# TITLE PAGE

Design and implementation of a computer based payroll system

BY

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U15/NAS/CSC/095**

**Being A B.Sc. Project Work Submitted In Partial Fulfillment Of The Requirements For Award Of Bachelor Degree In Computer Science Godfrey Okoye University.**

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**JULY 2018**

# CERTIFICATION

I hereby declare that the work presented herein was done by me and not by a third party. Should I be convicted of having cheated in this work, I shall accept the verdict of the university.

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# APPROVAL

This project is approved for submission

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(SUPERVISOR)

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DR (MRS) M. N. AGU DATE

(HEAD OF DEPARTMENT)

# DEDICATION

This project is dedicated to God Almighty, trusting in His ability to see this grow beyond just a project work to being improved and established; to every promising individual and organization that believe and work towards giving ourselves and others a better computer experience and also to computer science students in Godfrey Okoye University and beyond, trusting that this will serve as an educational resource and inspiration causing subsequent development and innovation.

# ACKNOWLEDGEMENTS

The preparation and eventual completion of this project work is as a result of direct/indirect input and support by various entities:

I, without a doubt acknowledge God Almighty for His wisdom, grace, provisions, enablement, mercies and the gift of life through the time of this work and to date; and not forgetting the immense contribution of NCF (New Covenant Family), NIFES GOU/IECE and every other institutions towards my academic and spiritual excellence and to others as well.

I also with deep regard and honor appreciate and acknowledge my dearly beloved family members, singling out my parents, Mr and Mrs John Onyia for thier support, love, care, inspiration and my Aunty Mrs Rose Ojeh for her support, love, care, inspiration, during my 6 months IT in Lagos. And also my cousin Angela Umeh for her support also. I can’t forget my brother and my sisters also. God bless you all.

I am profoundly grateful and appreciate my project supervisor,Mrs Njideka C. Ekene-Okafor, a renowned lecturer and course adviser in the Department of Computer Science/Maths, Godfrey Okoye University, for her patience, friendship, tolerance, support, guidance and suggestions for improvement/correction covering matters of style, manner and direction and also for making time available to supervise this project work in spite busy schedules and numerous engagements.

I acknowledge and highly esteem every student/staff in the Department of Computer Science/Maths of Godfrey Okoye University even the late Dr G. A. M. Ikekeonwu for their support and assistance while in school, Aptech Limited for tutorials and guidance as I learned basic networking and web scripting and also my level mates, brothers, sisters, acquaintances and non-departmental staff/students and everyone unmentioned for being and working at various capacities as I successfully pursued a degree in Computer Science in the university with erudition.

My appreciation goes out to Consumer vibe information technology (CVIT) Lagos, the organization I was attached to during my SIWES internship, where this started for their contributions and also to all others not mentioned who contributed in various ways whose works/products formed parts of my information source and data resources.

# ABSTRACT

This project work ‘Design and implementation of computer based payroll system’ is aimed at creating a computer based payroll system. payroll is a critical operation for every organization to pay employee accurately their salary and enrollments on time. The idea of taking control of employees pay calculations are quite tedious if done manually and require more effort and time mainly for big organizations. Hence if this process is automated, it would be of great benefit as it would require less time to calculate the salary of the employees. The software for payroll management system service on the cloud is provided as a solution in this paper. This system provides multiple user data access. Each user like employee or HR or admin can login into the software by writing username and password which are allocated to them from the company It involves keeping track of hours worked and is capable of keeping a record of employee data including their pay, allowances, deductions and taxes on monthly bases so that fresh definitions are reflected from the month onwards, which leaves all the past data intact. The proposed payroll system is advantageous as it provides a user friendly environment and also increases security and minimizes human calculation errors. Also, the aim is to automate its existing manual system by the help of computerized equipments and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. Basically the project describes how to manage for good performance and better services for the clients. The model driven development is adopted because the (MDD) methodology is suitable for the payroll management system. The design and functions of the computer based payroll system were implemented with Hyper-text Pre-processor (PHP), Cascading Style Sheet (CSS) and Hyper-text Mark-up Language (HTML). This study was carried out to first of all to eliminate a manual payroll system and bringing up a web based payroll system that allows a dedicated payroll software. A manual system can result in payroll errors and is usually a slow, laborious process. Web based systems offers a number of advantages, including increased accuracy and speed.

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**CHAPTER ONE:**

1.0 INTRODUCTION

**1.1 Background of the Study**

A payroll is a company's list or records of its employees, which is often used to refer to the total amount of money that a company pays to its employees.

The term Payroll refers to a series of accounting transactions involved in the process of paying employees for the services rendered after taking all the statutory and non-statutory deductions into account, in conformance with the terms of employment, company policy and the law of the land i.e., payment of payroll taxes, insurance premiums, employee benefits and other deductions. An efficient payroll system facilitates an error-free, accurate and timely employee payment while ensuring that the employment is well within the valid work permit

A payroll system is software which organizes and arranges all the tasks of employee payment and the filing of employee taxes. These tasks may include keeping tracking of hours, calculating wages, withholding taxes and deductions,

Net pay, Payroll software plays several roles for the user, the employees and the company, such as: giving you supper easy ways to manage employee calendar (e.g, deduction, and overtime), gives you latest tax updates you when by notifying you when the updates arrive, allows you to quickly and easily generate payslips for all your employees, serves as a reminder. Payroll also makes deductions from employees wages for taxes, wage garnishment, health and life insurance, spending accounts and retirement investments. Payroll works with your accounting department to ensure that wage deductions and other payroll expenses are paid and properly reported.

In an organization, there are several departments and each department has a payroll section to manage its payroll activities. Each section has to perform necessary personnel operations like data collection and preparation, entry, updates, monitoring and reporting of data. Many of these existing practices and procedures need to be reassessed at this time of changing needs, changing demands of employees and changing technologies So an organization needs an integrated web based payroll system that would integrate personnel and pay- roll related data collection, processing in individual departments and payroll audit in a more efficient and streamlined way. With this computer based payroll system, payroll section would be able to keep a record of employees including their personnel data, pay band, allowances, deductions, savings and taxes etc.. Net pay of each employee is calculated by using the information about his allowances and deductions. All these complex calculations have been incorporated herein. Many optional allowances and deductions for the employees are added by specifying the corresponding details. The individual pay slips and deduction vouchers are printed out as a receipt. Pay bands, grade pay, allowances, deductions and tax information are updated if there is an amendment in salary structure.

A payroll is a list of the employees and the payments due to each employee for a specific pay period. A pay period is the amount of time over which an employee is paid. Most businesses use weekly, biweekly (every two weeks), semimonthly (twice a month), or monthly pay periods.

The payroll is a major expense for most companies. To ensure accurate records, most business set up a payroll system for recording and reporting employee earning information.

Payroll is an application that lends itself well to the computer because of its repetitive procedures and calculation. A Web based payroll system can perform the same basic function as those performed manually by payroll clerk. The important differences are the computer’s speed, accuracy, reliability, and ability to easily generate reports. In a web based payroll system, the computer stores data such as an employee’s name, address, social security number, marital status, number of withholding allowances, pay rate and voluntary deductions. At the end of each pay period, the operator enters all payroll transaction data, such as regular and overtime hours for each employee and deduction into the computer. The computer calculates all withholding taxes and other deductions and accumulates and updates the earnings and withholdings.

Payroll System is a flexible compensation administration solution. It is designed to help human resource professionals as well as finance and accounting personnel to manage employee compensation, deductions, allowances, and benefits in an organization. The system is integrated with the Employee Information System, offers efficient features and functionality to manage company's expenses.

**1.2 Statement of Problem**

1. Calculating salaries through manual operation is burdensome and stressful.

2. Difficulty in handling personnel records and inaccessibility of information when needed

3. Overpayment/Underpayment of salaries

4. Delay in payment of staff salaries because too much time is spent in preparation of the payroll.

5. The use of paper to keep pay details about each employee which results in too much paper work.

6. There is less security in the manual system

**1.3. Objective of Study**

The objectives of this study is to design a computer based payroll system for an organization.

Implementation of a computer based system for calculating basic salary and allowance of staff.

Implementation of a computer based payment platform.

Implementation a system that accurately stores employee data and retrieves payment history when needed.

Implementation of a computer based payroll system that can calculate transactions easily and summarize all the deducted contribution of the employee and net pay

**1.4  Significance of the study**

The purpose of this study is to have a better service for the employee and less error for their payroll system.

The study will aid in reducing errors, fraud, increase speed and also aid growth in organizations if successfully implemented. Manual payroll systems in organizations will be totally eliminated with this Web based system in place.

**CHAPTER TWO:**

LITERATURE REVIEW

**2.0 Introduction**

This chapter summarizes the evaluation of the literature relevant to the web based payroll system. The purpose of this project web based payroll system is to eradicate the manual payroll system and bring up the web based payroll for employee record accuracy and easy calculating of basic salary and allowance of staff. This tends to change the manual system totally.

**2.1 Theoretical Background**

This project was built with web technologies which are HTML, CSS, PHP, and wamp server, where relational database was integrated (MySQL and (PhpMyAdmin) having Apache as the engine controller.

Every html tag in the web document has a function it does on the web browser,

For example:

<html>

<head>

<title>Computer based payroll system</title>

</head>

<body bg color =”blue”>

<h2 align=“center” > Computer based payroll system<br>

/><br/>by<br/><br/>Onyia Solomon chiedozie</h2>

</body>

</html>

This will display a title web based payroll system at the top of the web page and the main page; Computer based payroll system by Onyia Solomon chiedozie, A form was designed to collect the data from user which involves: employee no, surname, first name, middle name, etc which when entered and submitted with the submit button that sends the data to a browser, and into the relational database to hold the data.

HTML is the major tag, which forms the visual website that is used to create forms and specify a location onto which a particular portion is mapped inside a web page

Example

<div class="container">

<section id="content">

<form action="" method="post">

<h1>Login Form</h1>

<div>

<input name=username type="text" placeholder="Enter Username" required>

<!-- <input type="text" placeholder="Username" required="" id="username" /> -->

</div>

<div>

<input name=password type="password" placeholder="Enter Password" required>

<!-- <input type="password" placeholder="Password" required="" id="password" /> -->

</div>

<div>

<input type="submit" value="Log in" />

<!-- <a href="index.php">Back to Home</a> -->

<!-- <a href="">Forgot password?</a> -->

</div>

</form><!-- form -->

</section><!-- content -->

</div><!-- container -->

The html and php complete login codes

<!DOCTYPE html>

<html>

<head>

<meta charset="utf-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<title></title>

<script>

<!--

var ScrollMsg= "Computer based Payroll Management System - "

var CharacterPosition=0;

function StartScrolling() {

document.title=ScrollMsg.substring(CharacterPosition,ScrollMsg.length)+

ScrollMsg.substring(0, CharacterPosition);

CharacterPosition++;

if(CharacterPosition > ScrollMsg.length) CharacterPosition=0;

window.setTimeout("StartScrolling()",150); }

StartScrolling();

// -->

</script>

<link href="assets/must.png" rel="shortcut icon">

<link rel="stylesheet" href="assets/css/login.css">

</head>

<body class="hold-transition login-page">

<?php

require('db.php');

session\_start();

// If form submitted, insert values into the database.

if (isset($\_POST['username']))

{

$username = $\_POST['username'];

$password = $\_POST['password'];

$username = stripslashes($username);

$username = mysqli\_real\_escape\_string($username);

$password = stripslashes($password);

$password = mysqli\_real\_escape\_string($password);

//Checking is user existing in the database or not

$query = "SELECT \* FROM `user` WHERE username='$username' and password='$password'";

$result = mysqli\_query($query) or die(mysqli\_error());

$rows = mysqli\_num\_rows($result);

if($rows==1)

{

$\_SESSION['username'] = $username;

header("Location: index.php");

}

else

{

?>

<script>

alert('Invalid Keyword, please try again.');

window.location.href='login.php';

</script>

<?php

}

}

else

{

?>

<br><br><br><br><br><br><br><br>

<div class="container">

<section id="content">

<form action="" method="post">

<h1>Login Form</h1>

<div>

<input name=username type="text" placeholder="Enter Username" required>

<!-- <input type="text" placeholder="Username" required="" id="username" /> -->

</div>

<div>

<input name=password type="password" placeholder="Enter Password" required>

<!-- <input type="password" placeholder="Password" required="" id="password" /> -->

</div

<div>

<input type="submit" value="Log in" />

<!-- <a href="index.php">Back to Home</a> -->

<!-- <a href="">Forgot password?</a> -->

</div>

</form><!-- form -->

</section><!-- content -->

</div><!-- container -->

<?php } ?>

</body>

</html>

The HTML tag above when previewed on the browser appears on the screen as follows

Username

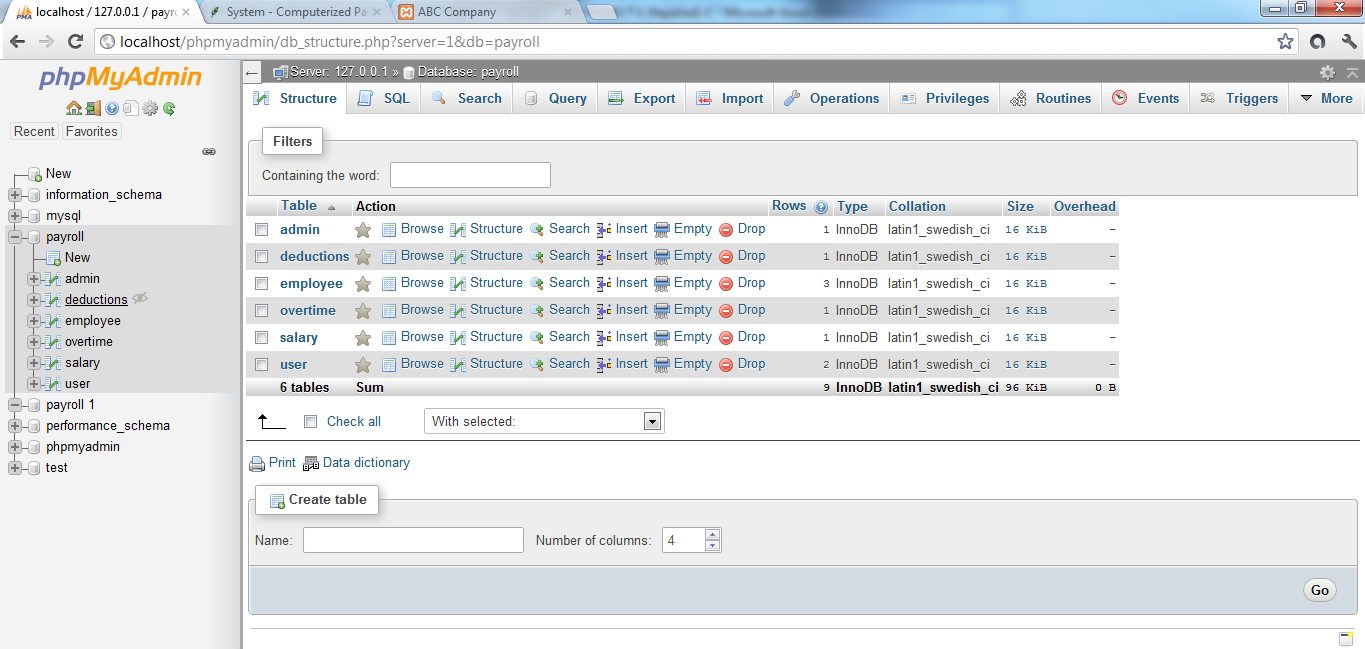
Password

Submit

The division (Div) positions and held every site layout. Cascading style

Sheets 3 (CSS3) is a style sheet language used for describing the look and formatting of a document written in a markup language.

PHP is a server side scripting language created in 1995 and designed for web development, but also used as a general purpose programming language. PHP code were used to send the collected data from the user to MySQL relational database. PHP runs on numerous varying platforms including Windows, Linux, Unix, Mac OS X, and so on. PHP is compatible with almost any modern server. Such as apache, IIS. And more PHP supports a wide range of database.



**Fig. 1 phpMyAdmin**

**2.3 Review of Related Literature**

The importance of this review is to make known of some other research made in relevance to the project topic. Many researchers have made some findings on how this problem can be solved and achieve the objective of the topic. Nowadays, many payroll system implemented in different companies here in the Nigeria because payroll system is one of the most important in establishing a business firms on how you provide the right and appropriate benefits for the employees in the company. Business firms must operate within the boundaries of laws and government regulations, Laws have been developed not only to protect consumers but also to promote competition among business and industries. Over Half a century on, it’s fair to say that payroll is now one of the most commonly automated business operations; and certainly the most frequently the most used HR Solution that maintaining payroll record is one of the most important financial tasks in any business.

According to the researcher (Aguilera, Bronzas, and Marqueses) of automated payroll system of Panama Medical Center (2010). A great payroll is really one of the most important issues to pay attention in almost every company. It is impossible to handle payroll responsibilities with a pen, ledger sheet and calculator, but nowadays it is more convenient for most companies to use computerized payroll software. The school is also not exempted in using a payroll system namely the study of payroll system for the teachers and staff. Payroll system is needed in order to have an accurate and error free in their payroll process and services.

 Researchers (Alvarez, Aldrine, Gecolea ) of Krizalen enterprises (2014) uses a biometrics with online data analytics dashboard to give krizalen enterprises an efficient payroll system that can automatically monitor the attendance and trip tickets of the employees, drivers and helpers with the biometrics technology and data analytics that would help them in the security and accuracy of the company payroll and information. Summing up the past situation of payroll inside krizalen enterprises, there was need for a system that could help them with employee information management attendance, monitoring, payroll processes, and assistance for the manager decision making. With this idea, the proponents conducted a study for the development of software that can minimize data redundancy, inconsistency, and manipulation. Employees can view their current pay and review their information from the database. And with updating of the reports that can be viewed through the internet, the manager can view the recent activities within the proposed system.

According to the researcher of Nyanmaru Computerized Payroll System (2013) Nowadays all establishment are becoming modernized, they use modern technologies to make their transaction fast, easy, and accurate in order to avoid waste of time and for the sake of safety and security. It also helps human to solve and understand complex problem and analysis such us the computational need of humans. Especially to business establishment or corporation processing enormous data and complex transaction. Payroll is an example of a complex transaction because it is a critical business operation dealing with numerous accounts and produce plenty and confidential files. Payroll is encompasses every employee of a company who receives a regular wages or other compensation due to each.  Applying manual procedure on a Payroll transaction involving the vast be at answer in that problem would be computer because computers can simulate enormous data and can process complex transaction in a fast and efficient way.

It can generate numerous accounts and data accurately. A Computerized Payroll System will not only provide accurate calculation and fast process of Payroll transaction but it will secure data through security.

Other studies that used a different programming language like Aishwarya Gupta in (2013) AMITY University UTTAR Pradesh that develop a system entitled with employee payroll system  According to the researcher Employee Payroll system is an application that enables users to create and store Employee Records. This application also provides a facility which enables an administrator or an employee to generate a Pay slip. This application is helpful to the organization as it maintains data of employees related to that organization. PHP is used to create this application as it is a platform independent language and can be used on a standalone machine as well as on a distributed network. Furthermore applications developed in php can be extended to Internet based applications. Thus php was chosen to do the front end task to design this application.

It can be easily handled by the person who has basic knowledge of computer because it provides a user friendly environment, its hardware and software configuration is not very expensive.

Based on the research study entitled computerized payroll system of Department of Health (DOH) (2007) explains that a computerized payroll system is a window based program which is specially designed to facilitate and simplify the monthly preparation of general payroll and related reports. Also that is must be flexible to provide option which allows the user to hold additional fields for other compensations and deduction which was unique to an office the company.

Based on the undergraduate study made on Cagayan De Oro City Hall entitled "Cagayan De Oro City Hall Computerized Payroll System" stated that is important that the system must be easily accessible, fast-tracked and secure.

According to the book "System Documentation" (2010), states that “a computerized payroll system must have the ability to update and maintain employee information and to generate required outputs including pay checks, reports to management and to the government.”

According to a blogged article in blastasia.com (2007), says that “a web based payroll system is designed to help human resource professional as well as finance and accounting personnel to manage employee compensation, deductions, allowances, and benefits in an organization.

Also related study of Amrit Kadam ( Aug 13, 2014) are include the study entitled College Payroll System & Taxation the purpose of this study is to aim of developing Employee Payroll Management is to provide an easy way not only to automate all functionalities involved managing leaves and Payroll for the employees of College, but also to provide full functional reports to management of College with the details about usage of leave facility & even deduction of income tax & related taxes can be done by this system. Payroll system is the heart of any Human Resource System of an organization. The solution has to take care of the calculation of salary as per rules of the College, income tax calculation and various deductions to be done from the salary including statutory deductions like Income tax and provident fund deductions. It has to generate pay-slip, cheque summary and MIS reports. It is understood that we are tired of managing thousand of odd papers, payslips, payroll reports, and salary details and so on. Imagine that we have a payroll processing system which will generate our pay slips and payroll reports within seconds. We can help others automated your payroll system by developing a customized payroll application that suits your specific requirements.

According to Enterprise IQ ERP's Payroll Processing software module is a comprehensive payroll processing system for USA and Canadian payroll requirements. Whether running a single or a multi-site, multi-state operation with multiple user-defined deductions, the **Enterprise IQ Payroll Software** module can meet your processing and reporting needs.

Automatic import of employee hours with the optional [Time & Attendance](http://www.iqms.com/products/erp/human_resources/time_attendance.html) module or other third party time clock systems.

Supports an unlimited number of employees, user defined pay groups, pay types, deductions and benefits.

Report payroll taxes for multiple federal tax IDs Regular federal, state, and EIC tax table updates.

Additional user defined tax tables to meet additional unique tax requirements  
 Multiple state/province capable

Generates 941 and W2 tax forms

Timecard and payroll review to edit and confirm payroll information prior to printing checks or posting payroll

Flexible direct deposit and electronic bank transactions allow multiple payment options and export file generation. Links with the Enterprise IQ Workforce modules to help maintain and track accruals such as vacation, paid holidays and sick days.

 Extensive built-in payroll reports help track wage, benefit and tax history  
 Enhanced security allows access rights to be granted to specific pay groups  
Supports customization to meet your unique payroll requirements.

According to Trend static Corporation, Payroll is a critical responsibility for the human resource department because it involves all the financial matters that deal with the company’s employees including salary, benefits and deductions. Some companies endure this work and choose to have an internal payroll department just to make sure they adhere financially to their employees while precisely maintaining compliance with government regulations. Payroll processing needs a lot of work so many firms find so much value on outsourcing payroll in order to save time, money and man power.

According to the researcher of Nyanmaru Computerized Payroll System (2013) Nowadays all establishment are becoming modernized, they use modern technologies to make their transaction fast, easy, and accurate in order to avoid waste of time and for the sake of safety and security. It also helps human to solve and understand complex problem and analysis such us the computational need of humans. Especially to business establishment or corporation processing enormous data and complex transaction. Payroll is an example of a complex transaction because it is a critical business operation dealing with numerous accounts and produce plenty and confidential files. Payroll is encompasses every employee of a company who receives a regular wages or other compensation due to each. Applying manual procedure on a Payroll transaction involving the vast beat answer in that problem would be computer because computers can simulate enormous data and can process complex transaction in a fast and efficient way it can generate numerous accounts and data accurately. A we based Payroll System will not only provide accurate calculation and fast process of Payroll transaction but it will secure data through security.

According to Thomas Primer on his article “Automated Computerize Process”, in Readers Diges Magazine, May 2005, Page 45,for many businesses automating the collecting of employee attendance data when employees begin their shifts is still a manual process. Even business that has automated or computerized processes such as scheduling, inventory, purchasing, general ledger and payroll processing still use manual method such as time cards sheets to collect time and attendance data.

**CHAPTER THREE:**

**SYSTEM ANALYSIS AND DESIGN**

**3.0 Introduction**

In this chapter, the analysis and choice of method used in this research work, will be analyzed from the existing system and design. It includes specific methods Which were used in order to achieve the aim of the research work, particular requirements for implementation of the project and clear explanation of reasons why such method were used for design and implementation of the system, also included is a brief description of the current system of computer based payroll system.

**METHODOLOGY**

According to Bennett (2002) defined methodology as a set of general principles that guide a practitioner or manager to the choice of the particular method suited to a specific task or project”. Whitten (2001) maintained that a system development methodology is a very formal and precise system development process that defines a set of activities, method, best practices, deliverables and automated tools for system developers and project managers used in developing and maintaining most or all information systems and software” There are different kinds of system development methodology such as build and fixed model, spiral model, waterfall, object oriented, top-down, bottom-up, stepwise refinement etc. In view of this build and fixed model is the one of the worst model for project development because the project is built without specification and lacks design steps. Spiral model is one of the software development processes which combine the design and prototyping in stages, together to gain the advantage of top down and bottom-up approaches (Barry, 1986). Rapid prototyping determines and identify the design flaws and obtaining feedback during process (Frederick, 1975). Waterfall model: This is a software development process which follows a sequential approach. This approach steadily flows downwards like a waterfall which includes the phase of conception, initiation, analysis and design (Winston 1970). But for this project work, The model driven development (MDD) is adopted because the MDD methodology is suitable for the payroll management system. The Model Driven Development (MDD) methodology consists of seven phases like investigation phase, analysis of problem, requirement phase, decision analysis, Designs, Construction phase and implementation phase. The MDD methodology plays an important role in the success of the payroll project.

The MDD methodology approach emphasizes the drawing of models in order to

1. Visualize and analyze problems of payroll management system
2. Define requirements of the organization
3. Design the information system for the organization

**3.1 Description of the Existing System**

Payroll is financial record of employee’s basic salary, allowances, deductions and net pay. In existing payroll all the calculations are done by clipper based system. It is not fully computer based system. The main disadvantages of this system is that majority of work is done by hand. The whole procedure involving delivery of an employees pay is very tedious, time consuming and frequent verification is required so as to avoid the risk of human error. The manual payroll system is an inexpensive method of performing the payroll process. Manual payroll means that you, or another employee within your company, calculate the payroll each pay period entirely on paper.

Manual payroll calculation

**Problems in the Existing system:-**

**1. High risk of data loss or corruption**

There is inadequate security, especially for your most private information, if you process your employees’ payroll on a spreadsheet could easily result in data loss or corruption

**2. Disorganised payroll processing**

The use of spreadsheets to process payroll will result in the quick accumulation of multiple sheets and files as you need different documents for employee information, payroll, leave, claims and other data. In contrast, an automated payroll system will store all your records in one place and the different processes can be seamlessly integrated with one another, saving time and effort.

**3.Tendency of errors**

Manual payroll processing is an error prone activity. A single erroneous entry could result in a completely inaccurate record and finding the source of the error would be a time consuming and complex process. If the error cannot be found, data would have to be recalculated, wasting more time that could have been used to focus on more strategic tasks otherwise.

**4. Issues with authorisation can cause payment delays.**

**I**n payroll there are always approvals built in to the process as audit/compliance measures, but as the payroll deadline approaches, getting the required approvals in time can prove challenging.

When approvals aren’t granted in time, payments end up being delayed, causing significant rework with out of cycle payments and creating frustrations among employees.

A big benefit of a modern cloud based system is its ability to redirect workflow, put auto escalations in place and enable approvers to log in remotely to approve.

**5. It’s costing you more time and money overall.**

It’s a simple fact that manual payroll processes suck up time and are rife with inefficiencies.

Switching to the cloud significantly reduces the time your payroll team is spending on unnecessary admin and data entry, freeing them up to perform other business functions, while switching from paper to digital payslip distribution reduces waste and provides further savings.

A self-service model in which staff can access their payslips, update their details and apply for leave remotely and without the need for a paper trail reduces the admin burden even further - all of which should have a positive effect on your bottom line.

**6. There’s a potential transfer of knowledge issue.**

Manual payroll functions are typically owned and understood by one or just a handful of people.

If those individuals leave the business, this information must be effectively transferred to their successors. In an ideal world, this transition would happen seamlessly.

But newsflash: we don’t live in an ideal world. The reality is that things get missed, forgotten, overlooked - and by the time they’re discovered, the damage has already been done.

**7. There’s an increased security risk.**

While there are some who believe that storing highly sensitive data remotely is a security risk, the truth is that your data is far more vulnerable and open to misuse in a manual system.

Modern cloud payroll systems offer the highest security standards available, which means your data is stored on secure servers while still giving you the added convenience of remote access and all the benefits that brings - such as online and smart phone time sheeting, approvals and payslip access.

**8. Out-of-date tax rates**

When you run payroll yourself, you have to make sure you use updated tax rates. It’s easy to use out-of-date rates. Taxes are constantly being changed.

If you do run payroll by hand, you need to check constantly for tax rate updates. Missing one update will cause you to withhold and remit the wrong amounts. Using incorrect employment tax rates can result in penalties.

**3.2 Analysis of the proposed System**

The proposed system is expected to overcome most deficiencies encountered in the present system with the following advantages

In an organization, there are many departments and each department has a payroll section to manage its payroll activities. Each section has to perform necessary operations like data collection and preparation, entry, updates, monitoring and reporting of data. Many of these existing practices and procedures need to be reassessed at this time of changing needs, changing demands of employees and changing technologies. With this payroll system, payroll section would be able to keep a record of employees including their personnel data, pay slips, allowances, deductions, leave, savings and taxes etc.. Net pay of each employee is calculated by his allowances and deductions mentioned according to the company rules. The individual pay slips are printed out as a receipt if employee wants to get a print out Pay bands, grade pay, allowances , deductions and tax information are updated if there is any amendment in salary structure. The computer based payroll application is a web based design.

Web based payroll system enables you to store unlimited data while managing the data as well. Accounting software processes data and creates reports much faster than manual systems. Web based payroll Minimum errors as automatic or computerized calculations are done. Expenses associated with accounting software include training and program maintenance. Expenses can add up fast with costs for printers, paper, ink and other supplies Productivity is higher than manual payroll as employees get their salary early as calculations are done on regular basis. No paper work is required as data is stored in the database. So, it is less bulky. It is more efficient than the manual payroll. A manual payroll means that you will be required to hire a team of professionals who will do every accounting and payroll task by hand, a web based one will be operating automatically to keep track of employee performance, attendance, and bonus data. With a payroll system. All your puches and swipes can be directly stored on the system. It can even separate regular work hours from overtime, calculate different numerations, and deduct taxes. This leaves no room for error, which can’t be said the same for manual payroll system, which is prone to miscalculations and mistakes. From basic documentation of each employee’s performance, attendance, pay, to monthly deductions, these systems save lots of time and money. A web based payroll system can even generate annual/quarterly wage reports, tax, deduction reports, payroll reports, direct deposit options, and paychecks processing. Payroll systems even make it easier to organize essential payroll information. All of your records can be accessed and organized easily and you don’t have to deal with the piles of folders and papers to find what you are looking for. One of the best things about using payroll systems is that there is no need for business to buy expensive hardware. This can prove to be of great use for small organizations that want to grow and take advantage of the same features large enterprises use.

Cost- The cost of a web based payroll depends on your organization and the type of software you need. For many organizations, the payroll software may be integrated with other business applications that also handle management and accounting functions. Smaller businesses can invest in off-the-shelf, low-end software designed only for a few functions, such as payroll, invoicing and financial reporting. Mid-market software typically serves organizations that must comply with national accounting standards. High-end payroll software may be part of a larger enterprise resource planning software package that can be tailored to the needs of the particular company.

**BENEFITS OF COMPUTERIZED PAYROLL SYSTEM**

**Time-keeping Transportation**

Hourly workers are paid according to hours worked during the pay period. The employer uses a time-keeping system to track hours and pay hourly employees accordingly. It is critical, therefore, that each employee’s time is computed accurately. Many employers use a time clock to track work hours. A manual payroll system requires computing the time clock data by hand; this increases the likelihood of mistakes.

The automated time-keeping system allows the employer to import time clock data into payroll software. Specifically, the employee uses a swipe card or badge, or the handprint or fingerprint method, to clock in and out. Once the entries are transported into the payroll software, the software computes the time worked. All the payroll staff member has to do is ensure the time is transported appropriately and make the necessary edits.

**Payment Calculation**

The computer based payroll system uses payroll software to compute all wages. Payroll software, such as QuickBooks, PenSoft, Z-Pay, Ultipro and Sage Peachtree calculate gross-to-net earnings based on the data the payroll representative inputs. Therefore, the result depends on the accuracy of the input. Thus, if a terminated employee is due severance pay but the payroll representative neglects to make the entry, the system will not pay it. Typically, the system is reliable so long as the entries are correct.

The automated system performs all types of payments: hourly, overtime, double-time, salaries, commissions, bonuses, pay raises, retroactive pay, wage deductions, auto payments and tuition reimbursements. Notably, the automated system eliminates manual pay check writing. The system automatically generates pay checks and stubs and enables direct deposit.

**Deduction Calculation**

Salary and wage deductions are a necessary part of payroll processing. The employer must take mandatory withholding from employee pay checks, including federal income tax, Social Security tax, Medicare tax and usually state income tax. These taxes can be time-consuming and perplexing to compute manually. A number of rules are attached to withholding tax calculations. With an automated payroll system, the software has the tax rates hard-coded in the system. It calculates the withholding tax for each employee based on the withholding conditions data input. This reduces the likelihood of payroll tax errors, which can result in fees from the IRS and the state taxation agency.

**3.2.1 Use case diagram of the proposed system**

The use case diagram of the proposed system shows all the actors that must play in their respective roles in order for the proposed system to function according to its standard design specification. A user case is an activity, operation or function which an actor of the proposed computer based payroll system will have to perform within its designated class and sub system. The major actors of the system include the employee and Admin.

Maintain employee

details

Administrator

Maintain salary

details

Report generation

View salary details

Employee View employee

Details

Fig. 3.0: Use case diagram of the system

**3.2.2 THE ACTIVITY DIAGRAM OF THE PROPOSED SYSTEM**

The activity diagram in (fig 3 and 3.1) shows the representation of the activities in employee’s end and administrator’s end. The activity diagram used geometric symbols and arrows to represent the implementation of the Computer based payroll system.

**3.2 Activity diagram of employee**

Employee

login

Employee verification

Supposed user?

No

Yes

Change password

View employee detail

Update profile

Employee

Profile page

Logout

**Fig. 3.1**: **Activity diagram of employee**

**3.3 Activity diagram of admin**

Start

Login

Invalid

Valid

Generate Payroll and salary detail

Prepare Voucher and

Pay employee

Register New

Employee

Gathering employee data

Log out

**Fig. 3.2: Activity diagram of admin**

**3.4 Sequence diagram of system for admin**

This is the login sequence diagram of the computer based payroll system, where admin will be able to login in their account using their credentials, after login user can manage all the operations on employee, payroll, salary, payments. All the pages such as salary, appraisals, payments are secure and user can access these page after login. The diagram below helps demonstrate how the page works in a computer based payroll system. The various objects in the appraisals, employee, payroll, salary and payment page interact over the course of the sequence, and user will not be able to access this page without verifying their identity.

Authenticate page

Database

Verification

Forget password

Login page

Admin

Check Authenticity for access

Login to page Forgot password

Check login details provide Authorization for access

Valid login details

Create session

Send email to user to reset password in and store

In database

Invalid log in detail

Allow user access the pages

Logout from application

Login Destroy session

successfully From database

**Fig. 3.3: Sequence diagram of system for admin**

**3.5 UML sequence diagram of the computer based payroll**

**system**

This is the UML sequence diagram of the proposed system, which shows the interaction between the objects of payroll, salary, employee, and payments.

Payroll management

Login success

Employee management

Salary management

Admin Add/Edit Add/Edit Add/Edit

Payroll Salary Employee

Login to page Save/Update Save/update

Salary Employee

Save/update

payroll

Manage payroll

List/Delete List/delete

Salary Employee

Manage salary details

Manage employee

Details

**Fig. 3.4: UML sequence diagram of the Computer based payroll**

**system**

**3.3 Design of the proposed system**

* + 1. **Database Design**

**Data specification**

The database is designed with Mysql. The following are the tables in the database.

Table 3.2: Deductions Table

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **FIELD NAME** | **DATA TYPE** | **FIELD LENGTH** |
| 1 | Deduction\_id | Int | 5 |
| 2 | Philhealth | Int | 20 |
| 3 | Bir | Int | 20 |
| 4 | Gsis | Int | 20 |
| 5 | Pag\_ibig | Int | 20 |
| 6 | Loans | Int | 20 |

**Table 3.3: Employee Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **FIELD NAME** | **DATA TYPE** | **FIELD LENGTH** |
| 1 | Emp\_id | Int | 10 |
| 2 | Lname | Varchar | 20 |
| 3 | Fname | Varchar | 20 |
| 4 | Gender | Varchar | 6 |
| 5 | Emp\_type | Varchar | 20 |
| 6 | Division | Varchar | 30 |
| 7 | Deduction | Int | 10 |
| 8 | Overtime | Int | 10 |
| 9 | Bonus | Int | 10 |

**Table 3.4: overtime Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **FIELD NAME** | **DATA TYPE** | **FIELD LENGTH** |
| 1 | Ot\_id | Int | 10 |
| 2 | Rate | Int | 10 |
| 3 | None | Int | 2 |

**Table 3.5: Salary Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **FIELD NAME** | **DATA TYPE** | **FIELD LENGTH** |
| 1 | Salary\_id | Int | 10 |
| 2 | Salary\_rate | Int | 10 |
| 3 | None | Int | 10 |

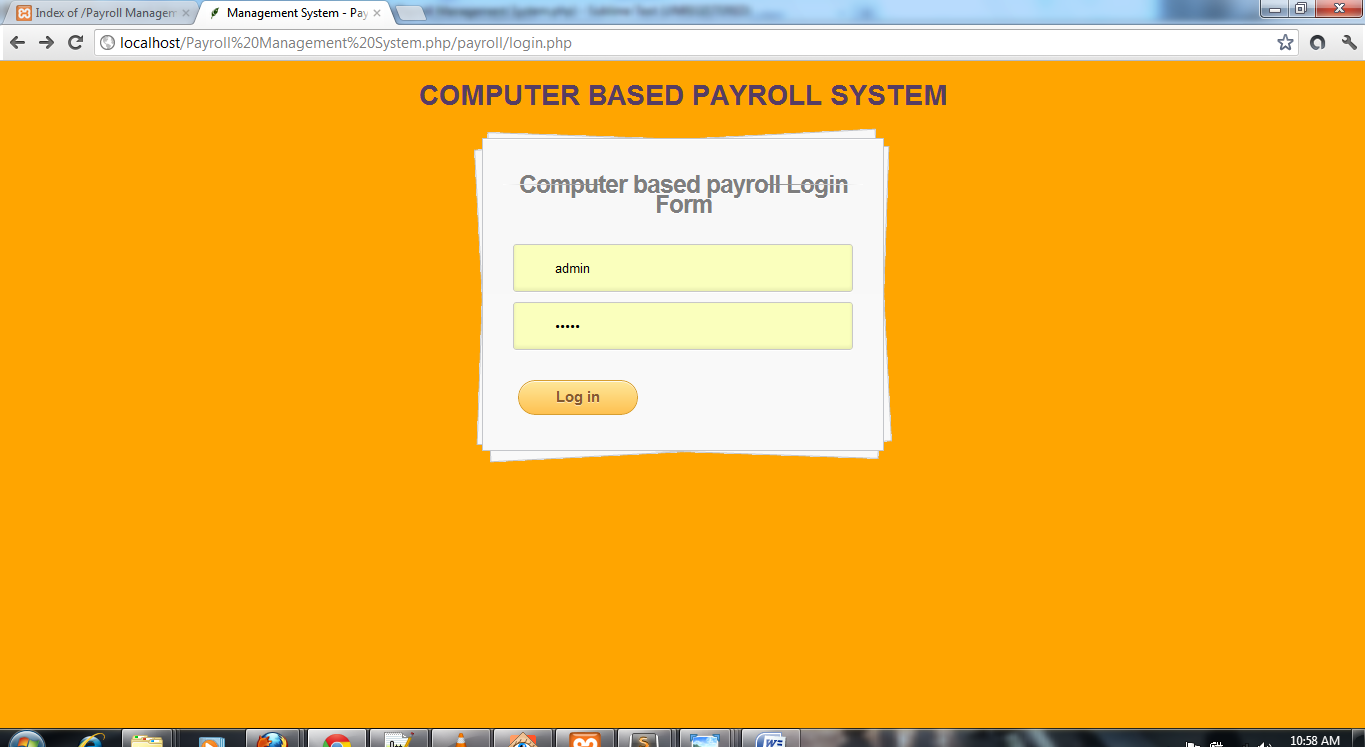
**Table 3.6: User Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **FIELD NAME** | **DATA TYPE** | **FIELD LENGTH** |
| 1 | Id | Int | 5 |
| 2 | Username | Varchar | 10 |
| 3 | Password | Varchar | 10 |

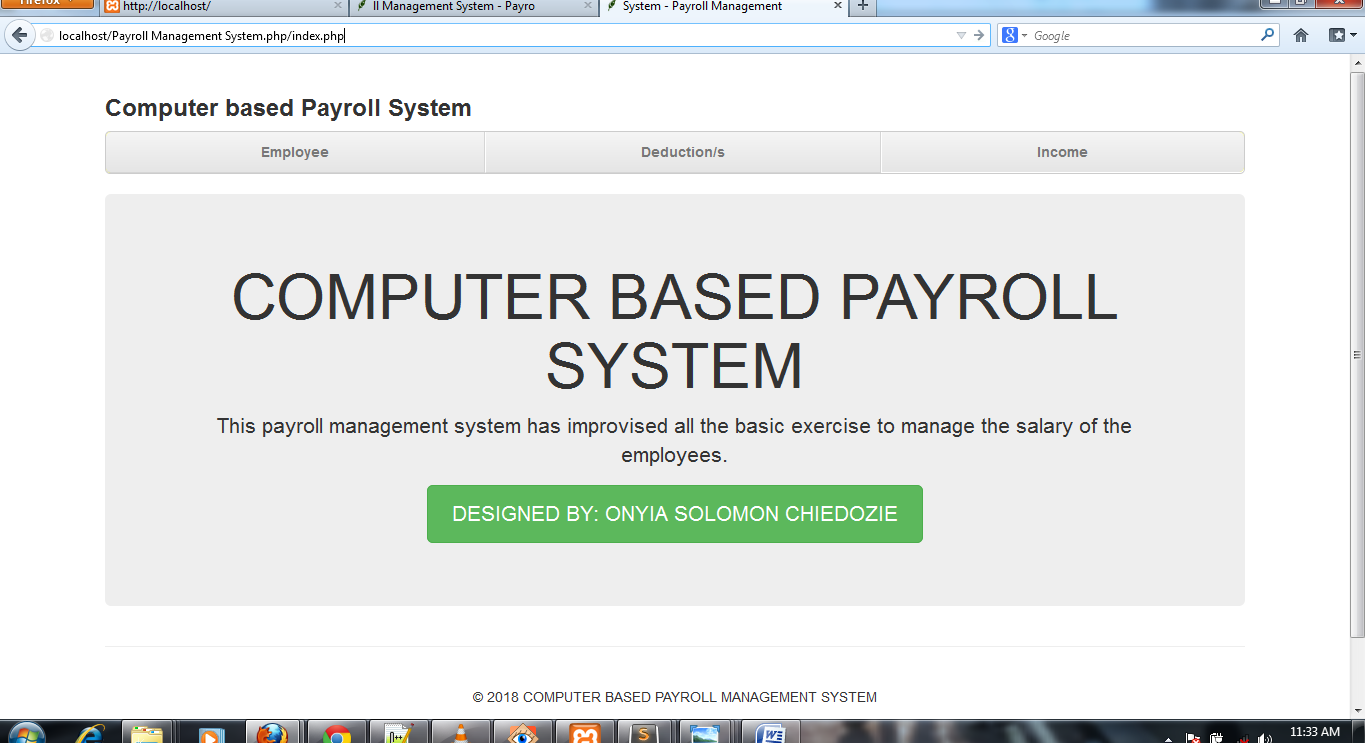
**3.4 System Software Architecture**

A system architecture is the conceptual model that defines the behavior, of a system it presents a synthetic view including: the resolution of ambiguity to identify system goals and boundaries; the creative process of mapping form to function; and the analysis of complexity and methods of decomposition and re-integration. System architecture helps in setting of conventions, rules and standards employed in a computer system’s technical framework.

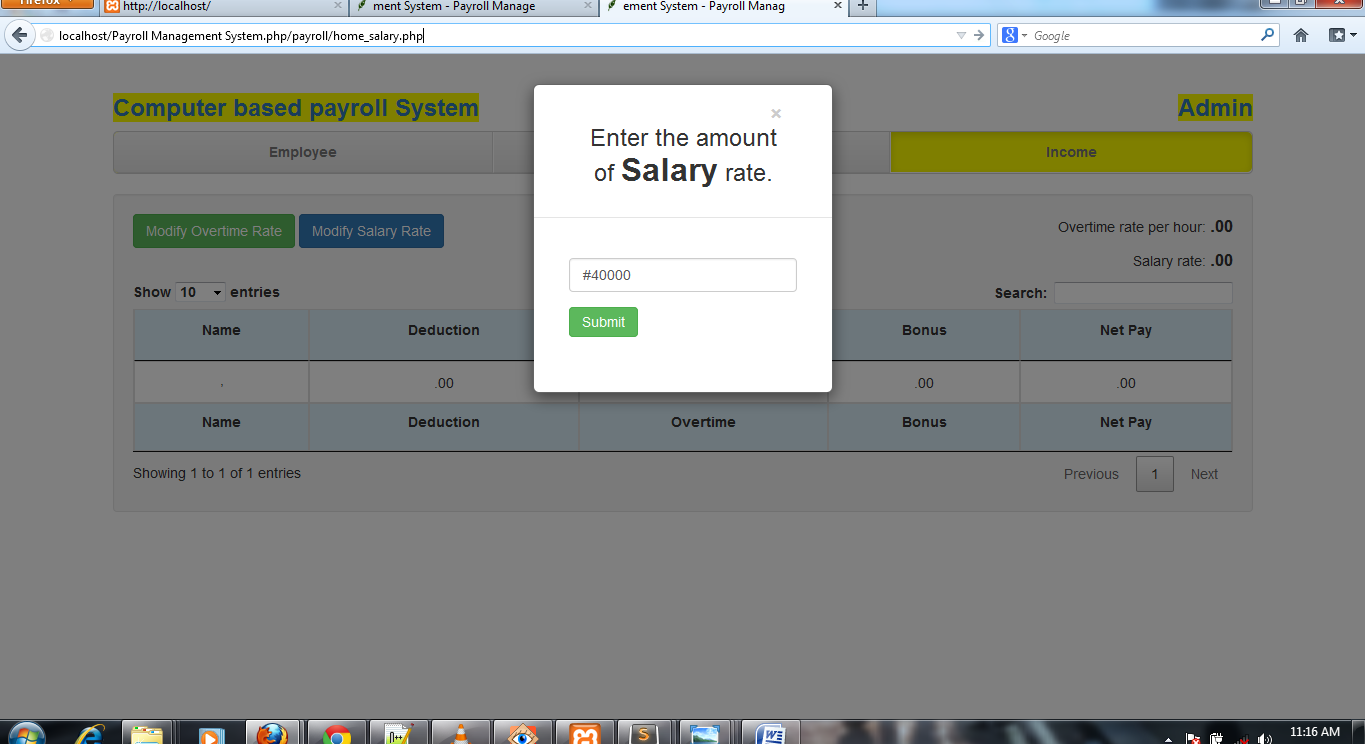
**3.3 Input design**

****

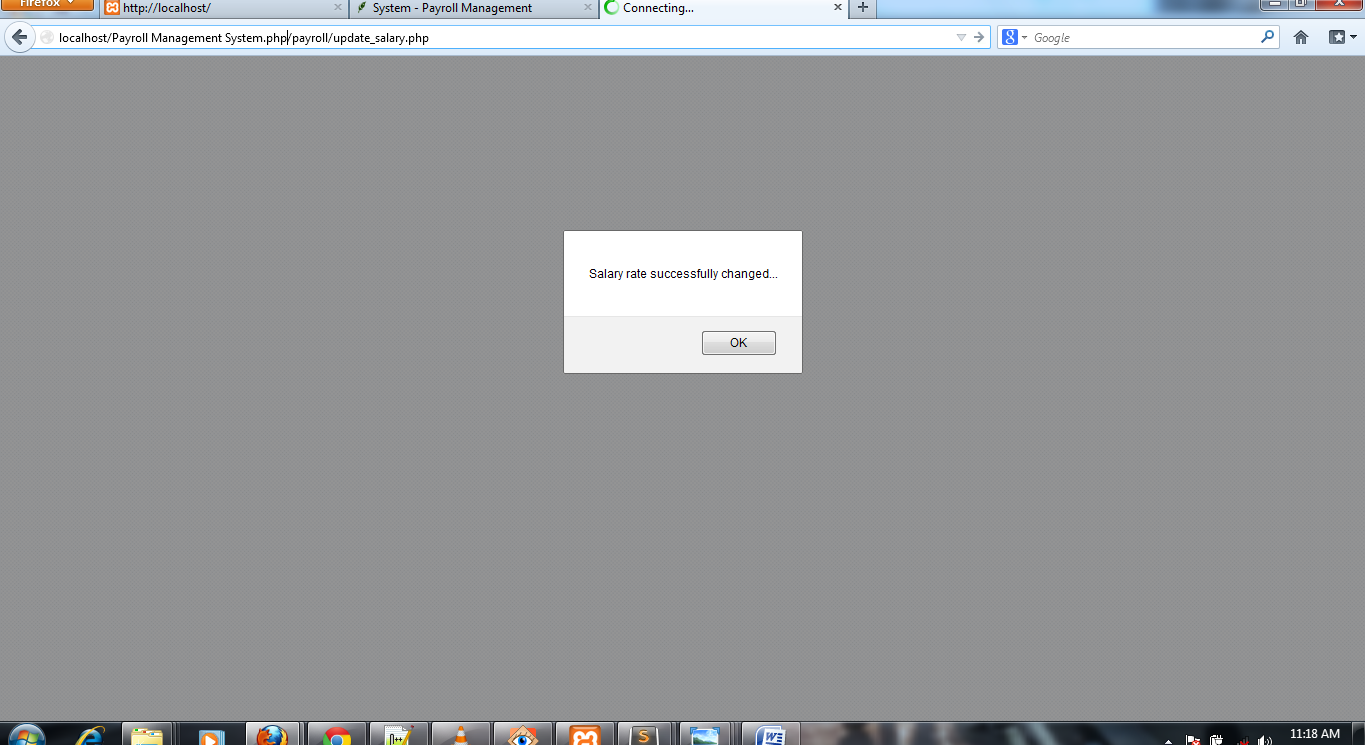
**Fig. 3.5: Login form**

****

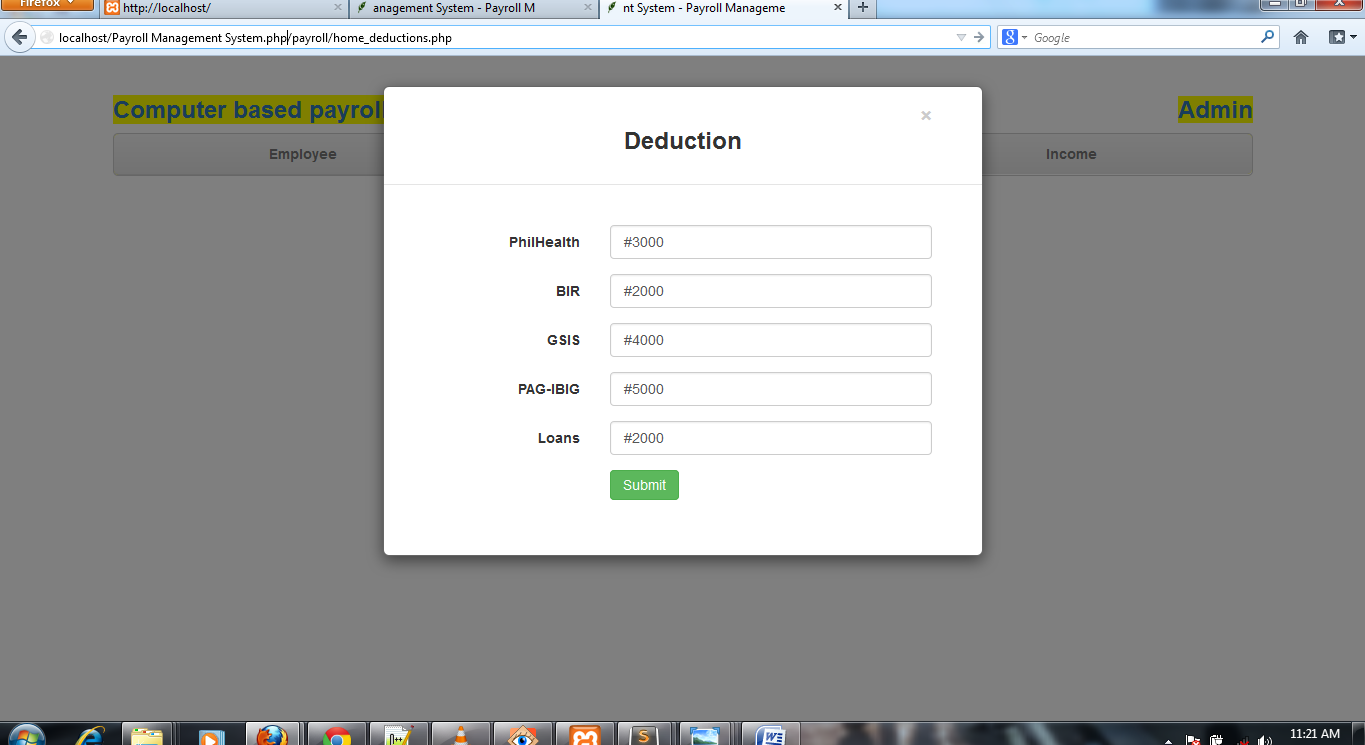
**Fig. 3.6: Index page**

****

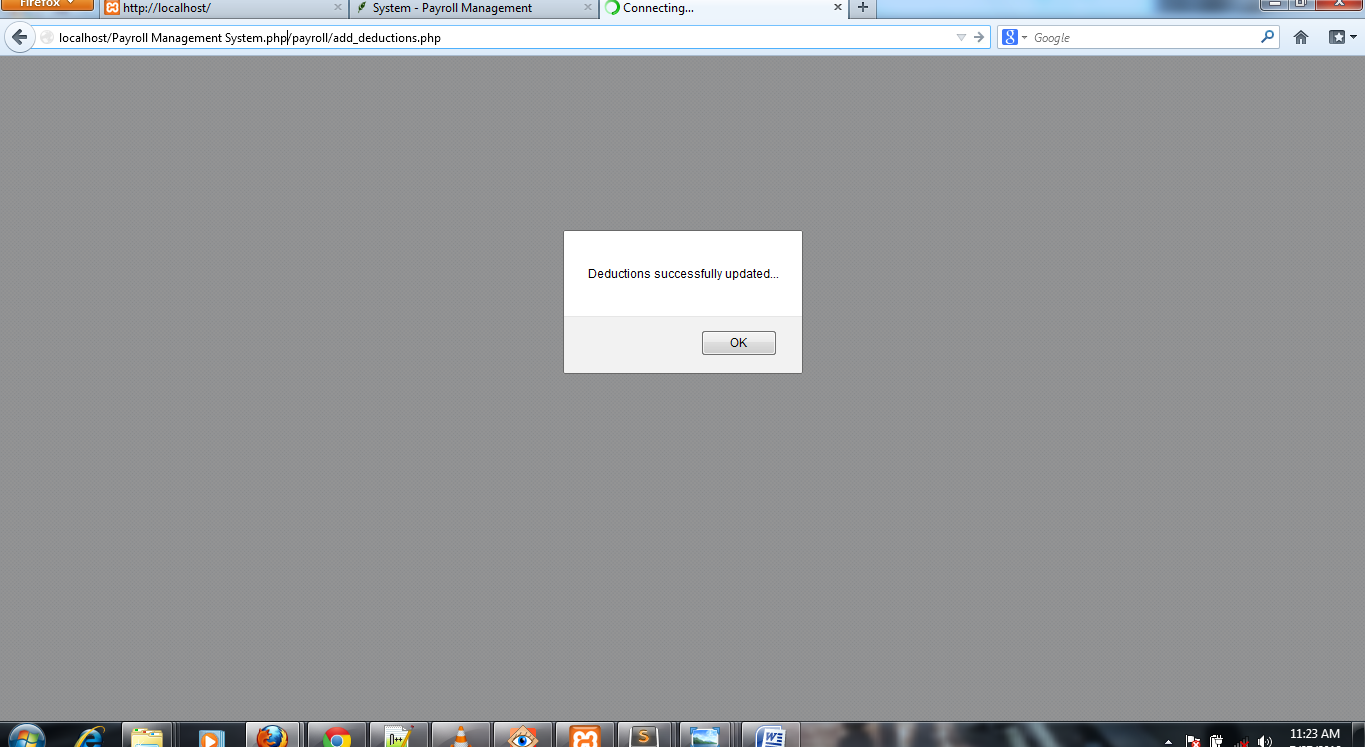
**Fig. 3.7 Input Salary Rate**

****

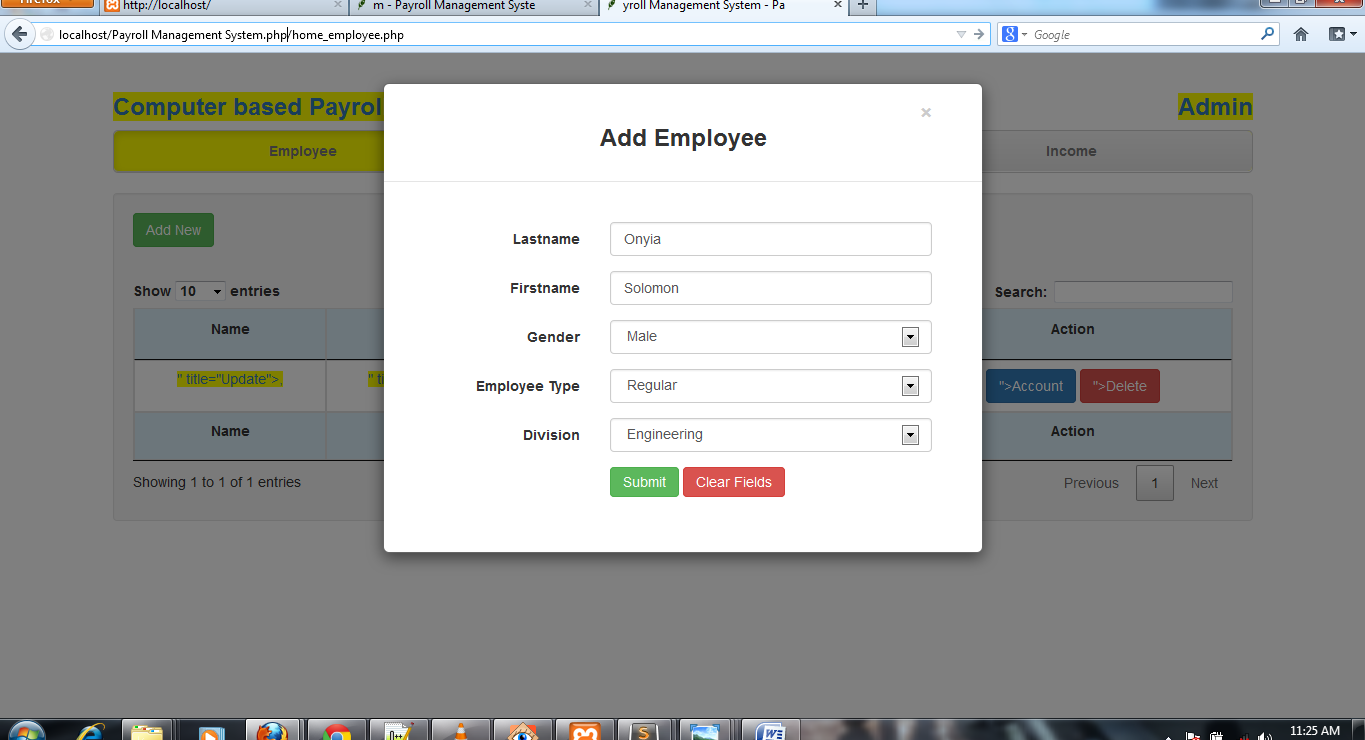
**Fig. 3.8 Salary Rate**



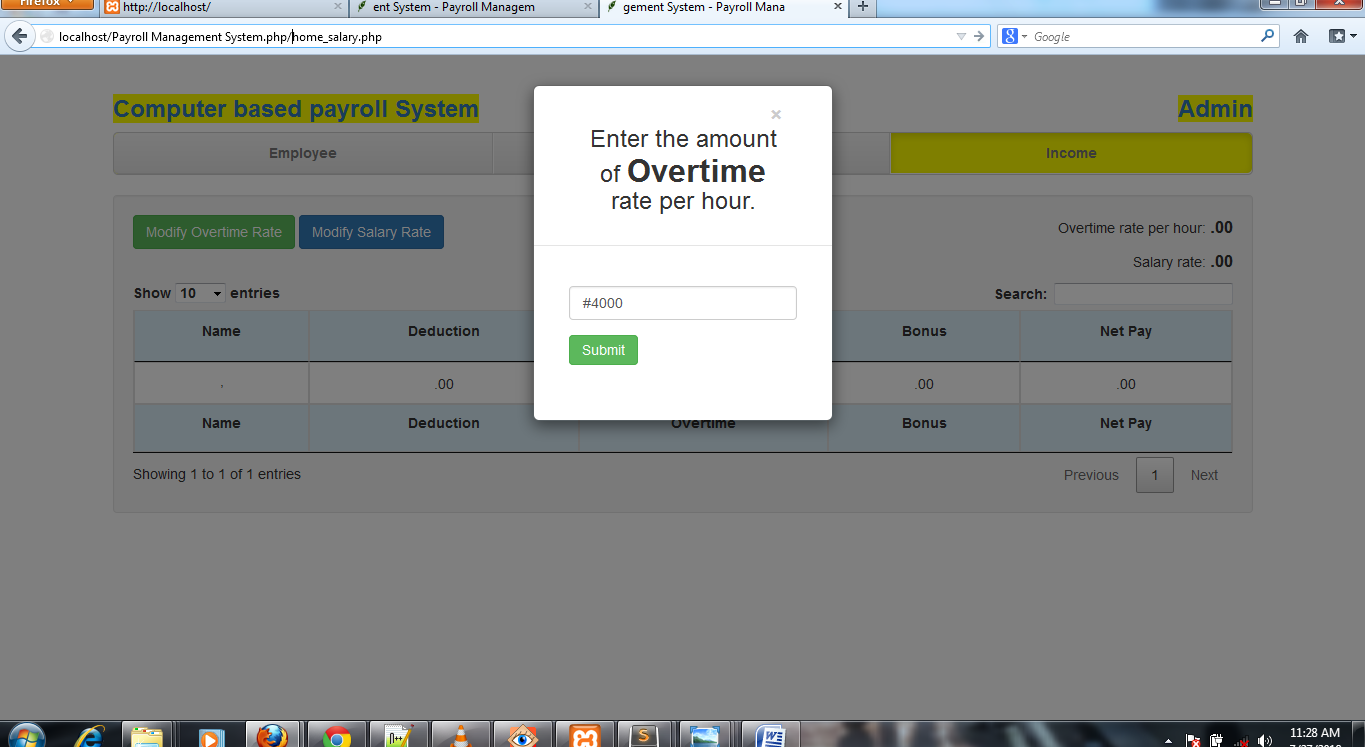
**Fig. 3.9: Deduction**



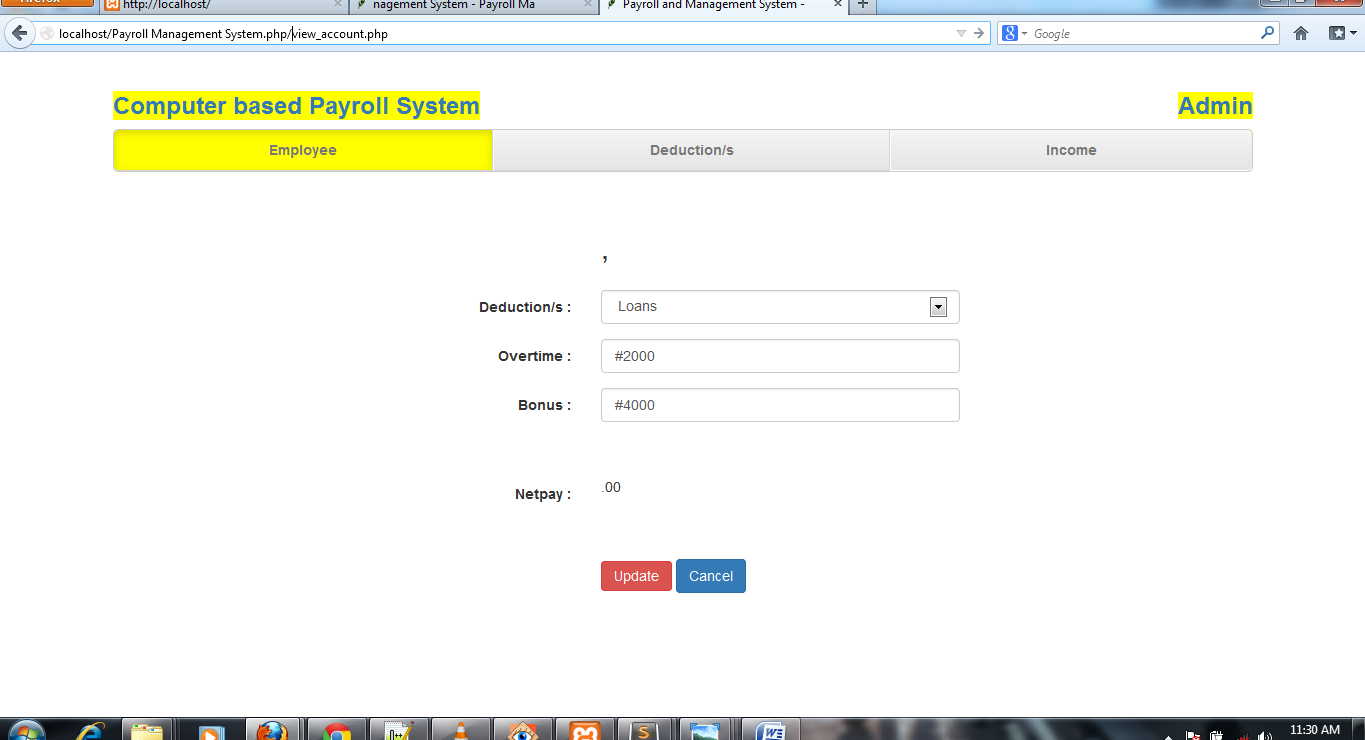
**Fig. 3.10: Deduction Update**

****

**Fig. 3.11: Add Employee**



**Fig. 3.12: Overtime**



**Fig. 3.13: Employe page**

**CHAPTER FOUR:**

**SYSTEM IMPLEMENTATION**

**4.0 Introduction**

System implementation is a collection of inter dependent physical devices together with their programming which provides the functionality and performance for which the system was designed. It covers all the activities necessary to set the system that has been analyzed and designed to be fully functional to the users.

The system was implemented using HTML as the front end, PHP as the server side programming tool, Apache as the middleware and MySQL database as the backend.

**4.1 Choice of Development Environment**

The development tools are the necessary requirement tools used during the design to enable us achieve the system design. The listed packages was used because of their features, accessibility and effectiveness.

MySQL database application

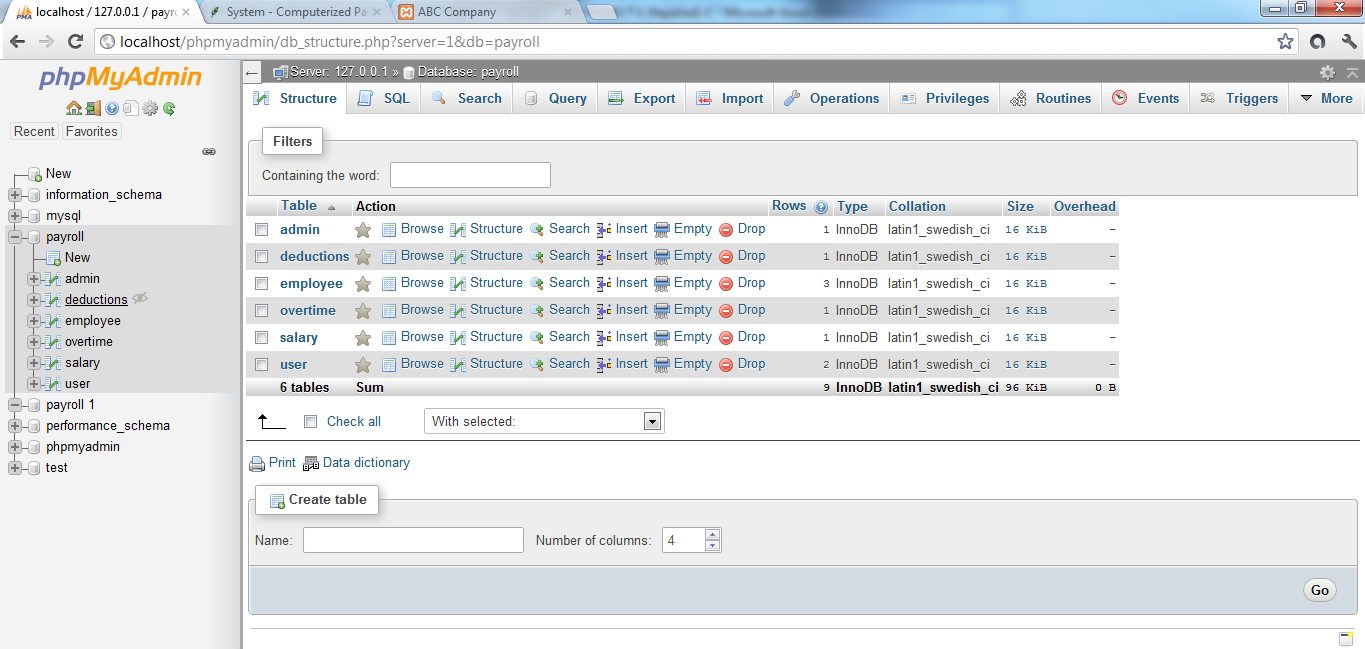
PHP scripting Language

HTML language and Javascript

Notepad++

MySQL Database Server- MySQL is a popular choice of database for use in web applications, and is a central component of the widely used LAMP open source web applications software stack LAMP is an acronym for Linux, Apache, MySQL, Perl/PHP/Python/JSP. The MySQL Database powers the most demanding Web, E-commerce and Online Transaction Processing (OLTP) applications. It is fully integrated transaction safe ACID compliant database with full commit rollback, crash recovery and row level locking capabilities. MySQL delivers the ease of use, scalability and performance that has made MySQL the world’s most popular open source database.

phpMyadmin-



**Fig. 4.0 phpMyadmin**

PHP- PHP is a script language and interpreter that is freely available and used primarily on Linux Web servers. PHP, originally derived from *Personal Home Page* Tools, now stands for *PHP: Hypertext* Preprocessor which the PHP FAQ describes as a "recursive acronym." PHP executes on the server, while a comparable alternative, JavaScript, executes on the client. PHP is an alternative to Microsoft's Active Server Page (ASP) technology. As with ASP, the PHP script is embedded within a Web page along with its HTML. Before the page is sent to a user that has requested it, the Web server calls PHP to interpret and perform the operations called for in the PHP script.

<!DOCTYPE html>   
<html>  
<body>  
  
<?php  
echo "My first PHP script!";  
?>  
</body>  
</html>

An HTML page that includes a PHP script is typically given a file name suffix of ".php" ".php7," or ".html". Like ASP, PHP can be thought of as "dynamic HTML pages," since content will vary based on the results of interpreting the script.

PHP is free and offered under an opensource license.

HTML Language- Stands for "Hypertext Markup Language." HTML is the language used to create web pages. "Hypertext" refers to the hyperlinks that an HTML page may contain. "Markup language" refers to the way tags are used to define the page layout and elements within the page.

Below is an example of HTML used to define a basic webpage with a title and a single paragraph of text.

<!doctype html>  
<html>  
<head>  
<title>computer based payroll</title>  
</head>  
<body>  
<p>This is an example of a paragraph in HTML.</p>  
</body>  
</html>

The first line defines what type of contents the document contains. "<!doctype html>" means the page is written in HTML5. Properly formatted HTML pages should include <html>, <head>, and <body> tags, which are all included in the example above. The page title, metadata, and links to referenced files are placed between the <head> tags. The actual contents of the page go between the <body> tags.

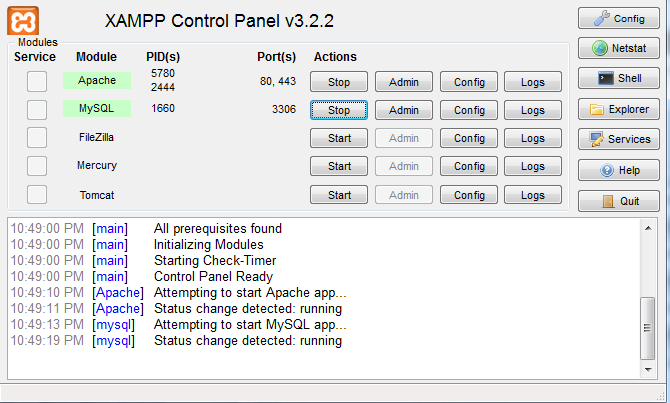
The web has gone through many changes over the past few decades, but HTML has always been the fundamental language used to develop webpages. Interestingly, while websites have become more advanced and Interactive, HTML has actually gotten simpler. If you compare the source of an HTML5 page with a similar page written in HTML 4.01 or XHTML 1.0, the HTML5 page would probably contain less code. This is because modern HTML relies on cascading style sheets or JavaScript to format nearly all the elements within a page.

JAVASCRIPT - Javascript (JS) is a scripting languages, primarily used on the Web. It is used to enhance HTML pages and is commonly found embedded in HTML code. JavaScript is an interpreted language. Thus, it doesn't need to be compiled. JavaScript renders web pages in an interactive and dynamic fashion. This allowing the pages to react to events, exhibit special effects, accept variable text, validate data, create cookies, detect a user’s browser, etc.

HTML pages are fine for displaying static content, e.g. a simple image or text. However, most pages nowadays are rarely static. Many of today’s pages have menus, forms, slideshows and even images that provide user interaction. Javascript is the language employed by web developers to provide such interaction. Since JavaScript works with HTML pages, a developer needs to know HTML to harness this scripting language’s full potential. While there are other languages that can be used for scripting on the Web, in practice it is essentially all Javascript.

There are two ways to use JavaScript in an HTML file. The first one involves embedding all the JavaScript code in the HTML code, while the second method makes use of a separate JavaScript file that’s called from within a Script element, i.e., enclosed by Script tags. JavaScript files are identified by the .js extension. Although JavaScript is mostly used to interact with HTML objects, it can also be made to interact with other non-HTML objects such as browser plugins, CSS (Cascading Style Sheets) properties, the current date, or the browser itself. To write JavaScript code, all you need is a basic text editor like Notepad in Windows, Gimp in Linux, or BBEdit. Some text editors, like BBEdit feature syntax highlighting for JavaScript. This will allow you easily identify elements of JavaScript code. The latest versions of Internet Explorer, Firefox, and Opera all support JavaScript.

Xamp server-



**Fig. 4.1 Xamp server**

**4.2 IMPLEMENTATION ARCHITECTURE**

View payment status/history

Personal

details

Deduction

updating

Employee payroll

management

Home

Employee profile

View salary

Update profile

Change password

Salary updating

Netpay

Overtime rate

Employee

Admin

Login

mmmm

**Fig. 4.2: Implementation Architecture**

**4.2.1 Admin Login Diagram of the proposed system**

This is a login activity diagram of the computer based payroll system, which shows the flows of login activity, where admin will be able to login using their username and password. After login user can manage all the operations on the Employee, Salary, payments, etc. The diagram below helps demonstrate how the login page works in a computer based payroll management system. The user will not be able to access the employee, salary and payments pages without verifying their identity.

Admin is registered

Admin

Login ID and password

Check

Login ID password

Invalid login

password

Login to the system successfully

Set user level and

permission

Access the internal

Functionalities according to permission

End

**Fig. 4.3: Admin Login Diagram of the proposed system**

**4.3 SOFTWARE TESTING**

During the development of the system, the application undergoes two phases of testing firstly, testing done during development phase. This testing includes

\* Syntax error testing: this method of testing is used to used to check all the syntax errors during the software development

\*Compatibility testing: the testing is used to determine whether all the languages used during the programming were well integrated with each other.

\*Logically testing: this is the argument involved during the programming. This will check whether the argument is accepted by the system or not.

Secondly, testing them by running the software on realistic form. This testing includes

\* Running the application in its fullness using a local server each as wamp server,

Xamp server, lamp server and so on that have local host which is using Apache as engine and MYSQL as the database

\*Browser testing: this testing is used to test the appearance and shape of the software on the browser. This testing also replaces system testing in desktop application.

**4.4 DOCUMENTATION**

This system was built with basic HTML tags, PHP, CSS and MySQL language, they are all open source program that allows modification to take place in future.

HTML: This is an acronym for Hyper Text Makeup Language. It is a language for describing the web pages. Html form elements are elements that allow the user to enter information (like text fields, text area fields, drop-down menus) in a form

CSS: CSS (Cascading Style Sheets) properties, the current date, or the browser itself. To write JavaScript code, all you need is a basic text editor like Notepad in Windows, Gimp in Linux, or BBEdit. Some text editors, like BBEdit feature syntax highlighting for JavaScript. This will allow you easily identify elements of JavaScript code. The latest versions of Internet Explorer, Firefox, and Opera all support JavaScript.

PHP: PHP- PHP is a script language and interpreter that is freely available and used primarily on Linux Web servers. PHP, originally derived from *Personal Home Page* Tools, now stands for *PHP:* HypertextPreprocessor which the PHP FAQ describes as a "recursive acronym." PHP executes on the server, while a comparable alternative, [JavaScript](https://searchmicroservices.techtarget.com/definition/JavaScript), executes on the client. PHP is an alternative to Microsoft's [Active Server Page](https://searchwindowsserver.techtarget.com/definition/Active-Server-Page) (ASP) technology. As with ASP, the PHP script is embedded within a Web page along with its HTML. Before the page is sent to a user that has requested it, the Web server calls PHP to interpret and perform the operations called for in the PHP script.

MySQL: This is my serial query language. It uses a standard form of well known SQL data language. Different data types were used in this project. It was used alongside with PHP to create and submit forms used in the software.

The developed system is packaged in a CD drive in a directory named Computer based payroll system.

**4.4.1 USER MANUAL**

Procedure on how to execute the program

1. Boot the system to windows desktop
2. Install sublime text and wamp server
3. Launch sublime text and wamp server
4. Click on start buttom and then select all programs
5. Select sublime and click to open
6. Open the file from CD drive and copy the file (computer based payroll system)
7. Open the browser and type localhost/payroll to access the backend and localhost/db to access frontend.

**4.4.2 SOURCE CODE LISTING (Appendix A)**

**CHAPTER 5:**

**SUMMARY AND CONCLUSION**

**SUMMARY**

Computer based payroll system enables you to store unlimited data while managing the data as well. Accounting software processes data and creates reports much faster than manual systems. Web based payroll Minimum errors as automatic or computerized calculations are done. Expenses associated with accounting software include training and program maintenance. Expenses can add up fast with costs for printers, pa per, ink and other supplies Productivity is higher than manual payroll as employees get their salary early as calculations are done on regular basis. No paper work is required as data is stored in the database. So, it is less bulky. It is more efficient than the manual payroll.

**CONCLUSION**

This computer based Payroll system is accessible on the internet and calculates, maintains and records the payroll information of employees.

This Application will help to automate payroll system of an organization. Multiple authorized users will be able to login and logout from a web browser. Login checks (username, password) are controlled by administrator. Administrator will have total web based control to completely customize the payroll system. HR of the company will be able to authenticate new employees,

Update existing employees pay, view reports. The system is user friendly. Whenever there is an error in entering data, it immediately shows an error. The application is equipped with tools for updating salary records, deductions, net pay, add new allowances, leave appraisal or request deduction and savings and many other features that are easy to be operated by users. The system has also provision for full salary history including all payroll elements and changes that have been implemented. The prototype web based payroll system is complete in it self and ready to be implemented but changes and growth in requirements will be a reality on every software project so there is need to timely update them. The same applies to this payroll system.

**RECOMMENDATIONS**

Based on the previous chapter discussions, there are some weaknesses in the web based payroll system and some recommendations are needed to be able to overcome the weaknesses. Hopefully, these recommendations can be useful.

1. Segregation of duties: The segregation of duties in most companies is not appropriate, the thing that can be seen through some organizational structure is that most of the employees do multi jobs, and in other to overcome this general weakness, which is related with the segregation of duties, a new organizational structure is needed.

2. Before you do business with a payroll service provider or an employee leasing company, check the company’s credentials and ensure it meets federal and state regulations. Obtain a clear, written agreement from the company, outlining the company’s responsibilities, including penalties that may arise from payroll errors it makes.

3. Finally, I recommend that companies that use a web based payroll system should have a good HR management and also a good Admin that will manage and update the system always and accurately.

**REFERENCES**

[1] [www.filedonkey.com](http://www.filedonkey.com) [PDF] Accounting essential for payroll management and accounting.

[2] Aguilera, Bronzas, Marqueses (2010) Automated Payroll System of Panama Medical Center.

[3] Gupta, A. (2013) AMITY University UTTAR, Pradesh.

[4] Kadam, A. (2014) Payroll System and Taxation.

[5] Cagayan De Oro City Hall Computerized Payroll System.

[6] Enterprise IQ ERP’S payroll processing.

[7] Nyanmaru (2013) Computerized Payroll System.

[8] Primer, T. (2005) Automated Computerize Process, Readers Digest Magazine.

[9] [www.slideshare.net/SavioAberneithie/payroll-management-system-complete-report](http://www.slideshare.net/SavioAberneithie/payroll-management-system-complete-report).

**APPENDIX A**

SOURCECODE INDEX PAGE

<?php

include("auth.php"); //include auth.php file on all secure pages

include("add\_employee.php");

?>

<?php

$conn = mysqli\_connect('localhost', 'root', '');

if (!$conn)

{

die("Database Connection Failed" . mysqli\_error());

}

$select\_db = mysqli\_select\_db('payroll');

if (!$select\_db)

{

die("Database Selection Failed" . mysqli\_error());

}

$query = mysqli\_query("SELECT \* from deductions");

while($row=mysqli\_fetch\_array($query))

{

$id = $row['deduction\_id'];

$philhealth = $row['philhealth'];

$bir = $row['bir'];

$gsis = $row['gsis'];

$love = $row['pag\_ibig'];

$loans = $row['loans'];

$total = $philhealth + $bir + $gsis + $love + $loans;

}

?>

<!DOCTYPE html>

<html lang="en">

<head>

<!-- Meta, title, CSS, favicons, etc. -->

<meta charset="utf-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1">

<meta name="description" content="Bootstrap, a sleek, intuitive, and powerful mobile first front-end framework for faster and easier web development.">

<meta name="keywords" content="HTML, CSS, JS, JavaScript, framework, bootstrap, front-end, frontend, web development">

<meta name="author" content="Onyia solomon, and Bootstrap contributors">

<title></title>

<script>

<!--

var ScrollMsg= "Payroll Management System - "

var CharacterPosition=0;

function StartScrolling() {

document.title=ScrollMsg.substring(CharacterPosition,ScrollMsg.length)+

ScrollMsg.substring(0, CharacterPosition);

CharacterPosition++;

if(CharacterPosition > ScrollMsg.length) CharacterPosition=0;

window.setTimeout("StartScrolling()",150); }

StartScrolling();

// -->

</script>

<link href="assets/must.png" rel="shortcut icon">

<link href="assets/css/justified-nav.css" rel="stylesheet">

<link href="assets/css/bootstrap.min.css" rel="stylesheet">

<!-- <link href="data:text/css;charset=utf-8," data-href="assets/css/bootstrap-theme.min.css" rel="stylesheet" id="bs-theme-stylesheet"> -->

<!-- <link href="assets/css/docs.min.css" rel="stylesheet"> -->

<link href="assets/css/search.css" rel="stylesheet">

<!-- <link rel="stylesheet" href="assets/css/styles.css" /> -->

<link rel="stylesheet" type="text/css" href="assets/css/dataTables.min.css">

</head>

<body>

<div class="container">

<div class="masthead">

<h3>

<b>Computer based Payroll System</b>

<a data-toggle="modal" href="#colins" class="pull-right"><b><?php echo $\_SESSION['username']; ?></b></a>

</h3>

<nav>

<ul class="nav nav-justified">

<li><a href="home\_employee.php">Employee</a></li>

<li><a href="home\_deductions.php">Deduction/s</a></li>

<li><a href="home\_salary.php">Income</a></li>

</ul>

</nav>

</div><br>

<!-- Jumbotron -->

<div class="jumbotron">

<h1>COMPUTER BASED PAYROLL SYSTEM</h1>

<p class="lead">This payroll management system has improvised all the basic exercise to manage the salary of the employees.</p>

<p><a data-toggle="modal" class="btn btn-lg btn-success" href="#instructor" role="button">DESIGNED BY: ONYIA SOLOMON CHIEDOZIE</a></p>

</div>

<!-- Site footer -->

<footer class="footer">

<p align="center">&copy; 2018 COMPUTER BASED PAYROLL MANAGEMENT SYSTEM</p>

<p align="center">Brought To You By<a target="\_blank" href="http://ONYIA SOLOMON CHIEDOZIE">Onyia solomon.org</a></p>

</footer>

<!-- this modal is for my INSTRUCTOR -->

<div class="modal fade" id="instructor" role="dialog">

<div class="modal-dialog modal-sm">

<!-- Modal content-->

<div class="modal-content">

<div class="modal-header" style="padding:20px 50px;">

<button type="button" class="close" data-dismiss="modal" title="Close">&times;</button>

<h3 align="center"><b>Brought To You By</b></h3>

</div>

<div class="modal-body" style="padding:40px 50px;">

<div align="center">

<a href="https://onyia solomon.org" target="\_blank" title="onyia solomon"><big><b>onyia solomon</b></big></a>

</div>

</div>

</div>

</div>

</div>

<!-- this modal is for my Colins -->

<div class="modal fade" id="colins" role="dialog">

<div class="modal-dialog modal-sm">

<!-- Modal content-->

<div class="modal-content">

<div class="modal-header" style="padding:20px 50px;">

<button type="button" class="close" data-dismiss="modal" title="Close">&times;</button>

<h3 align="center">You are logged in as <b><?php echo $\_SESSION['username']; ?></b></h3>

</div>

<div class="modal-body" style="padding:40px 50px;">

<div align="center">

<a href="logout.php" class="btn btn-block btn-danger">Logout</a>

</div>

</div>

</div>

</div>

</div>

</div>

<!-- Bootstrap core JavaScript

================================================== -->

<!-- Placed at the end of the document so the pages load faster -->

<script src="assets/js/jquery.min.js"></script>

<script src="assets/js/bootstrap.min.js"></script>

<!-- <script src="assets/js/docs.min.js"></script> -->

<script src="assets/js/search.js"></script>

<script type="text/javascript" charset="utf-8" language="javascript" src="assets/js/dataTables.min.js"></script>

<!-- FOR DataTable -->

<script>

{

$(document).ready(function()

{

$('#myTable').DataTable();

});

}

</script>

<!-- this function is for modal -->

<script>

$(document).ready(function()

{

$("#myBtn").click(function()

{

$("#myModal").modal();

});

});

</script>

</body>

</html>