 'Messages'	List of received messages will appear	Low
7	View all sent messages	Click link in 'Sent messages'	List of received messages will appear	Low
8	View messages	Click link in 'View' button next to messages	Message will be displayed in a pop up window	Low
9	Delete messages	Click in 'Cross' button next to messages	Message will be delete success message	Low
10	Send messages	Fill the required field and click Send button	Message will be send to recipient selected	Low
11	Change Password (Invalid)	Filling the form for change password with invalid values for current password or any other	Error message will be displayed	High

12	Change Password (Valid)	Filling the form for change password with valid values	Password will be changed	High
13	Change user role	Click change button after selecting the user and giving the new user-role	User role will be changed	High
14	Reset Password	Click reset button after selecting the user	Password will be reset to HRMs	High
15	Take a backup	Click the button 'Backup'	Backup sql file will be download	Low
16	Restore Database	Click the button 'Restore' and upload Sql database file	Uploaded sql file set as new database	Low
Employee Management				
17	View all Employee	Click the link 'view employee'	The list of employee will be appear	Medium
18	Edit employee details(Invalid)	Fill the invalid values required field	Error message will be display	High
19	Edit employee details(Invalid)	Try to change values in which are not allowed (NIC ,Gender)	Changes are prohibited	Medium
20	Edit employee details(Invalid)	Can edit details in required field	Values will be updated in database	Medium
21	Add an Employee (Invalid)	Submit the required field with invalid values or no values	Error message will be display	High
22	Adding an existing employee	Add already existing details	Error message will be display	High
23	Add an Employee (valid)	Add valid details in to required field	Employee will be add to the system	High

24	View Employee profile	Click in 'View' button	Employee profile will be display	Low
25	Resign Employee	Click in 'Resign' button	Employee will be resign	Medium
26	Undo resignation	Click in 'Undo' button	Employee will be add back	Medium
27	Promote employee	Click in 'Promote' button	Employee will be promoted with new designation	Medium
28	Add new designation(Invalid)	Fill the invalid values or no values in designation field	Error message will be display	Medium
29	Adding an existing designation	Add already existing designation	Error message will be display	Medium
30	Add new designation(valid)	Enter new designation name	Designation will be add to the system	Medium
31	Edit designation	Submit the new designation name	Designation will be updated	Low
32	Delete designation	Click the 'Delete' button specific designation	Designation will not be deleted if there are any employees under that designation	High
33	Add new division(Invalid)	Fill the invalid values or no values in division field	Error message will be display	Medium
34	Add new division(valid)	Enter new division name	Division will be add to the system	Medium
35	Edit division	Submit the new division name	Division will be updated	Low
36	Delete division	Click the 'Delete' button specific division	division will not be deleted if there are any employees under that division	High

Leave Management				
37	Apply for a Leave (Invalid)	Provide invalid or empty values for the required fields	Error message will be display	High
38	Apply for a Leave (valid)	Provide valid values required fields	Application will be sent to approval	High
39	View acting requests	Click in acting requests link	List of the request will be display	High
40	Confirm acting request	Click in 'confirm' button	List of the confirm request will be display	High
41	Ignore acting request	Click in 'ignore' After reviewing the request	Leave request will reject and employee will notify via message	High
42	View request to be confirmed	Click in 'confirm' button	List of request to be confirmed will be display	High
43	Confirm the leave request	Click 'Confirm' after viewing the leave request	Leave request will be confirmed and employee will notify via message	High
44	Reject leave request	Click 'Reject' after viewing the leave request	Leave request will reject and employee will notify via message	High
45	View leave history	Click 'Leave history' link	The number of leaves obtained by the user with the dates will be displayed in a table	Low
46	View pending leave request	Click 'Application status' link	The request which is not confirmed will be appeared in the table	Low

47	Cancel pending leave request	Click 'Cancel' button	The specific leave request will be delete	Medium
Payroll Management				
48	View pay sheet of the employee	Click 'User Pay sheet'	The pay sheet of the current month will be appear	High
49	Change pay sheet figures (invalid)	Submit the form of "Change figures" with empty or invalid values	Error message will be display	Medium
50	Change pay sheet figures (valid)	Submit the form with valid numerical values	Figure will be updated	Medium
Training Management				
51	Apply for a training (Invalid)	Submit the form without selecting course name	Error message will be display	High
52	Apply for a training (valid)	Submit the form selecting course name	Training request will forward to officer	High
53	View request to be approved	Click the 'Request Approval' link.	List of request to be approved will be display	High
54	Approve Training request	Click the 'Approve' after viewing training requests.	Training request will be approved and will be forwarded to the Training admin	High
55	Dismiss Training request	Click 'dismiss' after reviewing the request	Training request will reject and employee will notify via message	High
56	View request to be confirmed	Click 'Confirm application link	List of the request to be confirmed will be display	High

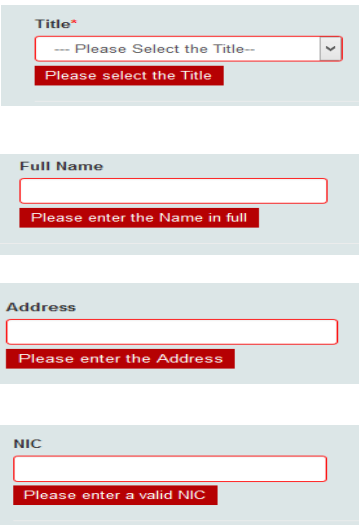

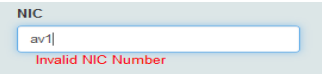
57	Confirm training request	Click 'Confirm' after viewing the Training request	Training request will be confirmed employee will notify via message	High
58	Reject Training request	Click 'Reject' after viewing the Training request	Training request will reject and employee will notify via message	High
59	View pending training request	Click 'Application status' link	The requests which are not yet confirmed will be appeared in a table	Low
60	Cancel training request	Click 'Cancel' button	The specific request will be delete	Medium
61	View available courses	Click 'View courses' link	The details of Training programs available will be displayed	Low
62	Add a new course (Invalid)	Fill required field empty or invalid values	Error message will be display	Medium
63	Add a new course (valid)	Fill required field with valid values	Details will be added	Medium
64	Edit course details (Invalid)	Update required field empty or invalid values	Error message will be display	Medium
65	Edit course details (valid)	Update required field with valid values	Details will be added	Medium

Loan Management				
66	Apply for a loan (invalid)	Provide empty or invalid values for required field	Error message will be display	High
67	Apply for a loan (valid)	Provide correct values for required field	Application will be sent to acting approval	High
68	View guarantor request	Click 'Guarantor request' link	List of guarantor request will be display	High
69	Confirm guarantor request	Click 'Accepted' after viewing guarantor request	Application will be sent to officer approval	High
70	Ignore guarantor request	Click 'ignore' after viewing guarantor request	Loan request will reject and employee will notify via message	High
71	View request to be approved	Click ' Application for approval' link	List of request will be displayed	High
72	Approve loan request	Click 'Approve' after viewing the requests	Application will be forward to loan admin	High
73	Dismiss the loan request	Click 'Dismiss' after viewing the requests	Loan request will reject and employee will notify via message	High
74	Confirm loan request	Click 'Confirm' after viewing loan request	Loan request will be confirmed and the employee should be notified via a message	High
75	Reject loan request	Click 'Reject' after viewing loan request	Loan request will reject and employee will notify via message	High
76	View Pending loan request	Click 'application status' link	The requests which are not yet confirmed will be appeared in a table	Low

77	Cancel loan request	Click 'Cancel' button	The specific request will be delete	Medium
78	View detail of loan	Click 'Loan details'	The loan details will be display	Low
79	Edit loan Details (Invalid)	Fill required field empty or invalid values	Error message will be display	Medium
80	Edit loan Details (valid)	Fill required field with valid values	Details will be update	Medium

Table 5. 1 High level Test plan

5.4 TEST CASES

Test Case id	21		
Test component	New Recruitment		
Module Name	Employee management		
Test case	Add new employee in to system(Invalid)		
Expected Output	Error message will display		
Test case description			
No	Test case	Expected output	STATUS
1	Required field are empty		Pass
2	Full name Invalid		Pass
3	NIC invalid		Pass

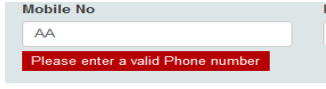
4	Mobile no invalid		Pass
---	-------------------	--	------

Table 5. 2 Test cases for add employee (invalid)

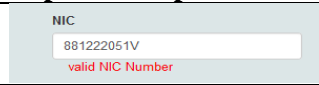

Test Case id	23		
Test component	New Recruitment		
Module Name	Employee management		
Test case	Add new employee in to system(valid)		
Expected Output	Success message will display		
Test case description			
ID	Test case	Expected output	STATUS
1	NIC valid		Pass
2	Mobile no invalid		Pass

Table 5. 3 Test cases for add employee valid value

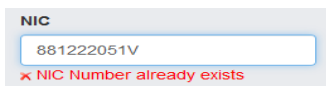
Test Case id	22		
Test component	New Recruitment		
Module Name	Employee management		
Test case	Adding an existing employee in to system(valid)		
Expected Output	Error message will display		
Test case description			
ID	Test case	Expected output	STATUS
1	Enter an existing NIC		Pass

Table 5. 4 Test cases for add existing employee in the system

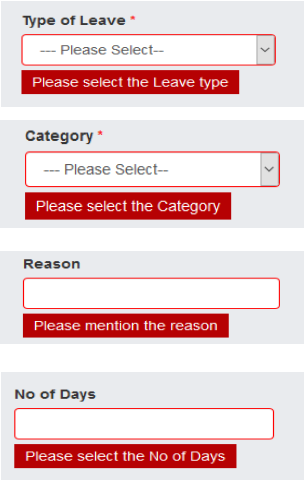
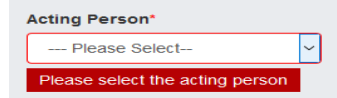
Test Case id	37		
Test component	Leave form submission		
Module Name	Leave management		
Test case	Add new employee in to system(Invalid)		
Expected Output	Error message will display		
Test case description			
No	Test case	Expected output	STATUS
1	Required field are empty	 <p>The screenshot shows a leave form with four sections: 'Type of Leave' with a dropdown menu showing '--- Please Select--' and a red error message 'Please select the Leave type'; 'Category' with a dropdown menu showing '--- Please Select--' and a red error message 'Please select the Category'; 'Reason' with an empty text box and a red error message 'Please mention the reason'; and 'No of Days' with an empty text box and a red error message 'Please select the No of Days'.</p>	Pass
2	Not Selecting acting employee	 <p>The screenshot shows a dropdown menu for 'Acting Person' with the text '--- Please Select--' and a red error message 'Please select the acting person' below it.</p>	Pass

Table 5. 5 Test cases for apply leave (invalid)

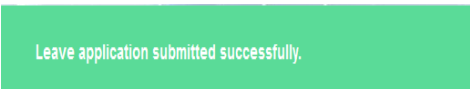
Test Case id	38		
Test component	Leave form submission		
Module Name	Leave management		
Test case	Apply for Leave (valid)		
Expected Output	Success message will display		
Test case description			
ID	Test case	Expected output	STATUS
1	Submit valid values for required field	 <p>The screenshot shows a green rectangular box with the text 'Leave application submitted successfully.' in white.</p>	Pass

Table 5. 6 Test cases for apply leave valid value

5.5 USER ACCEPTANCE TEST WITH CLIENT EVALUATION

User acceptance test was carried out with the feedback of the selected OL users. A simple evaluation test form used to evaluate OLHRMS overall function given below in figure 5.1

Web based Human Recourse Management system for Ocean Lanka (Pvt) Ltd.
User Feedback Form
 By R.D.A Chaturanga (For Final year BIT project University of Colombo School of Computing)
 I kindly appreciate your feedback on the HRM System develop by me for its further modification and enhancement.
Please indicate your rating by ticking (✓) the appropriate column

#	Question	Very good	Good	Average	Need to Improve
1	Interfaces are consistant user friendly		✓		
2	Easily navigational around the system	✓			
3	Function and tasks easily understandable	✓			
4	Provide secure reliable information.	✓			
5	Save time	✓			
6	Overall rating	✓			

Comment :- *Overall operation was fast up. Security is there. It's up to expected level.*

Checked by :- *ANSON DE SILVA*

Designation :- *HR EXECUTIVE OCEAN LANKA (PVT) LTD.*

Figure 5. 1 Sample user evaluation form

According to above survey data was summarized. User evaluation summery shown in the figure 5.2. Client was happy with the functionalities of final system.

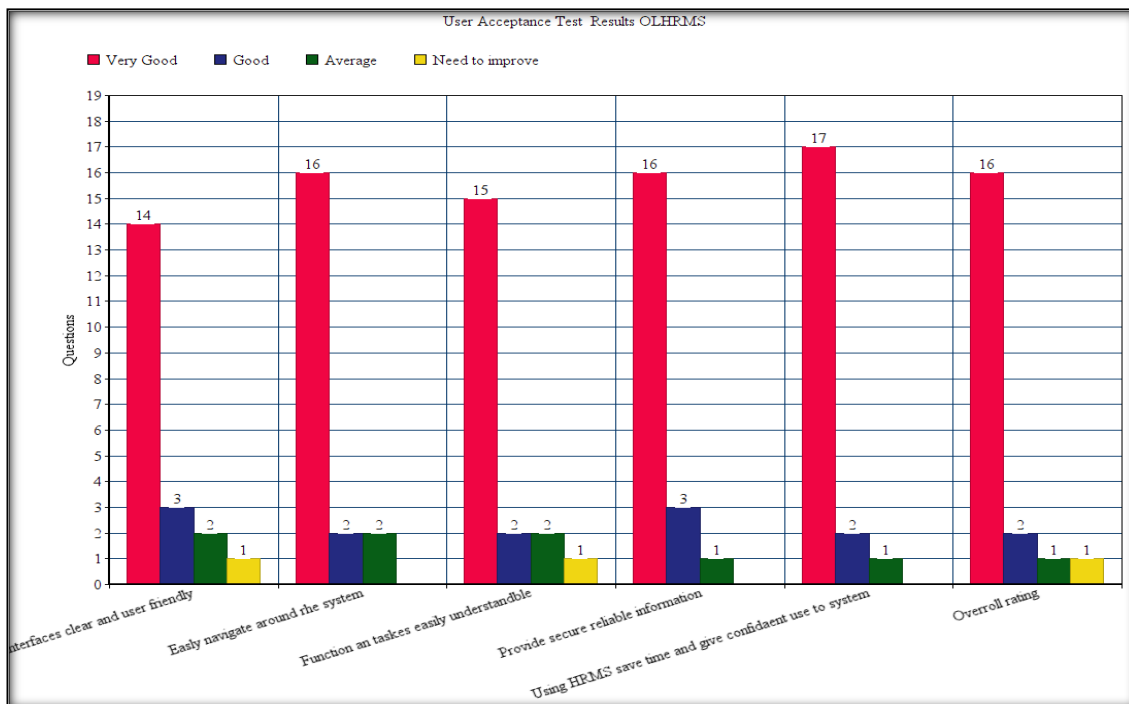


Figure 5. 2 User evaluation summary

Chapter 6: CONCLUSION

6.1 INTRODUCTION

This chapter describes the overall status of the project with all success factors and also any deviation from the main project requirement.

6.2 CRITICAL EVALUTION

When comparing with current manual HR procedure of OL, this system was rated on the highest by the majority of company's staff members.

Hence large volume of data are being processed day by day, this system plays a big role in handling those data effectively and efficiently. The staff members are also interested to use the system because it is easily understandable interface and user friendlily system.

This system has all the necessary HR functions of the company including Employee Information Management, Leave, Training, and Loan Management, Payroll information Management, Report generation.

Employee information management is mainly targeted on all the aspect of managing employee including recruitment, promotion and resignation. Leave management modules handle all the leave application and confirmation procedure .Loan management permits employee to grant loans according to their salary scale. Payroll modules provide salary details of the employees and report module provide all kind of management reports to make a decision easier.

When coming to the conclusion, minimizing big amount of manual paper working, ensuring the reliability, accuracy and security of the information. Minimizing data redundancy and less processing time can be taken as good sign of the system.

6.3 DEVIATION OF THE PROPSED SYSTEM

At the beginning of the system, OL wanted for a finger print attendance tracking system to manage employee's attendance and the agreed by the top management later they have asked for develop the system with other module first in order to go for attendance management

system after the result of HRMS system there for that module was postponed to the future enhancement

6.4 PROBLEM FACED

- Referred a lot of manual document to gather requirement and get information
- Identify extract requirement was difficult due to lack of IT knowledge of staff members.
- Get some special authorization to handling some sensitive data.
- Changes had to be done by database and coding more often to fulfill new requirement identifying the development.

6.5 FUTURE IMPROVEMENT

- Develop the attendance management system. With the fingerprint machine.
- Provide SMS notification facility to send good information flowing.
- Develop the system to support small and medium devices.

6.6 LESSONS LEARNT

- Developing the project motivated me to apply my theoretical knowledge gained in IT in a practical situation.
- Working a time schedule is very important to these kind of project development.
- Develop a project improving my knowledge about PHP, MYSQL, BOOTSTRAP, AJAX, JAVASCRIPT, and CSS like technologies.
- To get backup of the system is good exercise when hardware and software disappointment.
- Errors and bugs should be fixed at the very first time they appear to avoid converting them bigger and difficult to fix later.

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APPENIX A – SYSTEM DOCUMENTATION

INRODUCTION

This document provide all the aspect of the system such as software and hardware requirement of the system. It will also give installation guidelines of the system.

HARDWARE AND SOFTWARE REQUIRMENT

Hardware requirement

Table A.1 shows the hardware requirement of the system

Hardware	Recommended minimum requirement
Processer	Intel Pentium IV or higher processor
Memory	1GB or more
Hard disk space	Minimum 500 GB disk space or higher
Display	1024×728,High color 32bit display
Internet	Minimum 51 kbps or higher ADSL connection
Printer	Inkjet or laser printer

Table A. 1 Hardware requirement

Software requirement

Table A.2 shows software requirement of the system

Software	Recommended minimum requirement
Operating system	Windows XP or higher operating system
Bundles	XAMMP server /WAMP or LAMP server
IDE for code modification	Net beans
Web Browser	Mozilla Fire fox ,Google chrome or any other browser

Table A. 2 Software requirement

SYSTEM INSTALLTION

1 Install the relevant software

- Download and Install XAMMP or WAMP server in server machine.(If server machine run with Linux can use LAMP sever also)
- Download and Install suitable web browser (Mozilla Firefox, Google chrome etc...)

2 Setting up the system

- Open 'C/xampp/htdocs' folder in the XAMMP(if server is WAMP 'C/wamp/www' or if server is LAMP 'C/lamp/var/www') and paste the OLHRM folder in the given CD
- Copy the icon given in CD-ROM paste it in desktop.
- Open the web browser and go to 'http://localhost/phpmyadmin'.
- Create the new data base named in 'ol_hrm.'.
- Open newly created database and click 'Import' tab in given menu.
- Browse and select the ol_hrm file in CD –ROM and click on 'Go' button.

3 Launching the system

- Before launching the system you must verify the Apache and MySQL server run in the machine. To do that Start->Programs-> Xampp control panel or Click on this icon of the taskbar



Figure A. 1 Xampp Icon

- See weather Apache and MySQL services run on the back ground if not start Apache and MySQL servers
- Click on the icon copied in the desktop to run the system and using valid username and password you can log in the system.
- Please refer Appendix C for guidelines for use the system.

APPENIX B – DESIGN

DOCUMENTATION

USE CASE NARATIVES

Employee module

Use case description for adding a new employee to the system

Use Case	Adding new employee
Actor	HR Executive
Overview	
Registering new employee in the system	
Pre-Condition	
<ol style="list-style-type: none"> 1.The user must be between 18-55 years of age 2.User should have a NIC or Passport no 	
Flow of Event	
<ol style="list-style-type: none"> 1.Select the ‘Add Employee’ link in the left menu 2.Fill the form with relevant details 3.Submit the details 	
Post-Condition	
<ol style="list-style-type: none"> 1. The new employee will added to the system. 2. User account of the employee will be created 	

Table B. 1 Use case description for adding a new employee to the system

Use case description for promote an employee

Use Case	Promote employee
Actor	Divisional head
Overview	
Registered employee in to company	
Pre-Condition	
<ol style="list-style-type: none"> 1. The employee must work at least two years of the company. 	
Flow of Event	
<ol style="list-style-type: none"> 1.Select the ‘Promote’ button in table 2.Select the new designation 3.Submit the details 	
Post-Condition	
<ol style="list-style-type: none"> 1. The employee will be promoted as new designation 	

Table B. 2 Use case description for promote employee to the system

Loan module

Use case description for apply a loan

Use Case	Apply a loan
Actor	All users
Overview	
Any employee can apply a loan	
Pre-Condition	
1.User should be employee of Ocean Lanka 2.User should not have pending loan	
Flow of Event	
1.Select the loan type 2.Enter Amount 3.Select the guarantor 4.Submit the form	
Post-Condition	
Loan application will be sent to further approval	

Table B. 3 Use case description for apply loan

Training Module

Use case description for apply a Training

Use Case	Apply a Training
Actor	All users
Overview	
Any employee can apply a any available courses	
Pre-Condition	
1.User should be employee of Ocean Lanka 2.Courses should be available	
Flow of Event	
1.Click the Apply Course link 2.Select the course name 3. Submit the form	
Post-Condition	
Loan application will be sent to further approval	

Table B. 4 Use case description for apply training

Leave Module

Use case description for apply a Leave

Use Case	Apply a leave
Actor	All users
Overview	Any employee can apply a leave
Pre-Condition	1.User should be employee of Ocean Lanka 2.User should have remaining leave
Flow of Event	1.Fill the leave request form 2.Given reason for get the leave 3.Select the another employee behalf the absence 4.Submit the form
Post-Condition	Leave request will be sent to further approval

Table B. 5 Use case description for apply leave

Use case description for Cancel a Leave

Use Case	Cancel a leave
Actor	All users
Overview	Any employee can apply a leave
Pre-Condition	User should have a pending leave
Flow of Event	1.Click 'Application status' link 2.Click on the 'cancel' button
Post-Condition	Leave request will be cancelled

Table B. 6 Use case description for cancel leave

Payroll module

Use case description for Payroll Management

Use Case	Payroll management
Actor	All users
Overview	
User can view their pay sheet	
Pre-Condition	
User should be an employee of Ocean Lanka having a basic salary.	
Flow of Event	
1.Click 'User Pay sheet' link 2.Click on the 'print' button	
Post-Condition	
View the pay sheet can get printout	

Table B. 7 Use case description for payroll management

Report Module

Use case description for View report

Use Case	View report
Actor	Manager
Overview	
Managers can view and print report	
Pre-Condition	
User should hold managerial position. Other modules should function accurately	
Flow of Event	
1.Click on the specific report link 2 Gives the required values. 3 Click on the 'print' button	
Post-Condition	
Report can be view and can get printout	

Table B. 8 Use case description for view report

SEQUENCE DIAGRAM

Login Module

Sequence diagram for login in to system

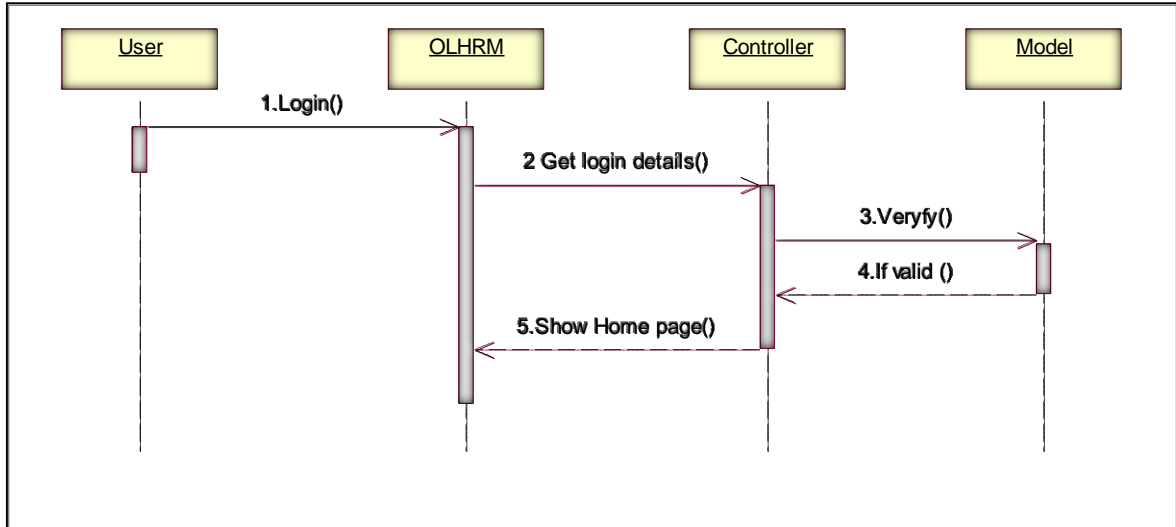


Figure B. 1 Sequence Diagram for login module

Employee Module

Sequence Diagram for adding new employee

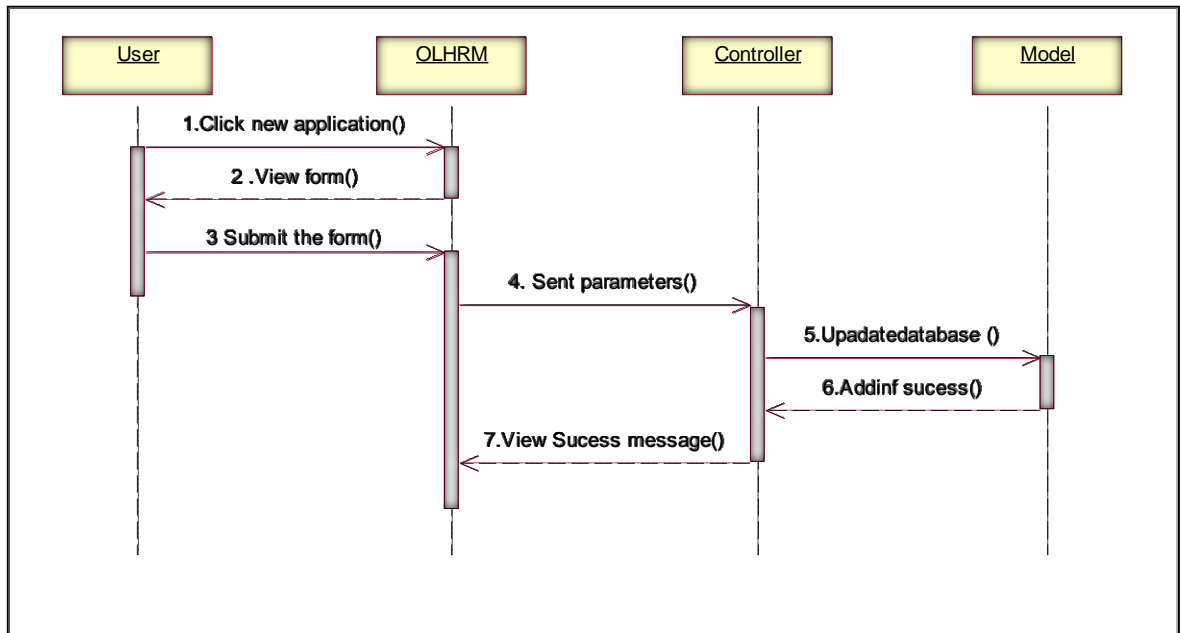


Figure B. 2 Sequence diagram for adding new employee

Leave Module

Sequence diagram for applying a Leave

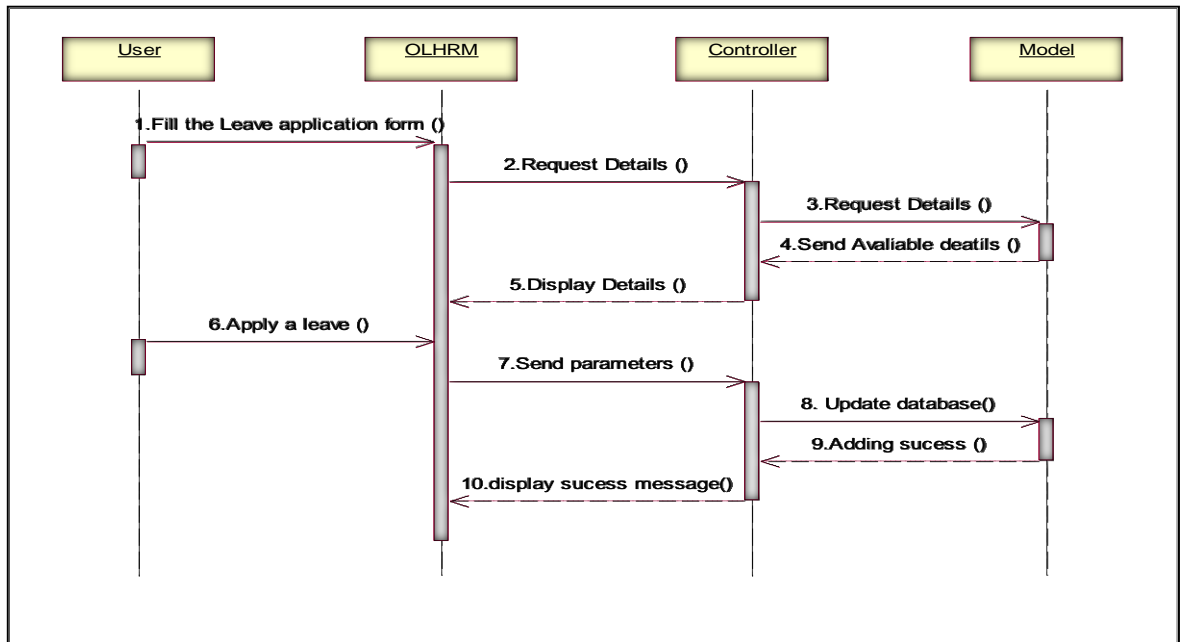


Figure B. 3 Sequence diagram for apply leave

ACIVITY DIAGRAM

Loan Module

Activity diagram for apply loan

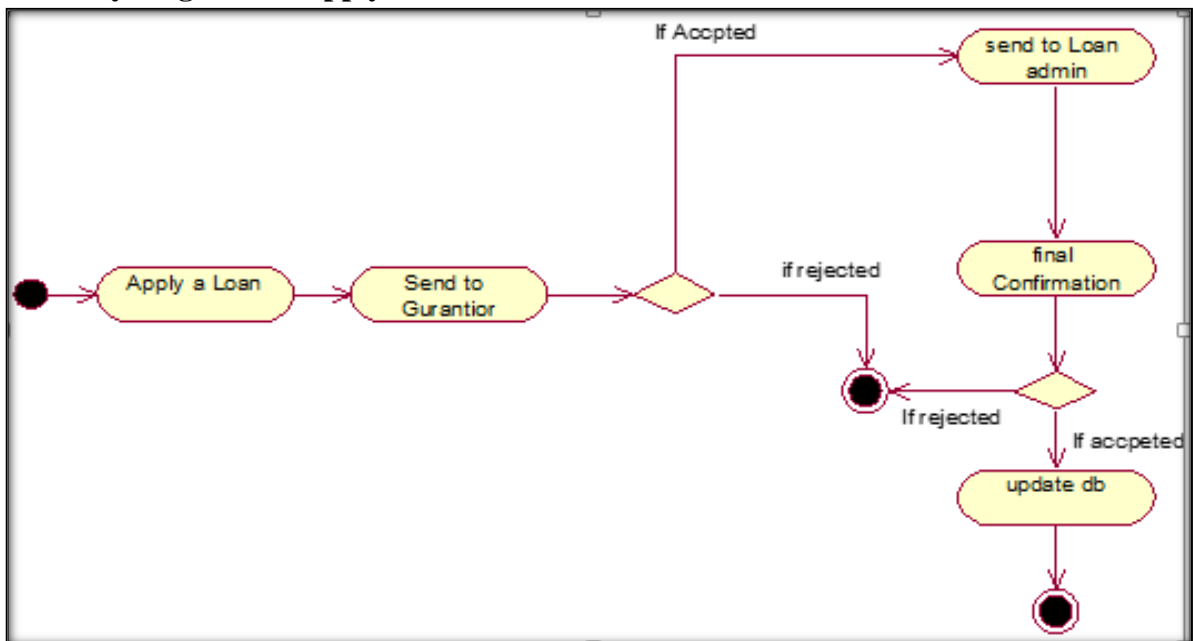


Figure B. 4 Activity diagram for apply loan

Leave Module

Activity diagram for leave module

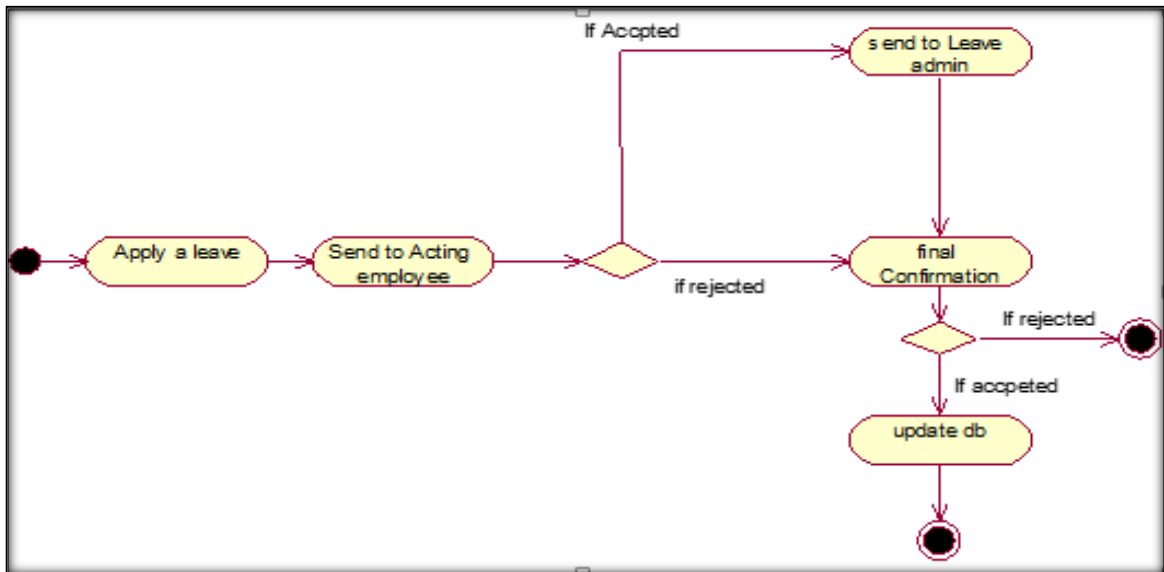


Figure B. 5 Activity diagram for approve leave

USE CASE DIAGRAM

Home module

Use case diagram for internal message system

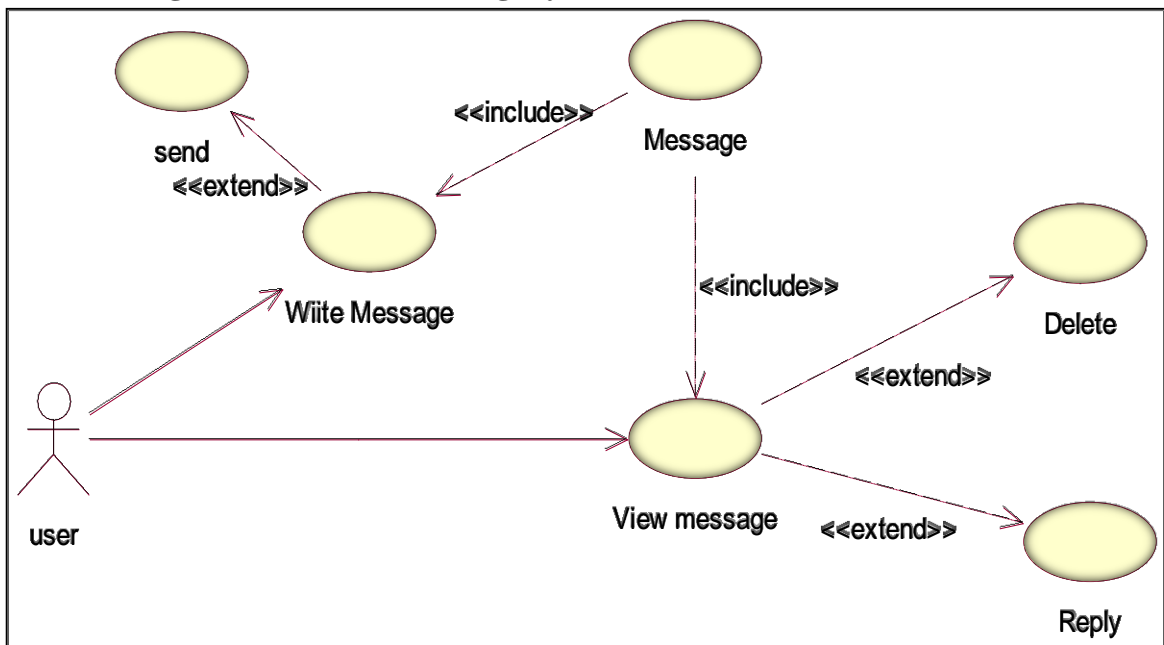


Figure B. 6 Use case diagram for Internal Messaging system

Payroll module

Use case diagram for payroll management

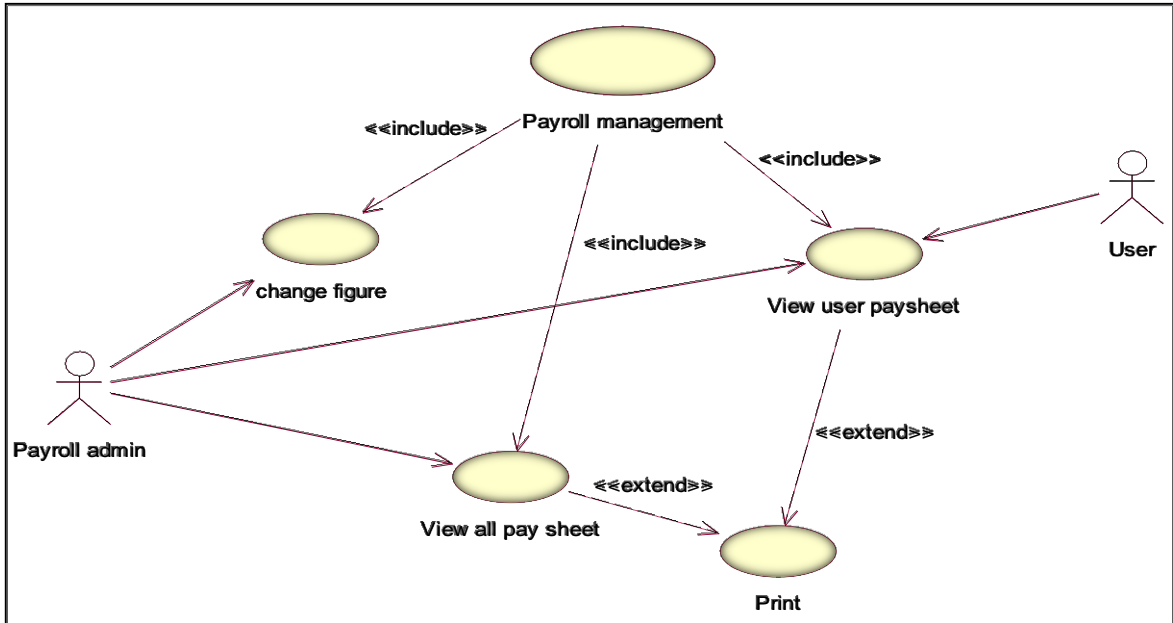


Figure B. 7 Use case diagram for Payroll module

Report Module

Use case diagram for report module

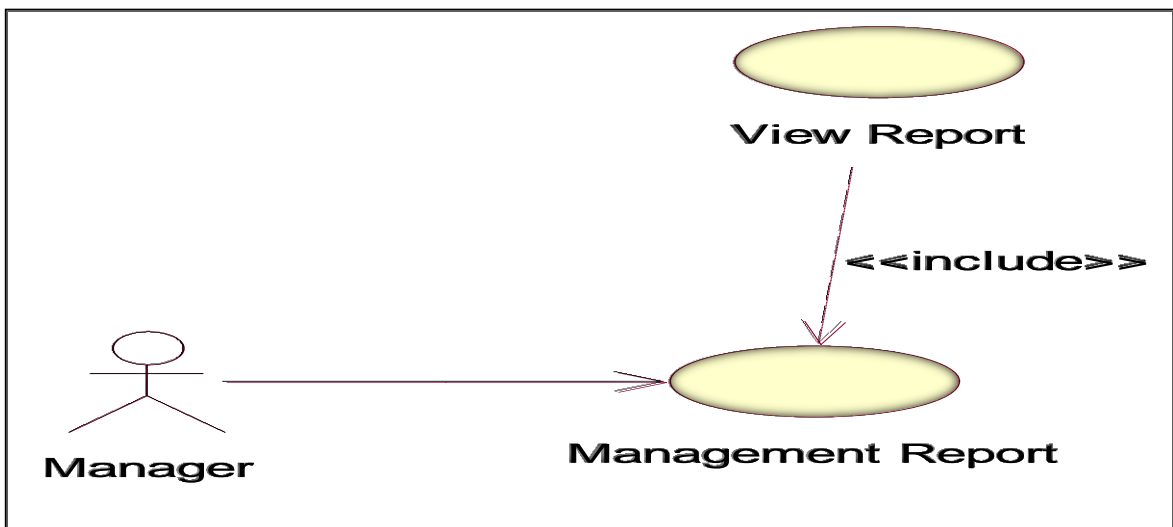


Figure B. 8 Use case diagram for report module

Leave Module

Use case diagram for leave module

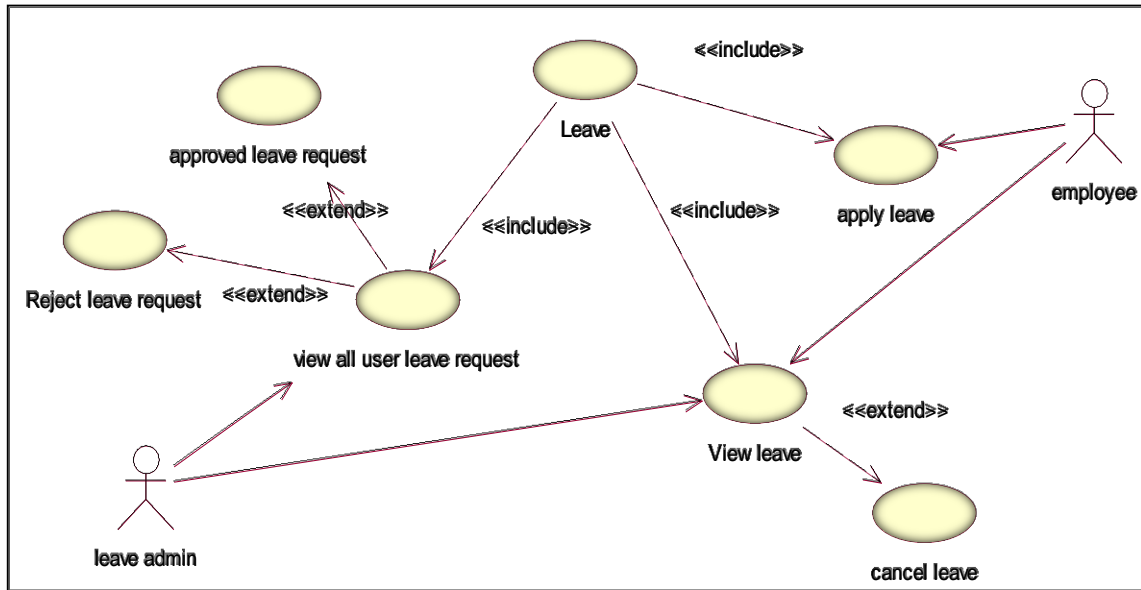


Figure B. 9 Use case diagram for leave module

Training Module

Use case diagram for Training module

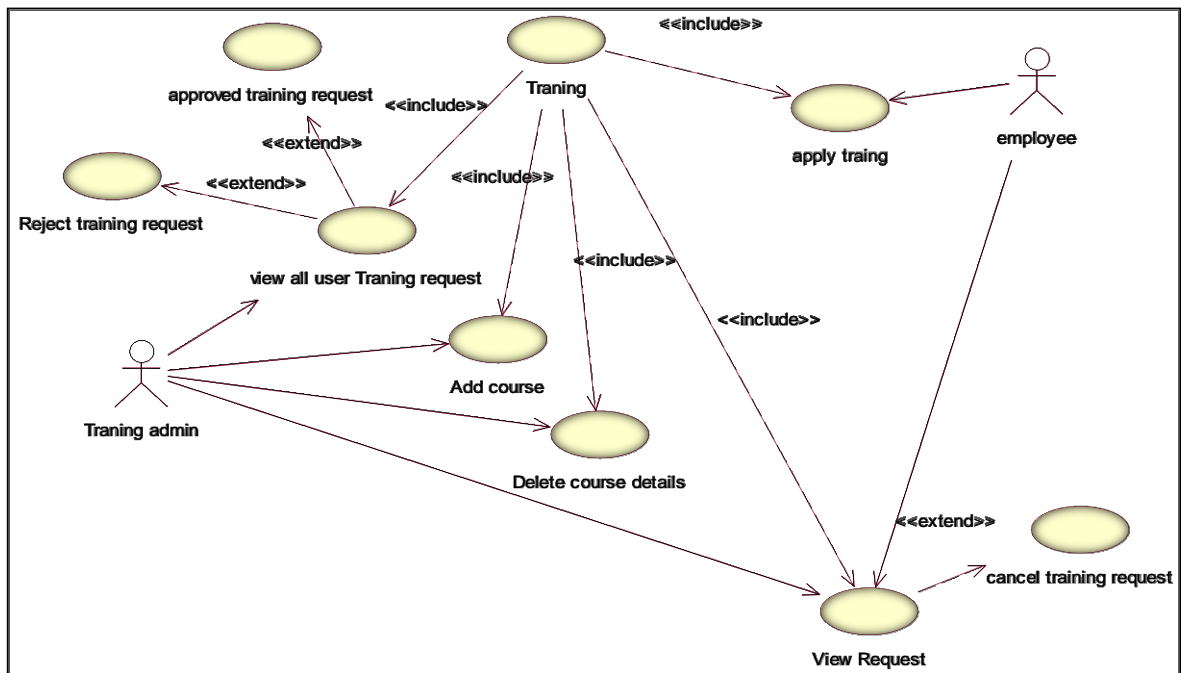


Figure B. 10 Use case diagram for Training module

APPENDIX C - USER DOCUMENTATION

User documentation will support to the user how to system use. In this section doesn't covers all the functionalities by separately particular user level but get a idea about functionalities of the system.

Login page

User can access the system using their user name & password.




Figure C. 1 Login Form

Dashboard Page

After successful login user will directed to the dashboard page

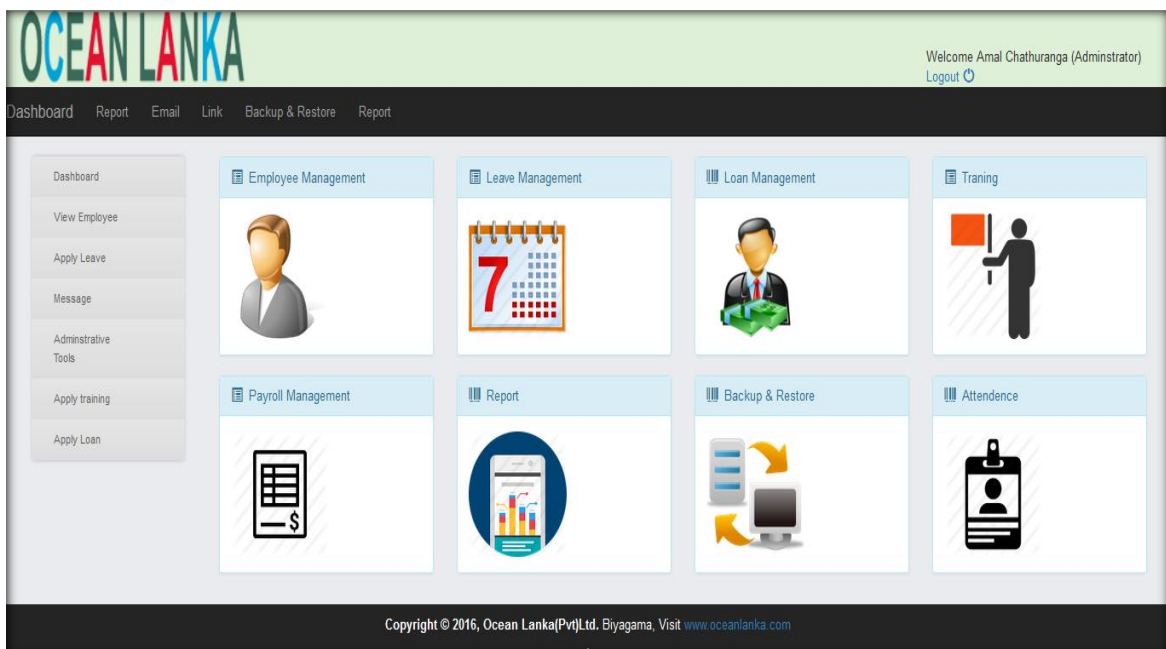


Figure C. 2 Dashboard page

Employee management

In this table users can edit, view employee personal and qualification information

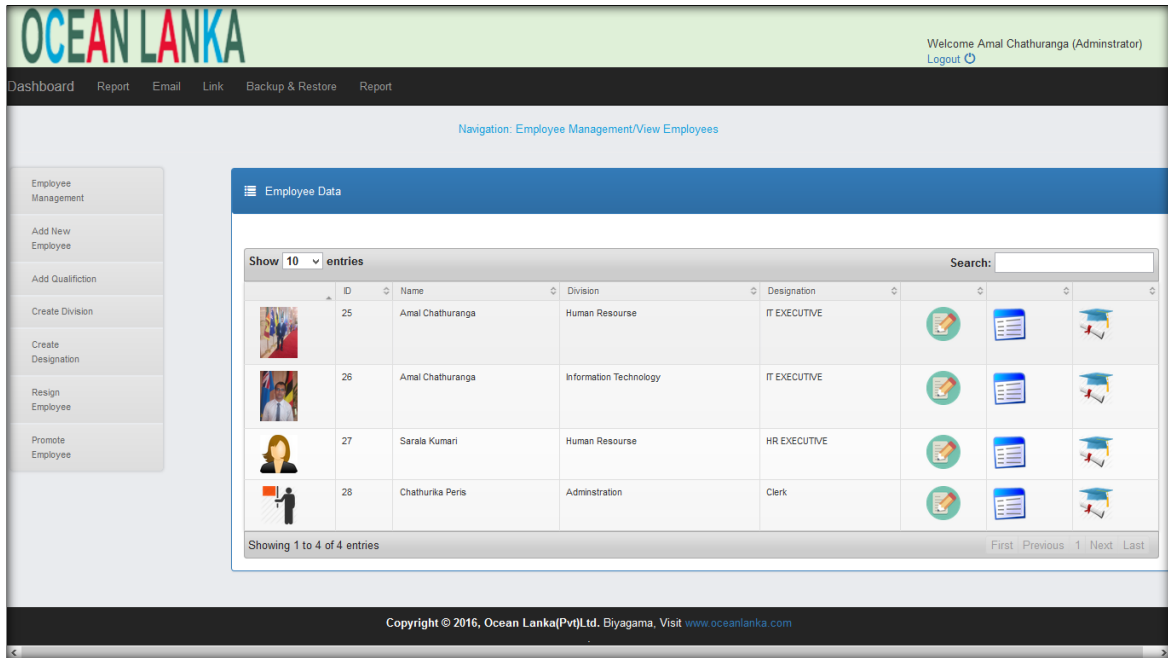


Figure C. 3 Employee management

In this table user can do Resign/promote/ Undo resignation employee but this operation only do authorize people with access privileges.

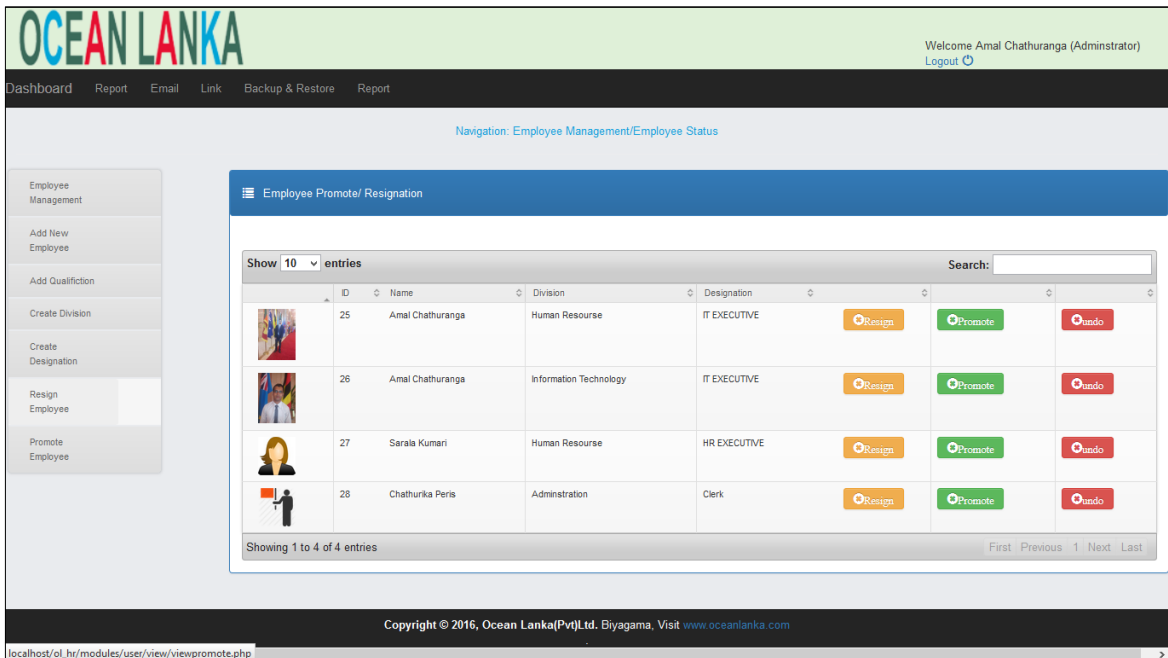


Figure C. 4 Promote, Resign Employee

Leave Management

After submitting leave application form it will directed to leave requests form it will appear leave request of the user.

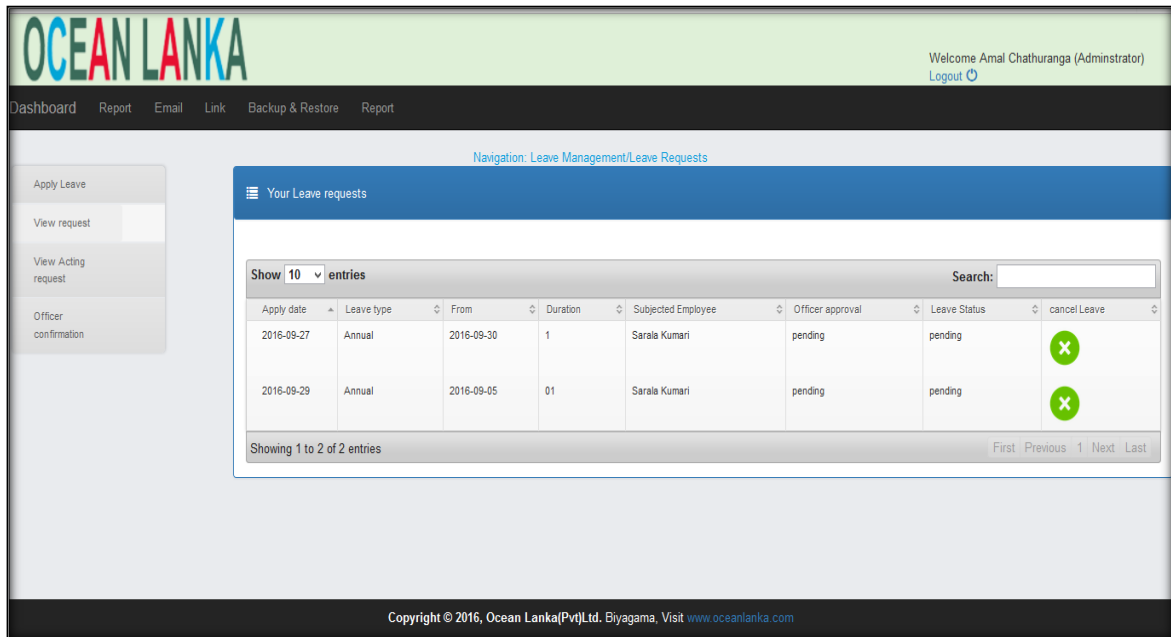


Figure C. 5 Leave requests page

After submitting leave form, leave request will be forward to acting employee he can view the leave and cab accept or ignore the leave.

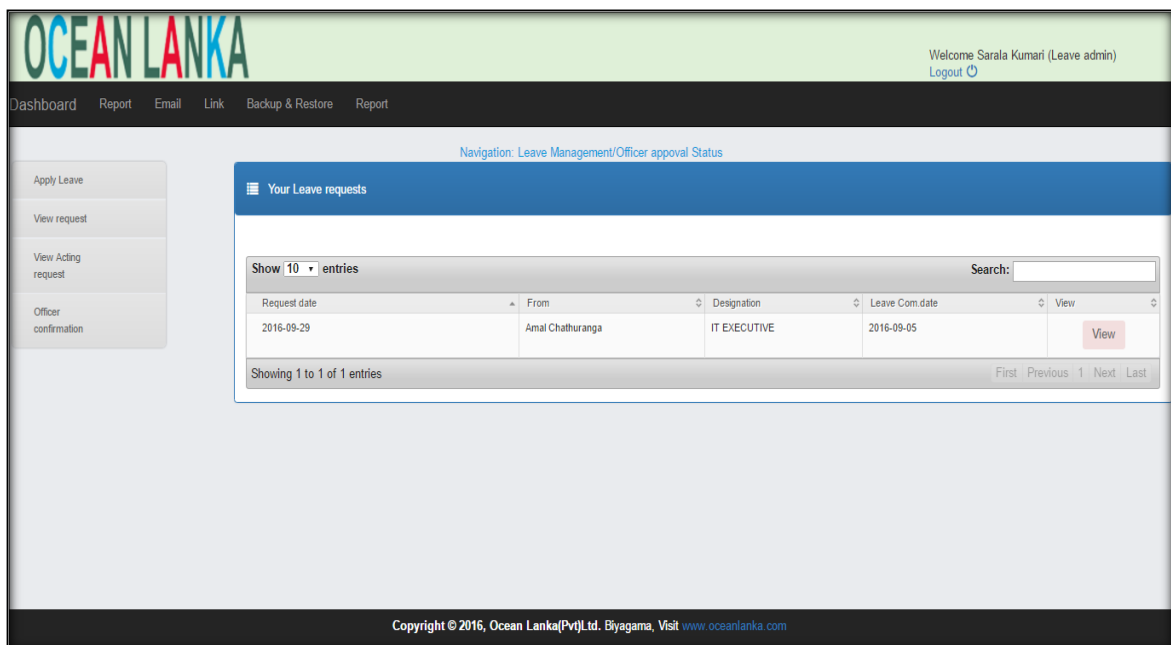


Figure C. 6 Acting employee view

If it approved by acting employee application will be forwarded to final confirm stage

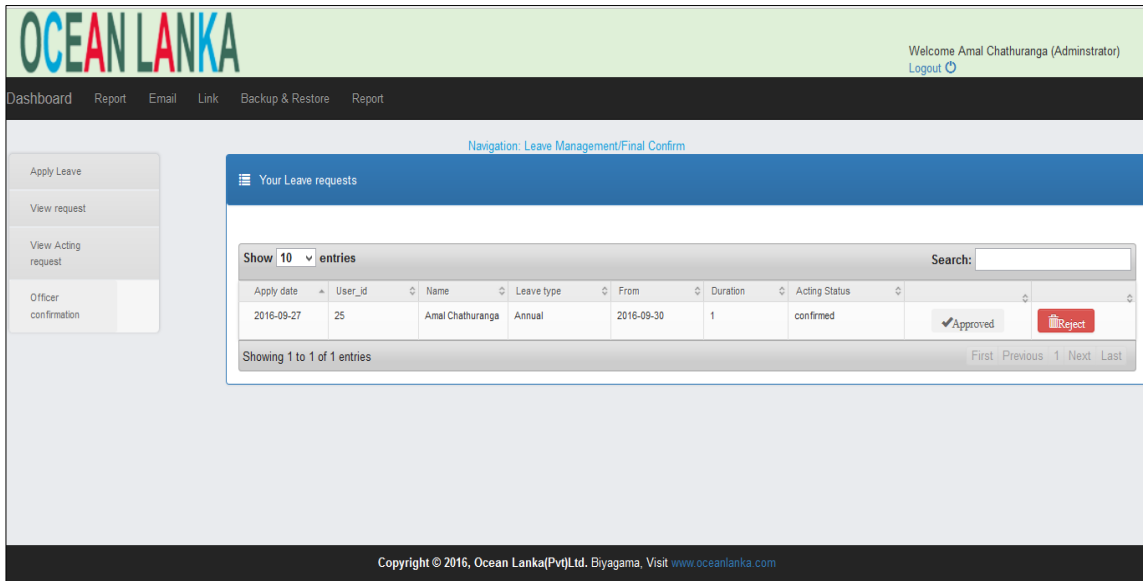


Figure C. 7 Leave final Confirm

Messages

Received message Sent message New Message Unread message

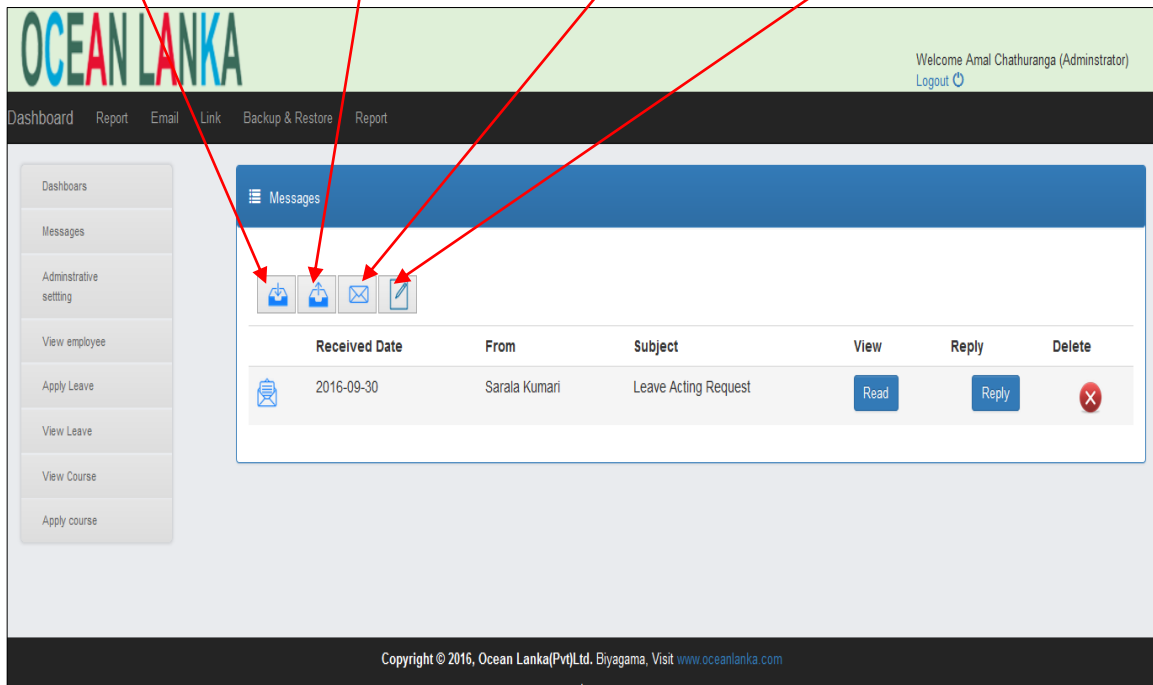


Figure C. 8 Message View

New Message

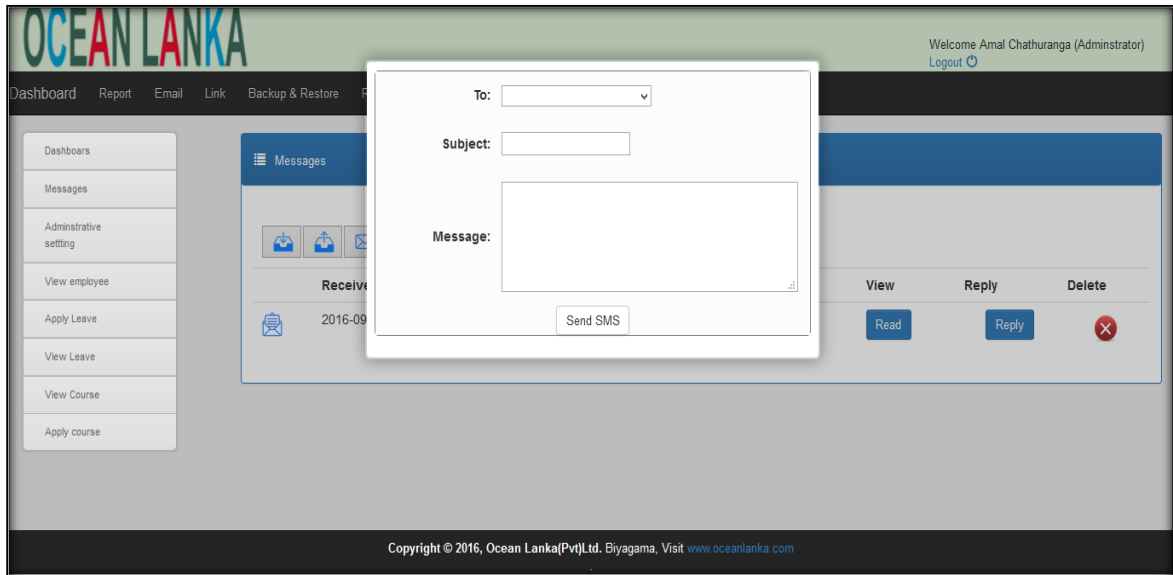


Figure C. 9 New message View

Message confirmation

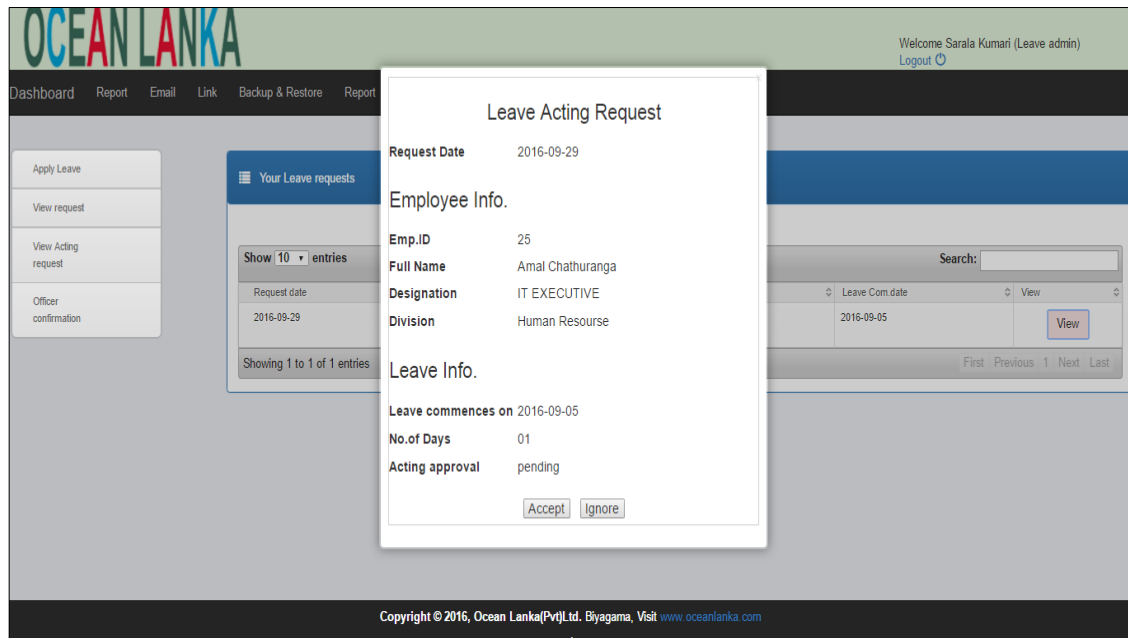


Figure C. 10 Confirmation Message

Apply for Training

Figure C. 11 Apply for training

Available courses

Course Id	Course Name	Commencing Date	Duration	Venue			
1	Diploma in HR	2016-09-21	6 months	NIBM			
2	fashion Designing	2016-10-01	2month	SLITA			
3	Diploma in Merchandizing management	2016-11-09	1 Year	SLITA			
4	Diploma in Fabric Technology	2016-12-07	1 Year	SLITA			
5	Diploma in Linux System Administration	2016-10-06	6 month	ESOST METRO CAMPUS			

Figure C. 12 Available courses

Training admin can View, Edit and Delete their request using this table

View Course Details

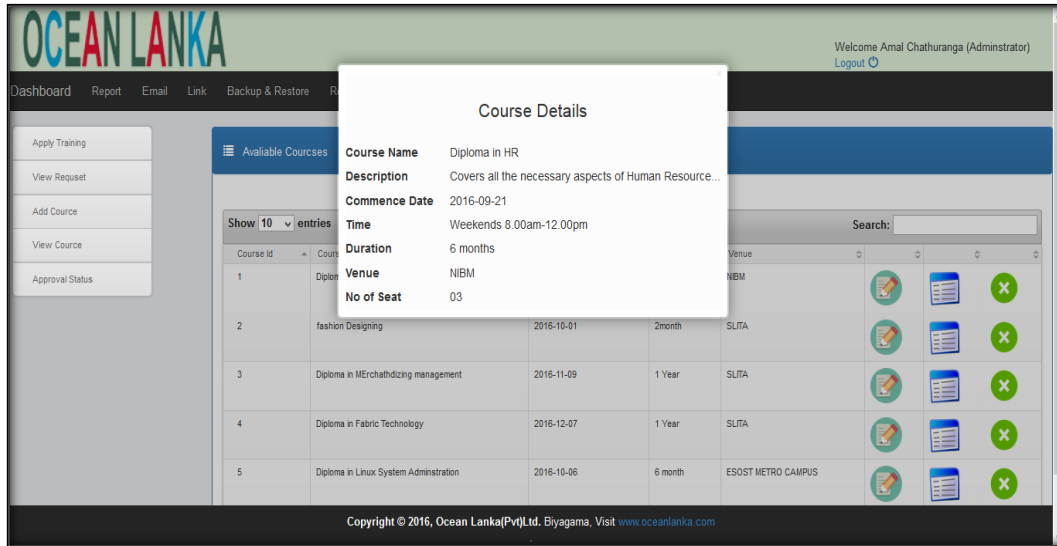


Figure C. 13 View Course Details

Loan Management

After submitting the loan application page can be directed to the loan request page

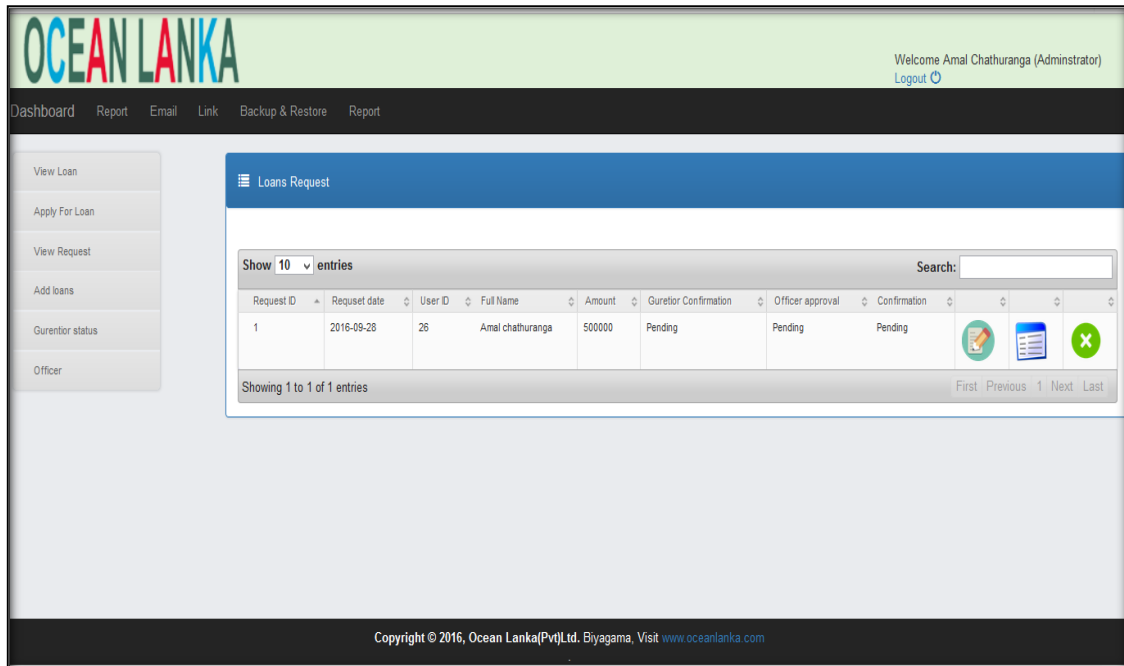


Figure C. 14 Loan Requesting

APPENDIX D - MANAGEMENT REPORT

EMPLOYEE BY ADDRESS



Figure D. 1 Employee by address

EMPLOYEE BY DIVISION

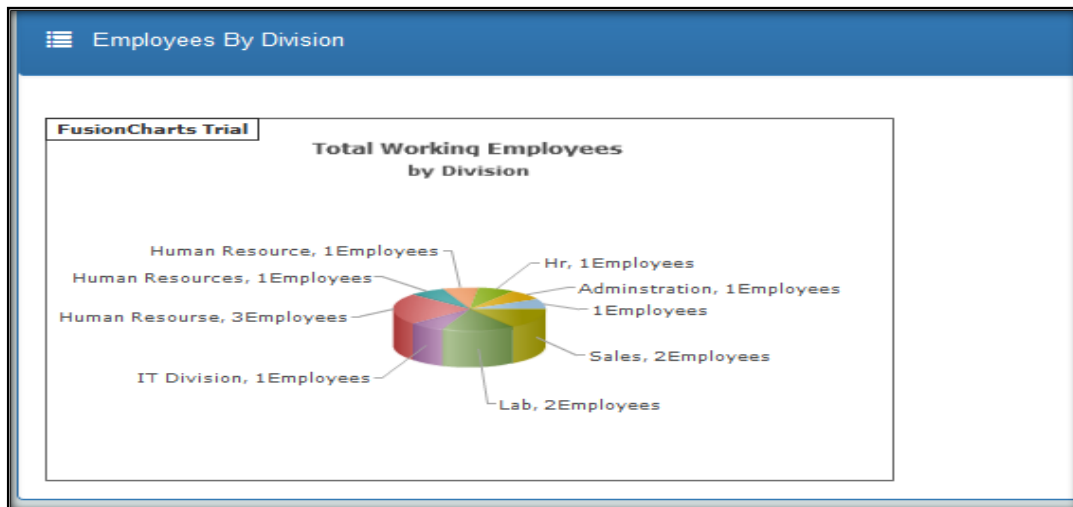


Figure D. 2 Employee by division

EMPLOYEE BY NATIONALITY

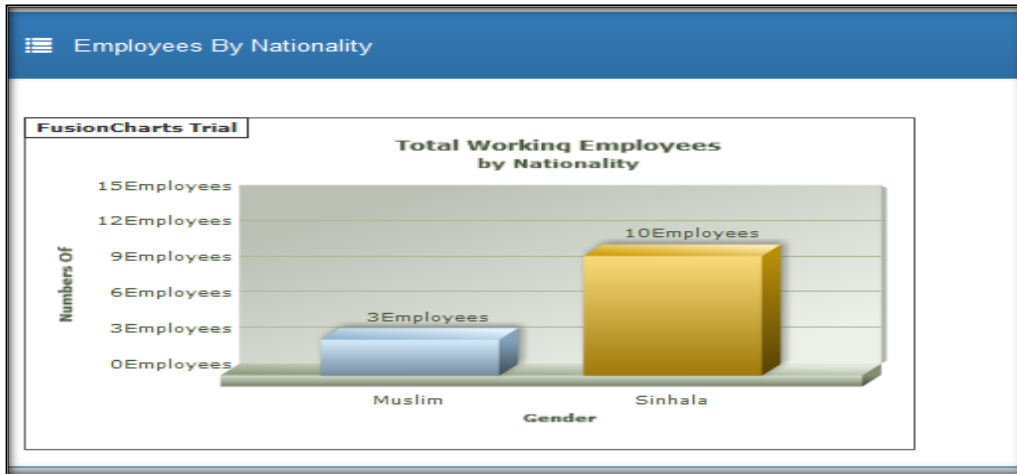


Figure D. 3 Employee by Nationality

EMPLOYEE BY GENDER

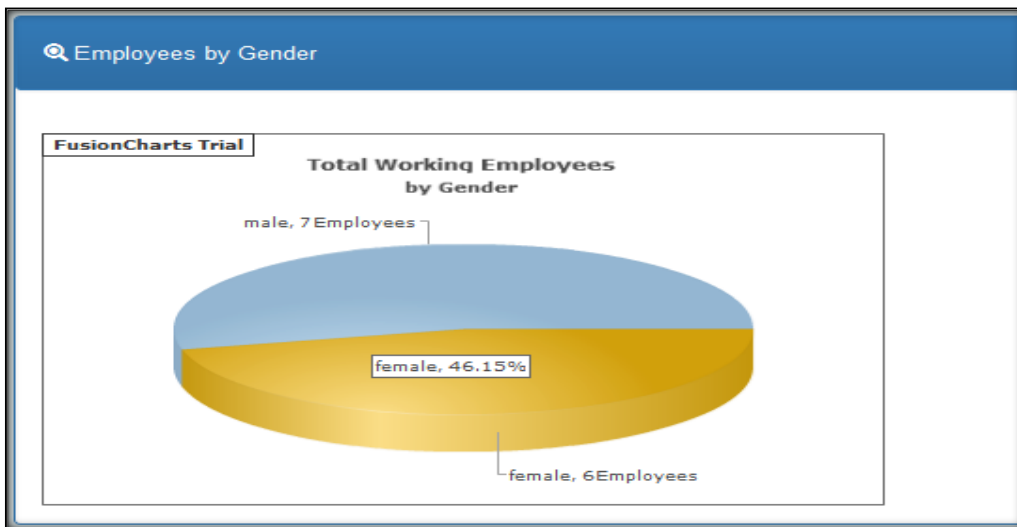


Figure D. 4 Employee by Gender

REPORT OF ABSENT EMPLOYEE

Ocean Lanka (PVT) Ltd.
Block B ,Biyagama EPZ, Walgama, Malwana Srilanka

From: To: View

Date: 12/12/2017

Employees Absent List 2017-11-01 To 2017-12-31

Emp.ID	Full Name	Division	Designation	Absent Date
9	Nalaka Buddhadasa	Adminstraion	General Manager	2017-11-01
1	Amal Chathuranga	Information Technology	Admin	2017-11-02
5	Akila Chamikara Senanayke	Lab & Inspection	Lab Assitant	2017-11-02
7	Nawshad Abdulla	Production Planing	Head of division	2017-11-05
10	Fathima Husaain	Lab & Inspection	Head of division	2017-11-07

Tel: 0112-501701/2 Fax: 011-2501613

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Figure D. 5 Report of absent employee

REPORT OF GRANTED LEAVE OF EMPLOYEE

Ocean Lanka (PVT) Ltd.
Block B ,Biyagama EPZ, Walgama, Malwana Srilanka

From: To: View

Date: 12/12/2017

Employees Leave Details From 2017-11-01 To 2017-12-30

Emp.ID	Name in full	Granted Date	Leave Type	No Of Days
1	Amal Chathuranga	2017-11-01	Sick	1
1	Amal Chathuranga	2017-11-14	Annual	1
17	Sureni de Mel	2017-11-02	Annual	1
18	Mayuran Gopinathen	2017-11-11	Annual	1
17	Sureni de Mel	2017-11-24	Annual	1
1	Amal Chathuranga	2017-11-30	Sick	1
1	Amal Chathuranga	2017-11-08	Sick	1
5	Akila Chamikara Senanayke	2017-12-02	Annual	2
2	Anjana Perera	2017-12-03	Sick	1
4	Sarala Kumari Makalanda	2017-12-04	Annual	2
1	Amal Chathuranga	2017-12-05	Annual	1

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Figure D. 6 Report of granted leave of employee

REPORT OF GRANTED LOAN OF EMPLOYEE

Ocean Lanka (PVT) Ltd.
Block B, Biyagama EPZ, Walgama, Malwana Sri Lanka

From: To: View

Date: 12/12/2017

Approved Loan Details From 2017-11-01 To 2017-12-01

Emp.ID	Name in full	Division	Designation	Loan Type	Amount	Approved Date
1	Akila Chamikara Senanayke	Lab & Inspection	Lab Technician	Housing Loan	500000.00	2017-11-08
16	Amal Chathuranga	Information Technolo	Admin	Housing Loan	500000.00	2017-11-10

Tel: 0112-501701/2 Fax: 011-2501613

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Figure D. 7 Report of granted loan of employee

REPORT OF CURRENT EMPLOYEE IN THE COMPANY(PDF)

Ocean Lanka
Ocean Lanka Pvt Ltd
Block B EPZ Biyagama , Sri Lanka.

Date: 12-12-2017

Employees list for the year : 2017

Emp.ID	Full Name	Designation	Department	Appoint Date.
1	Amal Chathuranga	Admin	Information Technology	2014-07-16
2	Anjana Perera	HR EXECUTIVE	Human Resource	2015-03-18
3	Indrani Sagarika Perera	HR EXECUTIVE	Human Resource	2013-04-08
5	Akila Chamikara Senanayke	Lab Assitant	Lab & Inspection	2014-11-10
6	Anusha Shamali Disanayaka	Group Leader	Production Planing	2013-02-05
7	Nawshad Abdulla	Head of division	Production Planing	2012-03-05
12	Tharanga Perera	Lab Technician	Lab & Inspection	2016-03-03
13	Rizmi Nawas	Sales Exective	Sales & Marketing	2013-01-14
14	Asela Gunarathna	Clerk	Finshing	2015-05-05
16	Aloka Bandara	Group Leader	Finshing	2017-04-18
29	ama perera	Forman	Human Resource	2017-12-03

TEL : 011-2791783 / FAX : 011-2788785 / EMAIL : info@oceanlanka.lk

Figure D. 8 Report of current employee in the company (PDF)

APPENDIX E - TEST RESULT

Test case id	Actual out put	Status
36	<p>Employee Details</p> <p>Employee Id * <input type="text" value="25"/> Full Name <input type="text" value="Amal Chaturanga"/> Division <input type="text" value="Human Resourse"/> Designation <input type="text" value="IT EXECUTIVE"/></p> <p>Leave Details</p> <p>Application Date * <input type="text" value="2016-09-28"/> Type of Leave * <input type="text" value="-- Please Select--"/> Category * <input type="text" value="Full Day"/> Leave commencing Date * <input type="text"/></p> <p>No of Days <input type="text"/> Reason <input type="text" value="S"/> Acting Person* <input type="text" value="-- Please Select--"/></p> <p><input type="button" value="Apply"/></p>	Pass
37	<p>Leave application submitted successfully.</p>	Pass
38	<p>Acting request confirmed.</p>	Pass
39	<p>Acting request rejected.</p>	Pass
40	<p>Received date: 2016-09-29</p> <p>From: Sarala Kumari</p> <p>Subject: Leave Acting Request</p> <p>Message: Your Leave Acting request is ignored by Sarala kumari .</p> <p><input type="button" value="Mark as Read"/></p>	Pass




41		Pass
42		Pass
43		Pass
44		Pass

Table E. 1 Test Result for leave module

APPENDIX F- CODE LISTING

FORM VALIDATION USING JAVA SCRIPT

```

$(document).ready(function() {
    $("#bttnnext").click(function() {

        var title = $('#title').val();
        var fullname = $('#fullname').val();

        //-----

        if (title == "") { // Title Validation
            $('#title').css('border-color', 'red');
            $('#titleError').show(1000);

            return false;
        }
        else {
            $('#title').css('border-color', '#a7cb8e');
            $('#titleError').hide();
        }
        //-----

        if (fullname == "") { // Fullname Validation
            $('#fullname').css('border-color', 'red');
            $('#nameError').show(1000);
            $('#nameError2').hide();

            return false;
        }
        else if (!fullname.match(/^\[a-zA-Z_]*S$/)) { // Checks if the fullname only contains text values
            $('#fullname').css('border-color', 'red');
            $('#nameError2').show(1000);
            $('#nameError').hide();

            return false;
        }
        else {
            $('#fullname').css('border-color', '#a7cb8e');
            $('#nameError').hide();
            $('#nameError2').hide();
        }
    }
}

```

Figure F. 1 JavaScript validation

FORM VALIDATION USING AJAX

```

function checkPhone(phone) {
    if ((phone.length != 10) ||
        (isNaN(phone)))
    {
        $('#phoneError').html("<Invalid Phone Number</font>\n<input type='hidden' id='phoneInvalid' name='";
        $('#phoneError').show();
    }
    else {
        $('#phoneError').html("<input type='hidden' id='phoneInvalid' name='phoneInvalid' value='yes' />");

        var request = $.ajax({
            url: "../controller/userconreoller.php",
            type: "POST",
            data: {phone: phone, action: 'check_phone'},
            dataType: "html"
        });

        request.done(function(msg) {
            $('#phoneError').html(msg);
            $('#phoneError').show();
            $('#phoneError2').hide();
        });

        request.fail(function(jgXHR, textStatus) {
            alert("Reuest failed: " + textStatus);
            return false;
        });
    }
}

```

Figure F. 2 Ajax validation

COMMON QUERY

```

$obj=new dbconnection(); // To create an object using dbconnection class
$con=$obj->connection(); // To call a function called connection
$GLOBALS['con']=$con; // To create a global variable any where it can be used

class query{

    function disRole(){

        $con=$GLOBALS['con'];
        $sql="SELECT * FROM role";
        $result=$con->query($sql);
        return $result;
    }

    function getTraningdetails()
    {
        $con=$GLOBALS['con'];
        $sql="SELECT * FROM training_details ";
        $result=$con->query($sql);
        return $result;
    }

    function viewCourse($course_id)
    {
        $con=$GLOBALS['con'];
        $sql="SELECT * FROM training_details WHERE course_id='$course_id'";
        $result=$con->query($sql);
        return $result;
    }

    function getEmployeedetails()
    {
        $con=$GLOBALS['con'];
        $sql="SELECT * FROM employee_deatail";
        $result=$con->query($sql);
        return $result;
    }
}

```

Figure F. 3 Common Query

COMMIT AND ROLLBACK

```

<?php

include '../common/dbconnection.php';

$obj = new dbconnection();
$con = $obj->connection();
$GLOBALS['con'] = $con;

class leave {

    function applyleave($user_id, $fullname, $division, $designation, $application_date, $category, $leavecommencedate, $days, $reason, $person) {

        $con = $GLOBALS['con'];

        $con->query("START TRANSACTION");

        $sql1 = "INSERT INTO leave_request VALUES"
            . " ('', '$application_date', '$user_id', '$fullname', '$division', '$designation', '$category', '$leavecommencedate', "
            . " '$days', '$reason', '$person', 'pending', 'pending', 'pending', '')";

        $sql2 = "INSERT INTO sms(sender_id,name,receiver_id,subject,body,date,status)
            VALUES
            ('$user_id','$fullname','$person','Leave acting request','You have a leave acting request from $fullname. "
            . "Go to Leaves section to respond.','$application_date','new')";

        if ($con->query($sql1) && $con->query($sql2)) {
            $con->query("COMMIT");
        } else {
            $con->query("ROLLBACK");
        }
    }
}

```

Figure F. 4 Commit & Roll back

LEAVE ACCEPTING AND REJECTING

```

function acceptActingRequests($request_id) {
    $con = $GLOBALS['con'];
    $sql = "UPDATE leave_request SET acting_approval='confirmed' WHERE request_id='$request_id'";
    $result = $con->query($sql);
    return $result;
}

function ignoreActingRequests($request_id, $sender_id, $sender, $receiver_id, $date) {
    $con = $GLOBALS['con'];
    $con->query("START TRANSACTION");

    $sql1 = "UPDATE leave_request SET acting_approval='rejected' WHERE request_id='$request_id'";

    $sql2 = "INSERT INTO sms(sender_id,name,receiver_id,subject,body,date,status)
            VALUES('$sender_id','$sender','$receiver_id','Leave Acting Request','Your Leave Acting request is ignored by $sender.', '$date','new')";
    if ($con->query($sql1) && $con->query($sql2)) {
        $con->query("COMMIT");
    } else {
        $con->query("ROLLBACK");
    }
}

```

Figure F. 5 Leave accepting & rejecting

MODEL

```

<?php
include '../common/dbconnection.php';
$obj=new dbconnection();
$con=$obj->connection();
$GLOBALS['con']=$con;
class training{

    function applyCourse($req_date,$user_id,$fullname,$designation,$division,$course_id)
    {
        $con=$GLOBALS['con'];
        $sql="INSERT INTO training_request VALUES('','$req_date','$user_id','$fullname','$designation','$division','$course_id','pending','pending')";
        $result=$con->query($sql);
        return $result;
    }

    function getTraningdetails()
    {
        $con=$GLOBALS['con'];
        $sql="SELECT * FROM training_details ";
        $result=$con->query($sql);
        return $result;
    }

    function getdetailsbyEmployeeid($user_id)
    {
        $con=$GLOBALS['con'];
        $sql="SELECT * FROM employee_deatail WHERE user_id=$user_id";
        $result=$con->query($sql);
        return $result;
    }
}

```

Figure F. 6 Model

CONTROLLER

```

<?php
include '../model/traningmodel.php';
$obj = new traning();
$action = $_REQUEST['action'];

switch ($action){
    case 'add_training':
        addtraining();
        break;
    case 'cancelRequest':
        cancelRequest();
        break;
    case 'cancelCourse':
        cancelcourse();
        break;
    case 'add_courses':
        addcourses();
        break;
    case 'edit_course':
        editCourse();
        break;
}

function addtraining(){

    $req_date = $_POST['applicationdate'];
    $user_id = $_POST['Empid'];
    $fullname = $_POST['fullname'];
    $designation = $_POST['Designation'];
    $division = $_POST['division'];
    $course_id = $_POST['coursename'];

    require_once '../model/traningmodel.php';
    $obj=new traning();
    $obj->applyCourse($req_date, $user_id, $fullname, $designation, $division, $course_id);
    header("Location:../view/viewrequest.php");
}

function cancelcourse() {
    $req_id = $_REQUEST['req_id'];
    require_once '../model/traningmodel.php';
    $obj = new traning();
    $r=$obj->deleteRequest($req_id);
    if ($r) {
        $msg = "req_id : " . $req_id . " has been deleted";
        $id = 1;
    } else {
        $msg = "req_id : " . $req_id . " has notbeen deleted";
        $id = 0;
    }
    $m = base64_encode($msg);
    header("Location:../view/viewcourses.php?msg='$m'&id='$id'");
}

function editCourse()
{
    $course_id=$_POST['course_id'];
    $coursename = $_POST['course_name'];
    $description = $_POST['description'];
    $commencingdate = $_POST['course_date'];
    $time = $_POST['time'];
    $duration = $_POST['duration'];
    $venue = $_POST['venue'];
    $seat = $_POST['seats'];

    require_once '../model/traningmodel.php';
    $obj = new traning();
    $obj->updateCourse($course_id,$coursename, $description, $commencingdate, $time, $duration, $venue, $seat);
}

```

Figure F. 7 Controller

CODING FOR PRINTING A DOCUMENT

```
function printDiv(divID) {
    var prtContent = document.getElementById(divID);
    var WinPrint = window.open('', '', 'left=0,top=0,width=800,height=600,toolbar=0,scrollbars=0,status=0');
    WinPrint.document.write(prtContent.innerHTML);
    WinPrint.document.close();
    WinPrint.focus();
    WinPrint.print();
    WinPrint.close();
}
</script>
```

Figure F. 8 Document Printing

CODING FOR EMAIL CONFIRMATION

```
$mail = new PHPMailer;
$mail->isSMTP();
$mail->SMTPAuth=true;

$mail->Host = 'smtp.gmail.com';
$mail->Username='chathurangaa9c@gmail.com';
$mail->Password='chathuranga@1988';
$mail->SMTPSecure='ssl';
$mail->Port=465;

$mail->From="";

$mail->FromName='HRMS';
$mail->addAddress($row['email'],$row['fullname']);

$mail->isHTML(true);

$mail->Subject='Confirmation of your user name and password';
$mail->Body= $html;
$mail->AltBody = $html;

if($mail->send()){
    $m="Yes";
}
else{
    $m=$mail->ErrorInfo;
}
echo $m;
?>
```

Figure F. 9 Email confirmation

APPENDIX-G CLIENT CERTIFICATE



November 06th 2017

The coordinator
Bachelor of Information technology,
University of Colombo School of Computing,
Colombo 07.

Dear Sir/ Madam

Letter of Certification

This is to certify that Mr. R.D. Amal Chathuranga (R110875) final year student of BIT has successfully developed a Human Resources Management System for Ocean Lanka (Pvt) Limited, Biyagama.

I strongly believe that system will help to manage and perform HR operation of Ocean Lanka effectively and Efficiently.

This letter is issued at the request of Mr. Amal Chathuranga.

I wish all the success in his future.

Thank you.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Ruwan Siri Mallikaarachchi".

Ruwan Siri Mallikaarachchi
Assistant HR Manager

OCEAN LANKA (PVT) LTD
Biyagama Export Processing Zone
Block-B, Walgama, Malwana, Sri Lanka.
Tel: 0094-11-4827100
Fax: 0094-11-4827131

OCEAN LANKA (PVT) LTD. BLOCK "B" BIYAGAMA EPZ, WALGAMA, MALWANA, SRI LANKA. TEL: 0094-11-4827100 (30 LINES) FAX: 0094-11-4827131-2

GLOSSARY

Rational unified process	-: An iterative software development process.
Database searching and retrieval.	-: Well-structured set of the data that has stored data for easy
Model-Controller-View	-: Software design architecture.
PHP	-: Client side scripting language.
Xampp platform.	-: A package of Apache, MySQL, PHP that was cross
My SQL	-: Database software.
JavaScript	-: Server side scripting language.
Web browser	-: A software that can use access internet
HRM	-: Human Recourse management.
Unified modeling language	-: A techniques that was used to draw a design diagram

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