

**MURANG’A UNIVERSITY OF TECHNOLOGY**

**SCHOOL OF COMPUTING AND IT**

**SCS 203:PROGRAMMING AND DATABASE PRACTICUM**

**PROJECT TITLE:PAYROLL PROCESSING AND MANAGEMENT SYSTEM**

**GROUP MEMBERS**

|  |  |
| --- | --- |
| **REG NO** | **NAME** |
| SC211/3190/2023 | DAVID WANJOHI |
| SC211/3189/2023 | JOSIAH KARIUKI |
| SC211/3185/2023 | SARAH MWENDE |
| SC211/3164/2023 | JOY KIMANI |
| SC211/3181/2023 | MICHAEL MWENDWA |

**Dedication**

This project is our original work and has not been presented for any academic credits in any university/institution

|  |  |  |  |
| --- | --- | --- | --- |
| REG NO | NAME | SIGNATURE | DATE |
| SC211/3190/2023 | DAVID WANJOHI |  |  |
| SC211/3185/2023 | SARAH MWENDE |  |  |
| SC211/3189/2023 | JOSIAH KARIUKI |  |  |
| SC211/3181/2023 | MICHAEL MWENDWA |  |  |
| SC211/3164/2023 | JOY KIMANI |  |  |

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**DEDICATION**

As team members, we dedicate this work to one another for the cooperation, mutual trust, and common vision that enabled this project to be completed. This commitment is a reflection of our combined efforts, as we have triumphed over obstacles and celebrated successes together.

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**LIST OF ABBREVIATIONS**

SDLC …………….software development life cycle

HR………………….Human Resources

HTML………………Hypertext Markup Language

PHP…………………Hypertext preprocessor

DFD…………………Data Flow Diagram

ERD…………………Entity Related Diagram

SQL………………….Structured Query Language

CSS…………………..Cascading Style Sheets

# CHAPTER ONE: INTRODUCTION

# BACKGROUND OF THE STUDY

Payroll system is a software that is designed to automate and manage the payroll processes of an organization. A payroll system stores details about the employees including personal information to enhance employee data management

A payroll system must comply with various laws to automatically calculate taxes that must be serviced before they get paid. The system manages various deductions besides taxes such as health insurance and retirement benefits and other voluntary deductions. It also facilitates direct deposit of money to employees’ bank accounts. An efficient system has to manage and ensure the employees are paid correctly and on time for financial accountability.

A modern payroll system employs technology to integrate with human resource management. This will ensure ease with in the company. Historically, payroll systems were managed manually and hence was cumbersome and sometimes not accurate. Some individual employees would face biasness and hence would reduce efficiency and morale within the organization.

# PROBLEM STATEMENT

The system can face a number of issues which might hinder it from performing effectively and accurately. Security issues may arise when workers personal information is outsourced to third party soft wares which are used access and store payroll information. Hacking, theft and destruction of personal information may arise due to outsourcing of this information.

Security problems can be found in any software, including payroll software. Another possible threat is lack of compliance with the software laws. It’s the responsibility of the business owner to comply with laws. Lack of compliance if you are using payroll software and errors are found will lead to your business becoming liable to penalties incurred.

Once a business purchases a payroll software, it needs to pay for a subscription fee to continue keeping the data. Failing to pay subscription fee will make the business more likely to lose its data . lack of knowledge about the subscription fee is the most leading factor . Other problems the system may face is difficulty when integrating with other systems such as Human resource and finance among other systems.

Other problem the system is likely to encounter is incorrect handling of benefits and tax deductions.

The above assertions imply that there is dire need to analyze the issues caused by a complex payroll system and solve them efficiently.

# OBJECTIVES

# MAIN OBJECTIVE

The main objective is to ensure accurate and timely payment of employee’s wages while complying with tax regulations.

# SPECIFIC OBJECTIVES

By the end of this project, the system should be able to:

**REGISTER EMPLOYEES**

The system should allow the administration to register new employees and make any other changes regarding employment.

**GENERATE PAYSLIPS**

The system should be able to provide clear and detailed payslip which shows clearly the mode of payment, like the bank to be used.

**CALCULATE DEDUCTIONS**

The system will be able to calculate all the deductions including taxes, savings, loans and any other deductions imposed by the government on employee salaries.

**GENERATE REPORTS**

The system will be able to generate reports on the progress of the organization with detailed information from various departments

**RECORD KEEPING**

The system will provide storage space for employee details including their earnings,deductions and their net pay.

# PROJECT JUSTIFICATION

The system will enhance accuracy and efficiency by reducing errors and mistakes such as miscalculations and incorrect tax withholdings. The system would minimize these errors leading to accurate employee compensations

The system would open to changes and adapt to growth as time grows and he4nxe will easily handle payroll complexities across various payment structures such as hourly and salary contracts and enhance efficiency with in the system.

The system would seamlessly enhance integration with human resources and finance systems improving operation efficiency and data consistency

# SCOPE AND APPLICATION OF THE PROJECT

Our scope of study was mainly focused on a private institution in Murang’a county known as Vidhu Ramji. We collected Information and other data relating to our system at this institution.

The Payroll Management System is an application mainly aimed at automating the processes of wages and remuneration payments on employees, prompt and accurate calculation and compliance with existing legislation at the state level. It will handle essential processes which include records of employees, calculation of pay and generation of salary slips. The system will only contain two types of roles and the users will have explicit rights for admin, HR staff, and employee. While the ordinary users will only have the capability to create posts and make comments, the admins will have all the authorities that include managing users, the payroll and reporting. Under the Human Resource Management section, the Human Resource staff will handle employee information and Payroll processing while employee can go through the salary slips and manage personal information.

The system, therefore, has a back end that is a MySQL database where all payroll data will be processed and stored securely. While it will not conduct the external bank related transactions, it will produce the required salary information for payments processing. The system has the capability to update the features in case new laws or changes in the tax laws are to be implemented. However, it expects a manual change for such occurrences and will suit establishments of small to medium scale with well-defined users and their roles and privileges.

# CHAPTER 2: LITERATURE REVIEW

# INTRODUCTION

Payroll management systems are a very important part and are very critical in the running of any organization. They automate payroll processing and hence improving efficiency and reducing errors while workers’ payments are being processed. Due to various advancements in technology, payroll systems have advanced from manual bookkeeping methods to complicated automated systems which are more efficient. Several applications and systems have been created to try and solve some of the issues which are highlighted in the above document. This Literature review goes through some of these existing systems and identifies the gaps which have not been filled by them and provides insights for future improvements in payroll processing systems.

# CASE STUDIES

# Case study 1

Participating in conducting the project which was entitled Acceptance of computerized Payroll Systems among SMEs managers using Technology acceptance Model. It was delivered at the second international Conference on technology management Business and Entrepreneurship conducted in 2013.The paper examines the factors that determine the acceptance of automated payroll systems. It assists to know how SMEs would wish to accomplish the automated monetary means to improve the operational tempo. However, the work does not consider challenges of business relations after the implementation of the given system in the long run. As for this computerized payroll system, it also does not manage to ease the causing and compliance of tax and labor laws.

# Case study 2

# PT. Tirta Varia Intipratama minimally processes payroll for employees serving its AQUA, VIT, and MIZONE brands by using the PRO-Int software particularly for employees’ information, attendance, and payment. It keeps the records of the employees where personal details, attendance record and other salary related records are maintained.

# It has also employed HR personals concerning with payroll management and other people related issues. The system has the following challenges; limited personalization hence the invention of a whole new payroll update or policy to be a tall order. It may also complicate change toward a better and more sophisticated system since it will make the system difficult to apply. Integration of data with the HR system or even other accounting softwares may at times produce errors through several manual data input within the systems. Real time attendance and payroll adjustments if not done properly, may cause some trouble and inaccurate calculations and this may cause problems as in most of the places people work different hours and that may lead to payroll disputes. One of the tough tasks that a business has to overcome is Data Protection and Authentication whereby if not well addressed it may lead to wrong access information leading to exposure of personal information and sensitively. Also, the system does not have the self-service portal; this means that it will take a lot of time for manual work; this is why employee satisfaction will take a blow.

# 

# Case study 3

# Cisco system is a Multinational Telecommunications company that deals with particular niches of technology among them being IoT, domain security, video and energy. The social environment of the company has many employees spread globally in over a hundred countries.

# This was due to the fact that the company had a manual payroll system which affected the process hence delaying it and making some of the employees corrupt. This led to more consummation of time which required a personal effort to be able to run things in the company. It is also a worldwide company; it had to hold records and data from many areas that contributed to some of the data problems such as missing information and formatting problems. It was also equally difficult for the company in integrating with other regulations like tax and laws as well as labor registration.

# There were also the issues to do with data privacy and security including unauthorized access and breaching which is risky to the employee personal data as well as the company’s data. This company has various and numerous workforces that encompass full-time staff, contractors, and third-party employees, remote workers included. The previous system was not very effective in processing various compensation strategies for employees including equity based compensation, performance bonus and country specific benefits. Due to these variations, the system had to be further customized to accommodate these changes which caused the process length to increase and the cost to rise accordingly. Yet, the use of the system posed challenges to most of the employed individuals due to low literacy in computing in some areas or they could be affected by language differences. This basically meant that, contrary to what automation might have indicated, HR queries were on the rise rather than declining.

# Case study 4

# In the paper entitled, “A Review of Computerized Payroll System”, Kritika Mahajan, Shilpa Shukla and Nitasha Soni present evidence on how the use of computerized payroll has many advantages over the use of manual payroll. The authors set out a three-tier system architecture with a presentation layer for user interaction, and application layer for the business functionality and database layer for data storage and stress on the utilization of JavaScript, CSS, HTML, XML, JSON, and Ajax technologies in presentation layer to make it more efficient and user friendly. Advantages of using the presented system include ease of use, improved security of the data, and a decrease in the rate of errors due to automation. The research brings out production control systems as critical for organizations in the present era since they come with quality, better security and free from errors when it comes to paying employees.

# 

# RESEARCH GAP

Our research will highlight various significant areas that require further exploration. The research reveals that, there was a strong relationship between integrated payroll system and overhead cost and how they can effectively affect a company’s financial income.

In many of cases, a company has an internal auditor must be constantly on guard against cases which are either intentional or unintentional. Cases where the payroll procedures involve the pay cheques prepared by the payroll division being signed by the treasurer reviewed and co-signed by the internal auditor, the cheques are then distributed to various departments to be given to the employees and in most cases, there are scenarios of fraudster. This is where the system has been manipulated by employees who defraud the company’s money.

Cases of ghost workers have been on the rise. Ghost workers are people who get paid by the government but do not work or even exist but whose salary are paid by someone else. The system is manipulated into paying money into accounts of people who do not work in the company. As a result, ghost workers are nonexistent employees whose identities are included in the payroll and get paid. This is done by filling details of ghost workers to the payroll system. These senior employees may also forget willingly or unwillingly to erase the name of a previous worker after his termination of business with the company. Ghost workers may stay on the payroll if payroll managers take too long to delete names in the payroll (Lekubu,2013). In other cases, they may list incorrect totals on the payroll and even make duplicate cheques. Payroll clerks have been known to place the name of fictional or separated employees on the payroll, forge their signatures, and collect their wages on their behalf.( Izedonmi & Ibadin). Although we might not know for certain but this may continue for a while and would increasingly affect the company.

# CHAPTER 3: METHODOLOGY

# FACT FINDING TECHNIQUES

Data collection methods used were: Observation, interviews, questionnaire and internet. The interviews were conducted by asking various staff and management questions regarding salary process procedures. The study ensured that interviews were impressive to eliminate suspicious tendencies. Observation was also used to collect real time data by analyzing transactions and payments and also citing possible areas of improvement in the system. It enabled a fair evaluation and actual practice to recommend a better procedure. Questionnaires were administered by using closed and open-ended questions to obtain data of staff experience and recommendations. It enabled a continuation of issues and gave an insight to the type of satisfaction user has with the current system. online research proved crucial as we used it to highlight problems which had been previously stated by existing systems. All the methods helped to identify the required system requirements, challenges, and areas of improvement.

# Data collection methods

# Interviews

Interviews were carried out in the institution focusing on captured information whether through verbal or nonverbal communication. We also took note of the various reactions it caused to different individuals not forgetting body language.

# Observations

As observations were done to take note and learn how the institution runs and successfully manages its employees. The k observations were key as firsthand information was collected. It reveals real time errors and gaps.

# The internet

The internet today has been vastly exploited as a research tool and many projects’ references. There is a lot of information materials posted that was relevant to the hypothesis of the payroll management system

1. Questionnaire  
     
   several questionnaires were given to members of staff. This helped to build the system on real needs and solve existing problems.

# SYSTEM DEVELOPMENT METHODOLOGY

The model we will be using to develop the system will be the agile Software Development life cycle model. The SDLC model is an incremental approach which is iterative and it dwells on increasing flexibility and customer feedback. Unlike other traditional models, the agile SDLC model gives small software increments frequently even in late stages of development. It therefore allows for continuous feedback from stakeholders and other users of the system.

Steps of development using the agile model

* Scoping

In this step, we will define the project’s vision, goals and the scope of the project. We will also identify the stakeholders and high-level requirements.

* Inception

We will form the team to work on the model, establish their roles and create a prioritized list of features. We will finish by planning the first iteration

* Construction

In this step, we will focus primarily on planning, designing the system, coding the necessary snippets for our system. We will also develop the system at this stage and test and review the system.

* Release

We will finalize the project for release after several iterations and conduct user testing and address any issues that might have been left out.

* Production

Here we will launch the system to the users. We will also provide support and maintenance of the system at this stage.

* Retirement

At this stage we will discontinue the product in case a new version is released or the system is no longer required.

**ADVANTAGES OF AGILE SDLC MODEL**

1.It is adaptable to change and any other required improvements

2.It reduces risks through incremental development

3.Frequent feedback from users and other stakeholders ensures the system aligns with changing needs of users

4.Quicker delivery of high-quality software

5.It allows for increased collaboration between users and stakeholders

# SOFTWARE DEVELOPMENT

We will be using the following software tools to develop our system:

* Visual studio 2010 for IDE development and debugging
* MYSQL (XAMPP server) to store the payroll data
* Netbeans for backend or utility scripting

We will use the following programming languages and frameworks when developing our project:

Front-end

* HTML5, CSS3 to style and structure the user interface
* JavaScript for interactivity and dynamic content

Back-end

* PHP for server-side scripting to handle communication and data processing
* JavaScript for any additional backend logic

Database

* MYSQL as the relational database to manage the payroll as well as employee and user data

# CHAPTER 4:ANALYSIS AND DESIGN

# 4.1 INTRODUCTION

The analysis and design phase plays a major role in ensuring that the system meets all the functional and non-functional requirements. This chapter gives a comprehensive analysis of the system requirements and also the creation of visual representations to guide in the development of the system. The use of agile SDLC model allows for flexibility and space for improvement. Visual representations including flowcharts, Data flow diagrams and even use case diagrams will be the focus of the phase. The system’s user interface will also be designed in this phase. The iterative approach brought about by the Agile model ensures that the system is user friendly, scalable and secure for payroll processing.

# 4.2 REQUIREMENT ANALYSIS

# 4.2.1 FUNCTIONAL REQUIREMENTS

Functional requirements define what the system is supposed to do.

I)The system must be able to generate monthly payroll reports which are necessary for record keeping.

ii)The system must be able to calculate the monthly salary deductions like taxes and insurance payments.

iii)Employees must be able to view their payroll details from the system

iv)Admins must be able to process payments and make other changes to the system including adding new employees into the system

v)The system must be able to generate payslips for the employees

# 4.2.2 NON-FUNCTIONAL REQUIREMENTS

Non-functional requirements define how the system will perform rather than what it will do.\\

I)For security purposes and protection of employee data and other information, the system must have authentication and user only access.

ii)The system must allow room for more employees to be added to it over time.

iii)The system should comply with tax and other labor laws and regulations imposed by the government

iv)The system must be able to perform multiple transactions

Level 0 DFD Payroll diagram

pay slip

Salary deposit confirmation

Send salary payroll request

Fetch payment details

Process salary payment

Fetch payroll data

Store payroll data

Fetch employee salary details

Store employee data

Add/update employee info

Employee

Bank

Finance manager

HR manager

Manage employee records

Employee database

Calculate payroll

Payroll records

generate pay slip

Authorize payroll payment

Figure 1

**ERD Payroll diagram**

**Employee**

Employee (primary key)  
Full name  
Address  
Contact info  
Salary  
Department-ID (foreign key)

**Department**

**Tax**

Tax-ID(PK)  
Tax type  
Rate  
Application-form

**Payroll**

Payroll-ID(PK)  
Employee -ID(FK)  
salary  
bonus  
overtime  
tax-amount  
deduction-amount  
total-pay  
payment-date

**Bank**

Bank-ID(PK)  
Bank-name (FK)  
Account number  
Employee-ID(FK)

**Deductions**

Deductions-ID(PK)  
Employee-ID(FK)  
Deductions type  
Amount

Figure 2

Use Case Payroll

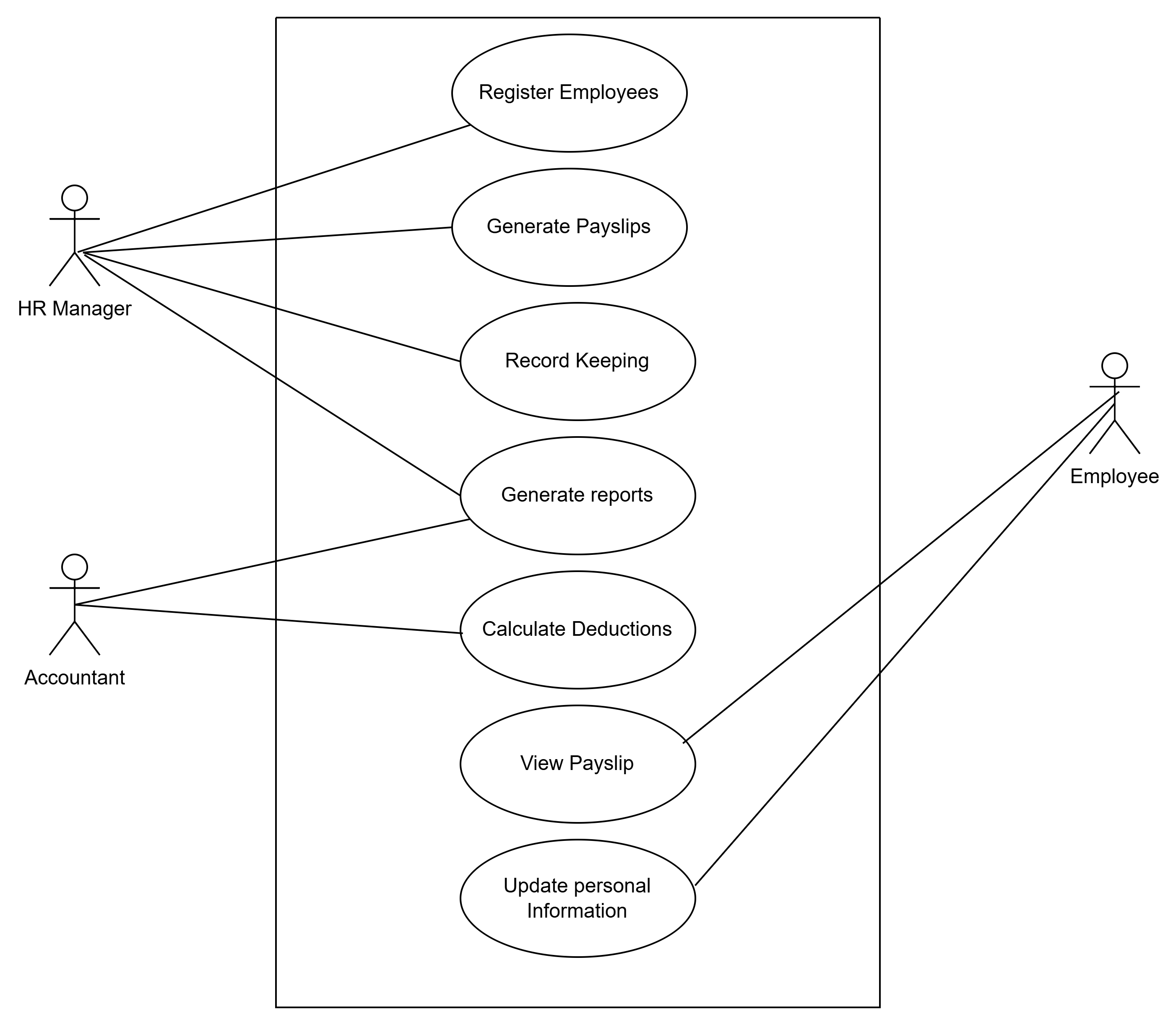


Figure 3

# CHAPTER FIVE: TESTING AND RESULTS 5.1 INTRODUCTION

# This chapter deals with the testing stage of Payroll Management System which adopted the unit testing, integration testing, system testing as well as the acceptance testing. Each type is performed to assess different functionalities of the system, ranging from modules of salary calculation, tax computation among others to system functionality and usability. The examples we shall also include real application scenarios, which shall include processing of pays, preparation of pay slip and deductions. Moreover, to support arguments, the process of identifying the system performance and pointing at areas that needs improvement will be illustrated by samples.

# The component of the methodology that will be undertaken in the given chapter is to criteria review whether the Payroll Management System effectively and satisfyingly meets all functional and non-functional requirements in terms of payroll calculation and registration, data protection and obeyance of all the regulations.

# Test Case 1: Update Employee Details

Activity: The existence of employee information should be confirmed by ensuring that the details of an employee can be updated.

Prerequisites:

* An existing employee record in the system.
* Admin access.

<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Swift Pay Solutions</title>

  <style>

    body {

      font-family: Arial, sans-serif;

      margin: 0;

      padding: 0;

      display: flex;

      flex-direction: column;

      height: 100vh;

      background-image: url('https://images.unsplash.com/photo-1554224155-6726b3ff858f?ixlib=rb-1.2.1&auto=format&fit=crop&w=1951&q=80');

      background-size: cover;

      background-position: center;

    }

    .header {

      background-color: rgba(0, 123, 255, 0.9);

      color: #fff;

      padding: 15px 20px;

      display: flex;

      justify-content: space-between;

      align-items: center;

    }

    .header h1 {

      margin: 0;

      font-size: 24px;

    }

    .header .user-info {

      display: flex;

      align-items: center;

      gap: 15px;

    }

    .header .user-info span {

      margin-right: 10px;

    }

    .header .logout-button {

      background-color: #dc3545;

      color: #fff;

      border: none;

      padding: 8px 12px;

      border-radius: 4px;

      cursor: pointer;

    }

    .header .logout-button:hover {

      background-color: #c82333;

    }

    .container {

      display: flex;

      flex: 1;

    }

    .sidebar {

      width: 200px;

      background-color: rgba(51, 51, 51, 0.9);

      color: #fff;

      padding: 20px;

    }

    .sidebar a {

      color: #fff;

      text-decoration: none;

      display: block;

      padding: 10px;

      margin: 5px 0;

      border-radius: 4px;

    }

    .sidebar a:hover {

      background-color: #007bff;

    }

    .main-content {

      flex: 1;

      padding: 20px;

      background-color: rgba(255, 255, 255, 0.9);

      border-radius: 8px;

      margin: 20px;

      box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);

    }

    .profile-details, .edit-profile-form {

      max-width: 500px;

      margin: 0 auto;

    }

    .profile-details h2, .edit-profile-form h2 {

      margin: 0 0 20px 0;

      font-size: 24px;

      color: #333;

    }

    .profile-details p {

      margin: 15px 0;

      font-size: 16px;

    }

    .profile-details p strong {

      display: inline-block;

      width: 150px;

      color: #555;

    }

    .edit-profile-form label {

      display: block;

      margin: 10px 0 5px 0;

      font-weight: bold;

      color: #555;

    }

    .edit-profile-form input {

      width: 100%;

      padding: 10px;

      margin-bottom: 15px;

      border: 1px solid #ccc;

      border-radius: 4px;

    }

    .edit-profile-form button, .profile-details button {

      background-color: #28a745;

      color: #fff;

      border: none;

      padding: 10px 20px;

      border-radius: 4px;

      cursor: pointer;

    }

    .edit-profile-form button:hover, .profile-details button:hover {

      background-color: #218838;

    }

    .footer {

      background-color: rgba(51, 51, 51, 0.9);

      color: #fff;

      text-align: center;

      padding: 10px;

    }

    .hidden {

      display: none;

    }

  </style>

</head>

<body>

  <div class="header">

    <h1>Swift Pay Solutions</h1>

    <div class="user-info">

      <span>Welcome, <span id="profileName">kapenguria 1</span></span>

      <button class="logout-button">Logout</button>

    </div>

  </div>

    <div class="main-content">

      <div class="profile-details" id="profileDetails">

        <h2>Profile</h2>

        <p><strong>Name:</strong> <span id="name">John Doe</span></p>

        <p><strong>Email:</strong> <span id="email">john.doe@example.com</span></p>

        <p><strong>Bank Account Number:</strong> <span id="bankAccount">1234 5678 9012 3456</span></p>

        <p><strong>Phone Number:</strong> <span id="phone">+1 (123) 456-7890</span></p>

        <p><strong>Department:</strong> <span id="department">Finance</span></p>

        <button onclick="toggleEditMode()">Edit Profile</button>

      </div>

      <div class="edit-profile-form hidden" id="editProfileForm">

        <h2>Edit Profile</h2>

        <form id="profileForm">

          <label for="editName">Name:</label>

          <input type="text" id="editName" name="name" required>

          <label for="editEmail">Email:</label>

          <input type="email" id="editEmail" name="email" required>

          <label for="editBankAccount">Bank Account Number:</label>

          <input type="text" id="editBankAccount" name="bankAccount" required>

          <label for="editPhone">Phone Number:</label>

          <input type="tel" id="editPhone" name="phone" required>

          <label for="editDepartment">Department:</label>

          <input type="text" id="editDepartment" name="department" required>

          <button type="submit">Save Changes</button>

          <button type="button" onclick="toggleEditMode()">Cancel</button>

        </form>

      </div>

    </div>

  </div>

  <div class="footer">

    <p>Swift Pay Solutions | © 2025</p>

  </div>

  <script>

    function loadProfile() {

      const profile = JSON.parse(localStorage.getItem('profile')) || {

        name: "John Doe",

        email: "john.doe@example.com",

        bankAccount: "1234 5678 9012 3456",

        phone: "+1 (123) 456-7890",

        department: "Finance"

      };

      document.getElementById('profileName').textContent = profile.name;

      document.getElementById('name').textContent = profile.name;

      document.getElementById('email').textContent = profile.email;

      document.getElementById('bankAccount').textContent = profile.bankAccount;

      document.getElementById('phone').textContent = profile.phone;

      document.getElementById('department').textContent = profile.department;

      document.getElementById('editName').value = profile.name;

      document.getElementById('editEmail').value = profile.email;

      document.getElementById('editBankAccount').value = profile.bankAccount;

      document.getElementById('editPhone').value = profile.phone;

      document.getElementById('editDepartment').value = profile.department;

    }

    function toggleEditMode() {

      const profileDetails = document.getElementById('profileDetails');

      const editProfileForm = document.getElementById('editProfileForm');

      profileDetails.classList.toggle('hidden');

      editProfileForm.classList.toggle('hidden');

    }

    document.getElementById('profileForm').addEventListener('submit', function (e) {

      e.preventDefault();

      const updatedProfile = {

        name: document.getElementById('editName').value,

        email: document.getElementById('editEmail').value,

        bankAccount: document.getElementById('editBankAccount').value,

        phone: document.getElementById('editPhone').value,

        department: document.getElementById('editDepartment').value

      };

      localStorage.setItem('profile', JSON.stringify(updatedProfile));

      loadProfile();

      toggleEditMode();

      alert("Profile updated successfully!");

    });

    loadProfile();

    document.querySelector('.logout-button').addEventListener('click', function () {

      alert("You have been logged out.");

      window.location.href = "login.html";

    });

  </script>

</body>

</html>

#### **Salary Calculation**

# Test Case 2: Calculate Gross Salary

Objective:

To ensure that the system computes the gross salary properly based on basic pay, allowances as well as bonuses.

Prerequisites:

Employee record with basic pay, allowances, and bonuses.

Procedure:

This can be done through the salary calculation module.!

Begin filling in personal basic information and complete information such as allowances, commission/ bonuses etc.

Calculate gross salary.

Expected Results:

The final output gives the total gross pay based on the basic pay, allowances and bonuses given to the employee.

The result is displayed accurately.

Verdict: Pass/Fail.

# Test Case 3: Leave Management

# Purpose: To confirm that the system reduces the qualified unpaid leave days carried forward from one calendar year to another from an employee’s salary.

# Prerequisites:

# Employee record with leave details.

# Procedure:

# In this case, one needs to locate the leave management module.

# Record working days to be taken by an employee as unpaid.

# Deduce any outstanding salaries from the above scale to determine the actual salary after the leave deductions.

# Expected Results:

# Another component that features in relation to the employee’s leave credits is that the system correctly debits the unpaid leave days.

# The current listing of salary is correct.

# 

# Test Case 4: Admin and Employee Login

Work description: This work aims at ascertaining that only employees and working admin can be granted access the payroll system.

Prerequisites:

Valid admin credentials.

Procedure:

1. Navigate to the login page.

2. Enter valid admin credentials.

3. Attempt to log in.

Expected Results:

Before that, for enabling an employee to get into the system, the system provides access to the employee dashboard..

The system displays a success message.

Here is the provided code

<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Payroll Management System</title>

  <style>

    body {

      font-family: Arial, sans-serif;

      margin: 0;

      padding: 0;

      display: flex;

      justify-content: center;

      align-items: center;

      height: 100vh;

      background-image: url('https://images.unsplash.com/photo-1554224155-6726b3ff858f?ixlib=rb-1.2.1&auto=format&fit=crop&w=1951&q=80');

      background-size: cover;

      background-position: center;

    }

    .container {

      background-color: rgba(255, 255, 255, 0.9);

      padding: 20px;

      border-radius: 8px;

      box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);

      width: 300px;

      text-align: center;

    }

    .container h2 {

      margin-bottom: 20px;

    }

    .container input {

      width: 100%;

      padding: 10px;

      margin: 10px 0;

      border: 1px solid #ccc;

      border-radius: 4px;

    }

    .container button {

      width: 100%;

      padding: 10px;

      background-color: #28a745;

      color: #fff;

      border: none;

      border-radius: 4px;

      cursor: pointer;

    }

    .container button:hover {

      background-color: #218838;

    }

    .options {

      margin-top: 15px;

    }

    .options a {

      color: #007bff;

      text-decoration: none;

      font-size: 14px;

    }

    .options a:hover {

      text-decoration: underline;

    }

    .hidden {

      display: none;

    }

    .dropdown {

      margin: 10px 0;

    }

    .dropdown-button {

      width: 100%;

      padding: 10px;

      background-color: #007bff;

      color: #fff;

      border: none;

      border-radius: 4px;

      cursor: pointer;

      text-align: left;

    }

    .dropdown-button:hover {

      background-color: #0056b3;

    }

    .dropdown-content {

      margin-top: 5px;

      overflow: hidden;

      transition: max-height 0.3s ease-out;

      max-height: 0;

    }

    .dropdown-content label {

      display: block;

      margin: 5px 0;

    }

    .dropdown-content input {

      margin-right: 10px;

    }

  </style>

</head>

<body>

  <div class="container" id="loginContainer">

    <h2>Payroll System Login</h2>

    <form id="loginForm">

      <div class="dropdown">

        <button type="button" class="dropdown-button" onclick="toggleDropdown()">Select User Type ▼</button>

        <div class="dropdown-content" id="dropdownContent">

          <label>

            <input type="radio" name="userType" value="admin" checked> Administrator

          </label>

          <label>

            <input type="radio" name="userType" value="employer"> Employer

          </label>

        </div>

      </div>

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

      <input type="password" id="password" placeholder="Password" required>

      <button type="submit">Login</button>

    </form>

    <div class="options">

      <a href="#" id="forgotPasswordLink">Forgot Password?</a> | <a href="#" id="signupLink">Sign Up</a>

    </div>

  </div>

  <div class="container hidden" id="forgotPasswordContainer">

    <h2>Forgot Password</h2>

    <form id="forgotPasswordForm">

      <input type="email" id="email" placeholder="Enter your email" required>

      <button type="submit">Reset Password</button>

    </form>

    <div class="options">

      <a href="#" id="backToLoginLink1">Back to Login</a>

    </div>

  </div>

  <div class="container hidden" id="signupContainer">

    <h2>Sign Up</h2>

    <form id="signupForm">

      <input type="text" id="fullName" placeholder="Full Name" required>

      <input type="email" id="signupEmail" placeholder="Email" required>

      <input type="password" id="signupPassword" placeholder="Password" required>

      <input type="password" id="confirmPassword" placeholder="Confirm Password" required>

      <button type="submit">Sign Up</button>

    </form>

    <div class="options">

      <a href="#" id="backToLoginLink2">Back to Login</a>

    </div>

  </div>

  <script>

    function toggleDropdown() {

      const dropdownContent = document.getElementById('dropdownContent');

      if (dropdownContent.style.maxHeight) {

        dropdownContent.style.maxHeight = null;

      } else {

        dropdownContent.style.maxHeight = dropdownContent.scrollHeight + "px";

      }

    }

    document.getElementById('loginForm').addEventListener('submit', function (e) {

      e.preventDefault();

      const userType = document.querySelector('input[name="userType"]:checked').value;

      const username = document.getElementById('username').value;

      const password = document.getElementById('password').value;

      if (username === "admin" && password === "admin123" && userType === "admin") {

        alert("Login successful as Administrator!");

        window.location.href = "admin\_dashboard.html";

      } else if (username === "employer" && password === "employer123" && userType === "employer") {

        alert("Login successful as Employer!");

        window.location.href = "employer\_dashboard.html";

      } else {

        alert("Invalid credentials or user type!");

      }

    });

    document.getElementById('forgotPasswordForm').addEventListener('submit', function (e) {

      e.preventDefault();

      const email = document.getElementById('email').value;

      alert(`Password reset link sent to ${email}`);

      document.getElementById('forgotPasswordContainer').classList.add('hidden');

      document.getElementById('loginContainer').classList.remove('hidden');

    });

    document.getElementById('signupForm').addEventListener('submit', function (e) {

      e.preventDefault();

      const password = document.getElementById('signupPassword').value;

      const confirmPassword = document.getElementById('confirmPassword').value;

      if (password !== confirmPassword) {

        alert("Passwords do not match!");

        return;

      }

      alert("Sign up successful! Please log in.");

      document.getElementById('signupContainer').classList.add('hidden');

      document.getElementById('loginContainer').classList.remove('hidden');

    });

    document.getElementById('forgotPasswordLink').addEventListener('click', function (e) {

      e.preventDefault();

      document.getElementById('loginContainer').classList.add('hidden');

      document.getElementById('forgotPasswordContainer').classList.remove('hidden');

    });

    document.getElementById('signupLink').addEventListener('click', function (e) {

      e.preventDefault();

      document.getElementById('loginContainer').classList.add('hidden');

      document.getElementById('signupContainer').classList.remove('hidden');

    });

    document.getElementById('backToLoginLink1').addEventListener('click', function (e) {

      e.preventDefault();

      document.getElementById('forgotPasswordContainer').classList.add('hidden');

      document.getElementById('loginContainer').classList.remove('hidden');

    });

    document.getElementById('backToLoginLink2').addEventListener('click', function (e) {

      e.preventDefault();

      document.getElementById('signupContainer').classList.add('hidden');

      document.getElementById('loginContainer').classList.remove('hidden');

    });

  </script>

</body>

</html>

# SAMPLE RESULTS

# Sample result 1

This is the login page of the system

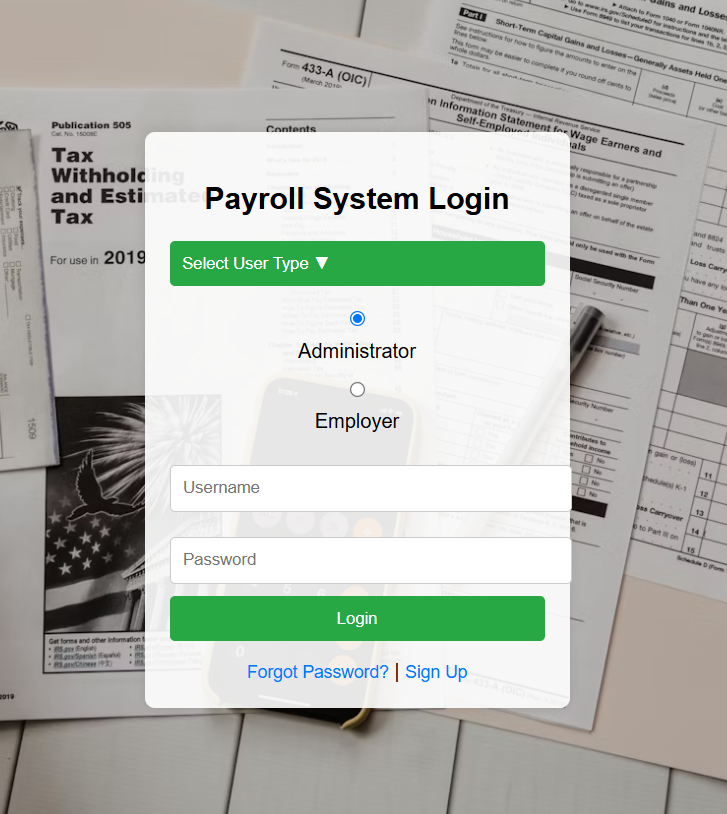


Figure 4

# Sample result 2

This is a successful dashboard page of the system when the user logs in

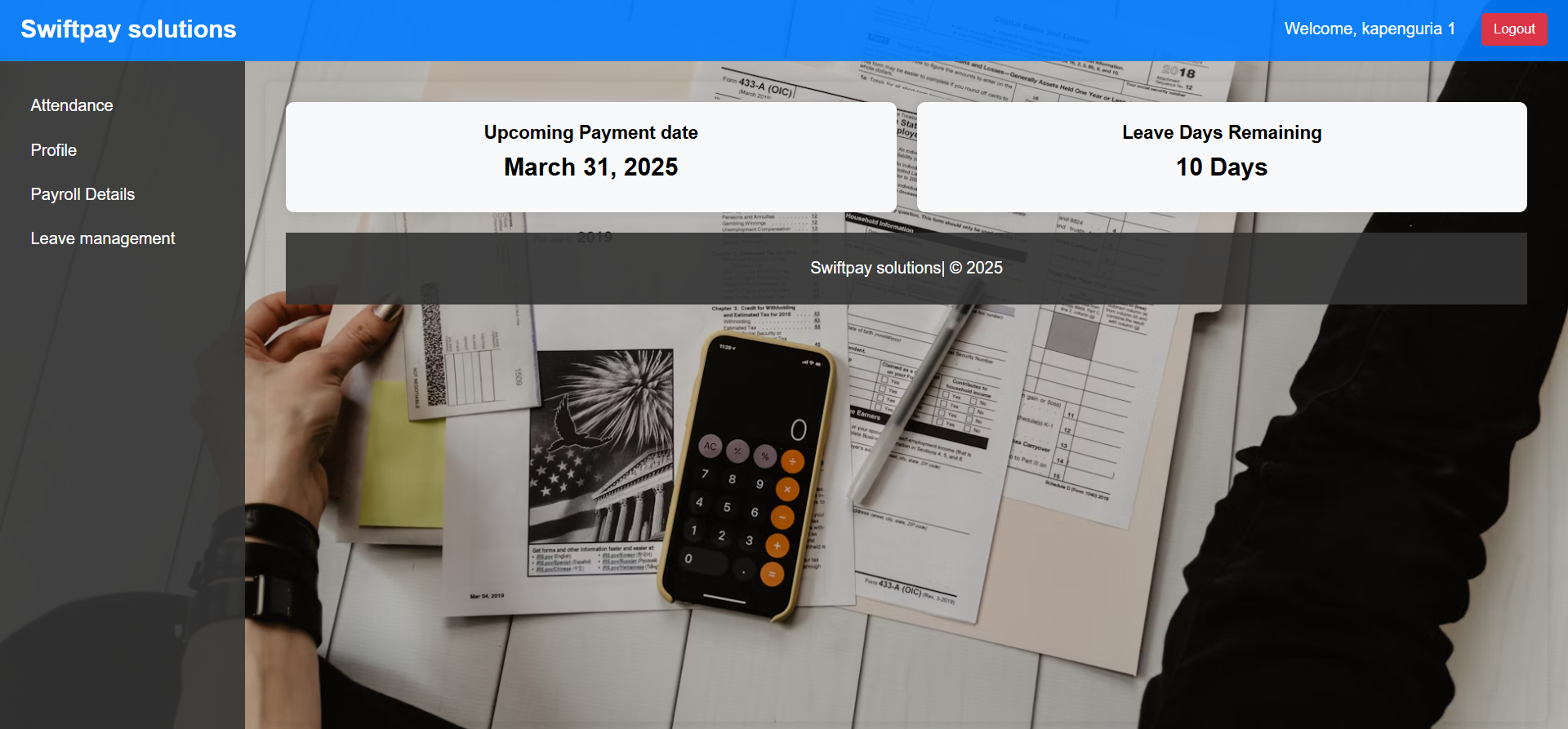


Figure 5

# Sample result 3

This shows how the employee will be able to apply for a leave

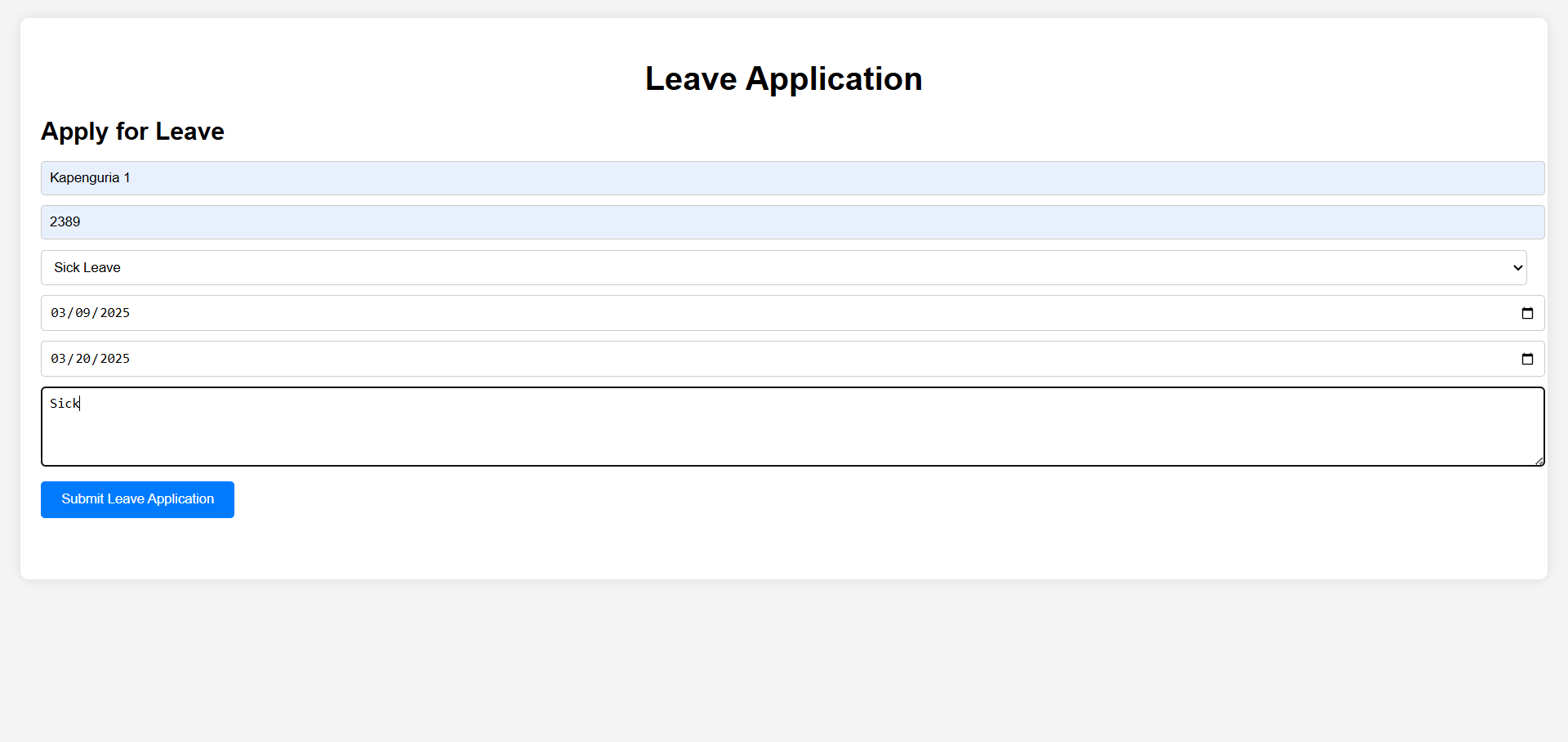


Figure 6

# CHAPTER SIX: IMPLEMENTATION AND DEPLOYMENT

# 6.1 Data conversion

The data conversion procedures include transferring former toile records, pay details and payroll information from the main application to swift pay Payroll Management System. The following are followed to ensure there is a proper migration of data since it is an accurate way of working:

1. Data extraction: Information from the main system is exported into CSV especially on the employee details, structure salary and even the payroll history.
2. Data Preprocessing: It involved such operations as data categorization where there was inconsistency (e.g. some entries had no valid employee ID number while some entries of the salary were wrongly recorded).
3. Data Conversion: In the second process, data was converted to conform to the new system requirements such as changing the date format as well as changing old department codes to the current new department codes.
4. Data Loading: In the new system MySQL database, the transformed data was migrated through the ETL (Extract, Transform, Load) script.

Verification: Upon loading, validation checks were done on the data to find out their accuracy. For instance, the check was made of the overall number of records of the employees contained in the legacy system for the check to be made against the records available in the new system of the company.

# 6.2 Implementation Strategy

# The following were the steps adopted for the changeover process for the Payroll Management System: This has helped in reducing risks and ensure that there was smooth transition as follows:

# Phase 1: Pilot Testing:

# After that, the system was pilot in the HR department Before it was introduced in other departments in the company.

# HR staff feedback has been obtained and all the small problems encountered were addressed.

# Phase 2: Departmental Rollout:

# The system was implemented to the finance and accounting division of the company.

# Some of the training sessions included the following: User training: There was a user training process with the intention of orienting the users to the new system.

# Phase 3: Organization-Wide Deployment:

# Even though the procedure was initiated only for the representative offices, the system was launched throughout the organization.

# Sustaining support was offered to cover one or many problems that could arise during the change process.

# Outcome: Thus, the implementation in phases helped avoid a lot of problems on the transition to a new system and the Payroll operations were not be significantly affected.

# 

# 6.3 System Specifications

# Hardware Requirements

To ensure the Payroll Management System operates efficiently, the following hardware specifications are required:

1. **Server Hardware**:
   * **Processor**: Intel Xeon or equivalent (minimum 4 cores).
   * **RAM**: 8GB or higher for optimal performance.
   * **Storage**: 1TB SSD for fast data access and storage.
   * **Network**: High-speed internet connection with a minimum bandwidth of 100 Mbps.
2. **Client Hardware**:
   * **Processor**: Intel i5 or equivalent.
   * **RAM**: 8GB or higher.
   * **Storage**: 256GB SSD or HDD.
   * **Display**: Minimum 15-inch monitor with 1080p resolution.
3. **Peripheral Devices**:
   * **Printer**: For generating payslips and payroll reports.
   * **Barcode Scanner**: For employee attendance tracking (if integrated).

**Outcome**: The hardware requirements ensure that the system can handle payroll processing for a large number of employees without performance bottlenecks.

# Software Requirements

The Payroll Management System requires the following software components to function effectively:

1. **Operating System**:
   * **Server**: Linux (Ubuntu 20.04 LTS) or Windows Server 2019.
   * **Client**: Windows 11, macOS, or Linux.
2. **Database**:
   * **MySQL 8.0**  for storing employee records, salary details, and payroll data.
3. **Web Server**:
   * **Apache** or **Nginx** for hosting the payroll application.
4. **Programming Languages and Frameworks**:
   * **Backend**: PHP and MY SQL
   * **Frontend**: HTML5, CSS3, JavaScript.
   * **Database Querying**: SQL.
5. **Browser Compatibility**:
   * Google Chrome (latest version).
   * Mozilla Firefox (latest version).
   * Microsoft Edge (latest version).
6. **Additional Tools**:
   * **Docker**: For containerization and easy deployment.
   * **Git**: For version control and collaboration during development.

**Outcome**: The software stack ensures that the system is robust, scalable, and compatible with modern technologies.

# 6.4 Support and Training

Training and support were provided to the end users to ensure that they embrace the change of the new Payroll Management System.

1. Training Sessions: Hands-on Workshops: These training sessions were conducted to enable group of Accounting, finance and human resource personal about the features of the system. Role-Based Training: Tailored instruction for various user roles, such as payroll clerks and HR supervisors.

2. User Manual – A long document that describes all the capabilities of the system and detail instructions on how to create a report, add staff, as well as determine the compensation.

There is a series of short videos which demonstrates typical work flows such as making pay stubs or employee leave processes.

3. The personnel responsible for addressing users’ queries and issues as well as providing information is presented in the helpdesk. Ticketing System: To ensure fast response, users may be availed the privilege to report the problems through the ticketing system.

KB and FAQ: A list of frequently asked questions and answers to those questions in the context of knowledge base. 6.5 Implementing the System   
Cloud computing technology was utilized to deploy the Payroll Management System in the environments to enhance scalability, availability and reliability. Some of the actions in deployment process included:

1. Server Setup: o Amazon Web Services (AWS) was used to gain a cloud server infrastructure.

In terms of distribution, Docker was employed in order to describe the system and easily scale as well as deploy it.

2. Database Configuration:

On the cloud server, MySQL database was installed to store all data that will be used by the application.

In the case of data loss, backup and recovery procedures were set as automated to ensure high availability of the project data.

3. Application Deployment:

In order to implement this, the CI/CD pipeline was followed for the system deployment.

In order to avoid frequent disruption, updates as well as patches were done with the help of scripts.

Maintenance and Monitoring: o Monitoring Tools: Nagios software and Prometheus software were used to monitor system so that in case of any failing then it is noted instantly.

Maintenance Schedule: In order to be able to update the system and fine-tune it in certain aspects, specific time-tabling for maintenance were established.

User Access:

Due to restricted access to some of the content and the availability of web hosting services, the users were given a secure web base to use the system.

To ensure proper checks on access and to ensure that only the authorized personnel could have access to some sensitive information such as Payroll data, the company adopted Role-Based Access Control or RBAC.

# CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION

# 7.1 DISCUSSION

# At the end, the program known as Swiftpay solutions was developed and implemented to solve issues arising with the processing of the payroll within the organization. Some of the issues that have been met within the project include, data entry mistakes, time-consuming salary processing, and absence of a central database for storing payroll information. As evident from the above account, adoption of an efficient and well-integrated payroll management system came with benefits such as freeing up more time and effort in the process, increase in accuracy and high levels of security of the data.

# 

# 1. Regular System Updates:

# Make sure to update the system often as possible with new patches and other related software to enhance on its functionality as well as to avoid break down as result of hackers.

# 2. Advanced Reporting Features:

# Extend reporting and analytical functionality for payroll data to include other aspects like trends of wages and taxes, and leave history of the employees.

# 3. Integration with Other Systems:

# Use other related systems in the organization like the human resource management and the attendance tracking system to expand upon the Payroll Management System, which will also enhance the reliability of data entered.

# 4. Ongoing User Training:

# It is recommended that training sessions are conducted periodically to the new and old users of the system with respect to the new development made on the system.

# 5. Disaster Recovery Plan:

# Create contingency plan that focuses on the issue of availing or mitigating consequences of a system failure or loss of data.

# 7.2 RECCOMENDATION

enforce regular password updates

the adoption of auxiliary means of identification based on the use of SMS/email verification or personal authenticator application for entering the account without authorization.

Gather user feedback regularly

Consider the following good practices for scalability of the growth of the employees:

data recovery mechanisms for unexpected failures.

# 7.3 LIMITATIONS

# • It may, however, be slightly expensive for small scale businesses when it comes to maintenance.

# • However, added functionalities may be necessary for the better satisfaction of various departments or organizations.

# • Some of the users may need to undergo some form of training in order to be able to deal with the new system which they were not used to from the earlier manual methods.

# • Implementing and in particular transferring data from the old system may take a considerable amount of time and can be technically demanding.

# 7.4 CONCLUSION

# The current different situation caused that Swiftpay solutions was successful due to giving a reliable and effective system to manage the process of payroll. Apart from satisfying the organization’s short term needs, this system can expand in the future with ease. It has made some significant changes like increasing the operational efficiency of the company activities since there are no longer hassles with manual processing of payroll, data are accurate, and the user interface has been enhanced.

# 

# REFERENCES

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Mahajan, K., Shukla, S., & Soni, N. (2015). A review of computerized payroll systems. *International Journal of Advanced Computer Research, 5*(18), 1–7.

Cisco Systems. (2020). *Global payroll management challenges in multinational corporations* [Internal report]. Cisco Systems.

PT. Tirta Varia Intipratama. (2019). *Payroll processing using PRO-Int software: A case study* [Internal document]. Jakarta, Indonesia.

APPENDEXIES   
A: BUDGET

* **Software Tools:** ksh 30000
* **Hardware:** ksh 20000 (laptop).
* **Other expenses:** ksh 15000(transport).
* **Total Estimated Cost:** ksh 65000

# B. SCHEDULE

* **Week 1-2:** Requirement gathering and analysis.
* **Week 3-4:** System design
* **Week 5-8:** System development (coding and integration).
* **Week 9-10:** Testing and debugging.
* **Week 11:** Deployment
* **Week 12:** Project documentation and final submission.

C. SAMPLE QUESTIONNARE   
Individual Questionnaire

*Dear Participant,*  
This questionnaire will help to gather information on your experience and preferences regarding a payroll management. Your responses will help improve and upgrade the few areas that may affected.

Section 1: General information  
1. Name …………………………………….

2.Job Title…………………………………………

3.Department……………………………………..

4.Email………………………………………….

Section 2: Current Payroll Process

5. How do you currently process payroll?

* Manual (Excel/Spreadsheets)[]
* Payroll Software[]
* Outsourced to a Payroll Service Provider[]
* Other (Please specify): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. How frequently is payroll processed?

* Weekly[]
* Bi-weekly[]
* Monthly[]
* Other (Please specify): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. What are the common challenges you face in payroll processing?

* Delays in salary processing[]
* Incorrect salary calculations[]
* Tax and compliance issues[]
* Managing overtime and deductions[]
* Other (Please specify): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 3: Payroll System Features

1. Which features are most important to you in a payroll system? (Check all that apply)

* Automatic salary calculation[]
* Tax and compliance management[]
* Integration with attendance/HR systems[]
* Payslip generation and distribution[]
* Direct bank deposits[]
* Employee self-service portal[]
* Overtime and deductions management[]
* Other (Please specify): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Do you require multi-currency payroll processing?

* Yes[]
* No[]

10. Would you like the system to integrate with accounting software?

* Yes[]
* No[]

11. What type of reports would you need from the payroll system?

* Payroll summary report
* Employee salary breakdown
* Tax and compliance reports
* Leave and overtime reports
* Other (Please specify): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section 4: Security & Compliance

12. What level of access control should the system have?

* Role-based access (HR, Finance, Employee)[]
* Only HR/Admin access[]
* Other (Please specify): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. How important is data encryption and security compliance?

* Extremely important
* Important
* Not important

14. Do you need the payroll system to comply with local labor laws and tax regulations?

* Yes[]
* No[]
* Not sure[]

Section 5: User Experience & Support

15. What is your preferred deployment method for the payroll system?

* Cloud-based (Online)[]
* On-premises (Installed on company servers)[]

16. What level of technical support would you require?

* 24/7 Support[]
* Business Hours Only[]
* No support needed[]

17. How would you rate the importance of a user-friendly interface?

* Very important[]
* Somewhat important[]
* Not important[]

Section 6: Additional Comments

18. Do you have any other specific requirements or suggestions for the payroll system?

# D. SAMPLE CODE

<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Leave Application</title>

  <style>

*/\* CSS Styles \*/*

    body {

      font-family: Arial, sans-serif;

      background-color: #f4f4f4;

      margin: 0;

      padding: 0;

    }

    .container {

      max-width: 100%; */\* Full width \*/*

      margin: 20px; */\* Defined margins \*/*

      padding: 20px;

      background-color: #fff;

      border-radius: 8px; */\* Rounded corners \*/*

      box-shadow: 0 0 10px rgba(0, 0, 0, 0.1); */\* Light shadow \*/*

    }

    h1 {

      text-align: center;

      margin-bottom: 20px;

    }

    .employee-form {

      margin-bottom: 40px;

    }

    .employee-form h2 {

      margin-bottom: 15px;

    }

    .employee-form input,

    .employee-form select,

    .employee-form textarea {

      width: 100%;

      padding: 8px;

      margin-bottom: 10px;

      border: 1px solid #ccc;

      border-radius: 4px;

    }

    .employee-form button {

      padding: 10px 20px;

      background-color: #007bff;

      color: white;

      border: none;

      border-radius: 4px;

      cursor: pointer;

    }

    .employee-form button:hover {

      background-color: #0056b3;

    }

    .message {

      text-align: center;

      font-size: 18px;

      color: #333;

    }

    .status {

      margin-bottom: 20px;

    }

  </style>

</head>

<body>

  <div class="container">

    <h1>Leave Application</h1>

*<!-- Employee Form to Apply for Leave -->*

    <div class="employee-form">

      <h2>Apply for Leave</h2>

      <form id="leaveForm">

        <input type="text" id="employeeName" placeholder="Employee Name" required>

        <input type="text" id="employeeId" placeholder="Employee ID" required>

        <select id="leaveType" required>

          <option value="Sick Leave">Sick Leave</option>

          <option value="Vacation Leave">Vacation Leave</option>

          <option value="Personal Leave">Personal Leave</option>

          <option value="Maternity Leave">Maternity Leave</option>

          <option value="Paternity Leave">Paternity Leave</option>

        </select>

        <input type="date" id="startDate" required>

        <input type="date" id="endDate" required>

        <textarea id="reason" placeholder="Reason for Leave" rows="4" required></textarea>

        <button type="submit">Submit Leave Application</button>

      </form>

    </div>

  <script>

*// Function to add a new leave application*

    document.getElementById('leaveForm').addEventListener('submit', function (event) {

      event.preventDefault(); *// Prevent form submission*

*// Get form values*

      const employeeName = document.getElementById('employeeName').value;

      const employeeId = document.getElementById('employeeId').value;

      const leaveType = document.getElementById('leaveType').value;

      const startDate = document.getElementById('startDate').value;

      const endDate = document.getElementById('endDate').value;

      const reason = document.getElementById('reason').value;

*// Validate dates*

      if (new Date(startDate) > new Date(endDate)) {

        alert('End date must be after start date.');

        return;

      }

*// Display success message (or handle as needed)*

      alert('Leave application submitted successfully!');

*// Clear the form*

      document.getElementById('leaveForm').reset();

    });

  </script>

</body>

</html>