The University of Mindanao

IT5/L – IT Elective 2

2798

PayEase Payroll

Payroll System

Submitted to:

Renz Arriola

Submitted by:

Jhon Abueva O.

December 2025

Table of Contents

List of Figures

List of Tables

\

Figure 1: : PayEase Payroll

PayEase Payroll System

Many organizations, both small and large, require an accurate and reliable system to manage employee payroll operations, as manual payroll processing often leads to calculation errors, delayed salary releases, and difficulties in maintaining employee records. To address these challenges, the Python-based PayEase Payroll System is designed to automate payroll-related tasks, including employee registration, attendance monitoring, salary computation, payslip generation, and report viewing. By implementing an automated payroll management system, organizations can reduce human errors, ensure timely and reliable salary processing, improve transparency, and enhance overall operational performance and employee satisfaction [1].

Problem 1: Manual Payroll Computation

Manual payroll computation often leads to inaccuracies and workflow limitations in processing employee salaries. Errors may arise in calculating deductions, allowances, or taxes due to human mistakes, particularly when data is manually entered. Without an automated process, payroll administrators spend excessive time validating computations, resulting in delayed salary distribution and reduced workforce productivity [2]. Furthermore, inconsistent documentation and the absence of standardized procedures can cause discrepancies in employee records and financial reports. Over time, these recurring issues may undermine employee trust, increase operational costs, and negatively affect the overall performance of business operations [3].

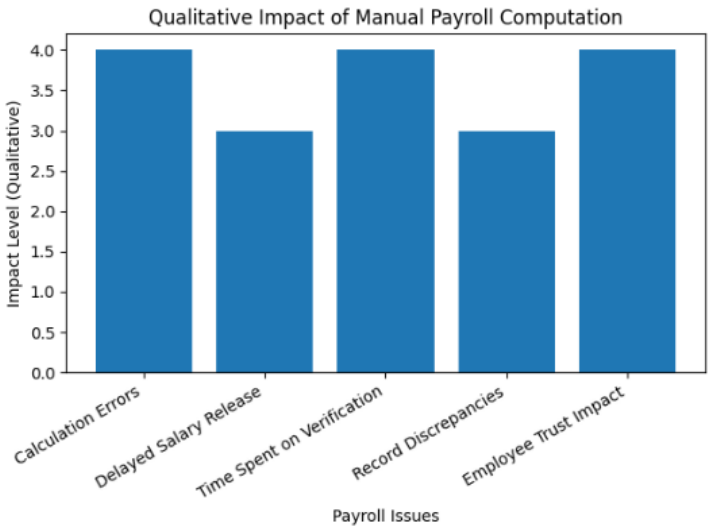


Figure 2: Impact of Manual Payroll

Solution 1: Automated Payroll Computation System

To address the challenges of manual payroll computation, the PayEase Payroll System provides an automated approach to managing salary processes through standardized payroll operations. The system allows administrators to add, view, update, and manage employee salary records within a centralized platform. It automatically computes gross pay, deductions, and net pay based on stored employee data, ensuring consistency and accuracy in payroll calculations. Additionally, the system enables the generation of digital payslips and payroll reports in a clear and organized format, supporting quick verification of salary details. By automating the entire payroll cycle, PayEase reduces human error, minimizes delays in salary release, and ensures that payroll information remains accurate, secure, and easy to maintain. This digital approach improves transparency, reliability, and flexibility in payroll management for both employers and employees [4].

Problem 2: Inefficient Employee Record Management

Managing employee records manually often results in disorganization, duplication, and data inconsistency within payroll systems. When employee profiles, attendance records, and salary information are stored on paper or in scattered files, updating and retrieving data becomes time-consuming and prone to error. The absence of a centralized record system increases the risk of misplaced documents and human mistakes, particularly during payroll processing and report preparation [5]. Furthermore, manual record management makes it difficult for administrators to track employee updates, verify attendance accurately, and produce reliable reports on time. These limitations slow down administrative operations and may lead to salary discrepancies, employee dissatisfaction, and reduced organizational productivity [6].

Solution 2: Centralized Digital Employee Management

To address the challenges of ineffective employee record management, the PayEase Payroll System introduces a centralized digital employee management solution. This system stores all employee-related information—including personal details, job positions, salary rates, attendance records, and performance history—in a single secure database. Authorized HR personnel can add, update, and remove employee records without relying on paper-based files, reducing errors and data loss associated with manual handling [7]. The system also allows quick searching and retrieval of records, supporting accurate record verification and faster administrative tasks. By maintaining organized, up-to-date, and reliable employee data, this centralized approach improves record accuracy, transparency, and overall payroll and HR operations [8].

Problem 3: Lack of Transparency and Accessibility for Employees

In many organizations, employees often experience limited access to their payroll information, leading to confusion and mistrust regarding their salaries, deductions, and benefits. Traditional payroll systems rely heavily on manual recordkeeping and HR intermediaries, which cause delays in responding to employee inquiries and increase administrative workload. This lack of transparency and accessibility prevents employees from verifying their payroll details promptly, resulting in disputes, dissatisfaction, and decreased morale. Furthermore, manual payroll procedures are prone to human errors, loss of records, and difficulties in updating or retrieving data efficiently. Over time, these issues hinder employee engagement, reduce organizational trust, and negatively affect productivity within the workplace [9].

Solution 3: : Employee Self-Service Payroll Portal

To address the issue of limited transparency and accessibility, the PayEase Payroll System introduces an Employee Self-Service Payroll Portal that allows employees to directly access their payroll information. Through this portal, employees can securely log in to view payslips, deductions, benefits, and other payroll-related records in real time. The system validates and organizes payroll data to maintain accuracy and prevent inconsistencies between employee and administrative records. By offering a centralized and user-friendly interface, the need for manual verification is reduced, and administrative workload is minimized. Furthermore, PayEase incorporates data encryption and authentication mechanisms to protect payroll information from unauthorized access. This feature enables employees to review and manage their payroll data anytime and anywhere, strengthening transparency, trust, and accountability within the organization [10].

.

Conclusion

The PayEase Payroll System offers a modern, efficient, and secure solution to the challenges faced by organizations in managing payroll operations. By automating salary computation, centralizing employee records, and providing an employee self-service payroll portal, the system eliminates the common issues of manual processing such as calculation errors, delayed salary releases, and poor data management. Through its user-friendly interface and integrated database, PayEase ensures that payroll procedures are accurate, transparent, and easily accessible to both administrators and employees.

Tools

The selection of Python, PyCharm, PyQt, MySQL, XAMPP, and a Laptop as core tools is grounded in their complementary roles in system development. Python, as a high-level programming language, enables efficient handling of logic, data processing, and system functionality due to its readability and extensive libraries. PyCharm functions as the integrated development environment that enhances productivity through features such as code management, debugging, and project organization. PyQt is employed to construct an intuitive graphical user interface, ensuring accessibility and user engagement through interactive windows and forms. MySQL serves as a robust relational database management system, providing secure storage, structured organization, and reliable retrieval of student information. XAMPP facilitates a controlled local server environment, enabling testing and integration of database and server components. The Laptop provides the essential hardware platform to run all development tools, ensuring portability and efficiency. Collectively, these tools form a cohesive technological framework that supports accuracy, usability, and scalability in the implementation of the registration system.

OwlReg: Use Cases

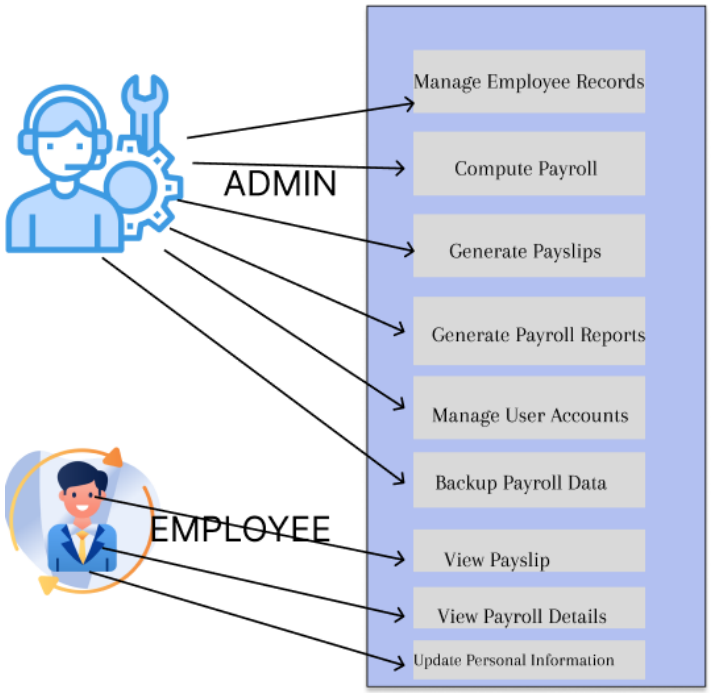
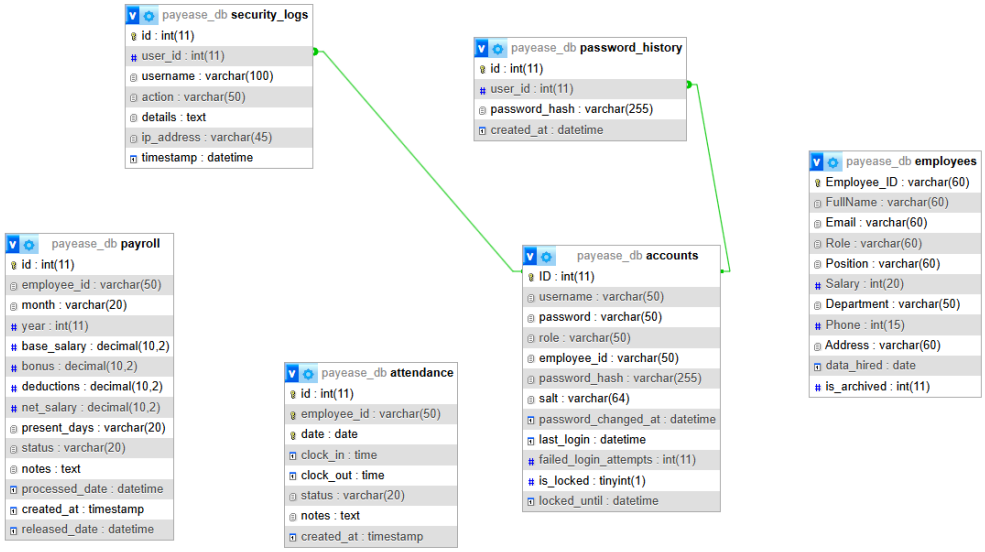


Figure 3: PayEase Payroll Use Cases

Entity Relationship Diagram



Data Dictionary

Table 1: ACCOUNT

accounts

Column	Type	Null	Default	Links to	Comments	Media type
ID *(Primary)*	int(11)	No				
username	varchar(50)	No				
password	varchar(50)	No				
role	varchar(50)	No				
employee_id	varchar(50)	Yes	*NULL*			

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	ID	2	A	No	
idx_employee_id	BTREE	No	No	employee_id	2	A	Yes	

Table 2: Attendance

attendance

Column	Type	Null	Default	Links to	Comments
id *(Primary)*	int(11)	No			
employee_id	varchar(50)	No			
date	date	No			
clock_in	time	Yes	*NULL*		
clock_out	time	Yes	*NULL*		
status	varchar(20)	Yes	Present		
notes	text	Yes	*NULL*		
created_at	timestamp	No	current_timestamp()		

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	id	4	A	No	
unique_attendance	BTREE	Yes	No	employee_id	4	A	No	
				date	4	A	No	
idx_employee_id	BTREE	No	No	employee_id	4	A	No	
idx_date	BTREE	No	No	date	4	A	No	

Table 3: Employees

employees

Column	Type	Null	Default	Links to	Comments	Media type
Employee_ID *(Primary)*	varchar(60)	No				
FullName	varchar(60)	No				
Email	varchar(60)	No				

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	Employee_ID	2	A	No	

Address	varchar(60)	No
data_hired	date	No
is_archived	int(11)	No

Table 4: Payroll

payroll

Column	Type	Null	Default	Links to	Comments	Media type
id *(Primary)*	int(11)	No				
employee_id	varchar(50)	No				
month	varchar(20)	No				
year	int(11)	No				
base_salary	decimal(10,2)	No				
bonus	decimal(10,2)	Yes	0.00			
deductions	decimal(10,2)	Yes	0.00			
net_salary	decimal(10,2)	No				
present_days	varchar(20)	Yes	30 days			
status	varchar(20)	Yes	Processed			
notes	text	Yes	*NULL*			
processed_date	datetime	No				
created_at	timestamp	No	current_timestamp()			
released_date	datetime	Yes	*NULL*			

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	id	2	A	No	
idx_employee_id	BTREE	No	No	employee_id	2	A	No	
idx_month_year	BTREE	No	No	month	2	A	No	
				year	2	A	No	
idx_processed_date	BTREE	No	No	processed_date	2	A	No	

Prototype

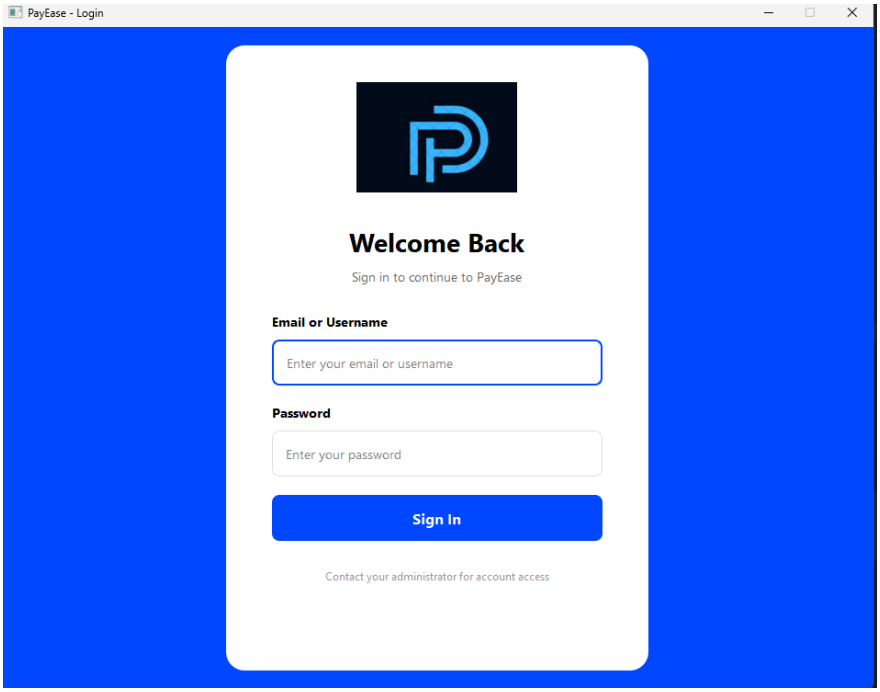


Figure 5: Login Admin/Employee

In PayEase, the login screen serves as the primary authentication gateway where users access the payment management system. The interface presents a clean, streamlined experience with the PayEase branding prominently displayed at the top, greeting returning users with a "Welcome Back" message. Users can enter their credentials through two input fields one for email or username and another for password before clicking the prominent blue "Sign In" button to access the platform. For users experiencing access issues or lacking credentials, a helpful note at the bottom directs them to "Contact your administrator for account access," indicating that PayEase operates within an organizational or enterprise environment where account creation and management is handled by system administrators rather than through self-registration.

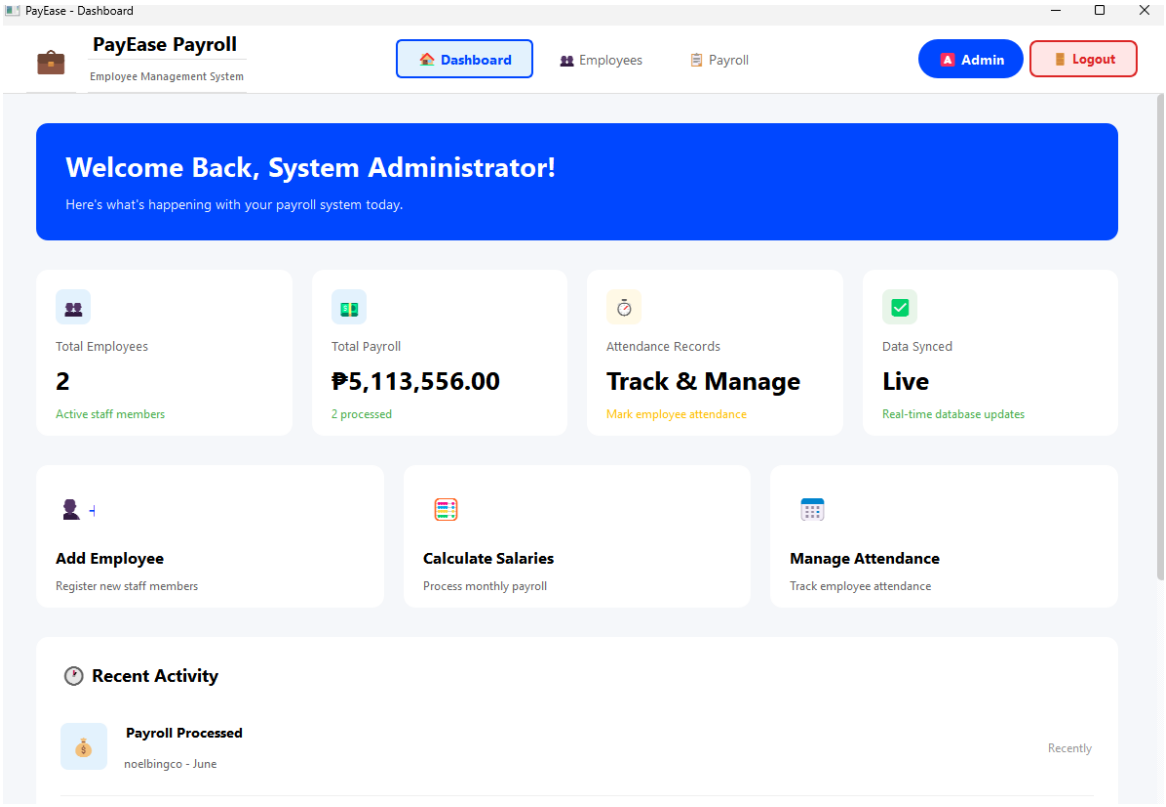


Figure 6: : Admin Dashboard

In PayEase Payroll Dashboard serves as the central hub for the Employee Management System, providing administrators with a comprehensive overview of payroll operations and key metrics. Upon logging in, the system administrator is greeted with a personalized welcome message and a snapshot of current system status, displaying four primary metrics: Total Employees (2 active staff members), Total Payroll (₱5,113,556.00 with 2 processed), Attendance Records (with options to track and manage employee attendance), and Data Synced status (showing live real-time database updates). The dashboard offers three quick-action cards for common tasks: Add Employee (to register new staff members), Calculate Salaries (to process monthly payroll), and Manage Attendance (to track employee attendance). At the bottom, a Recent Activity section logs system events, currently showing a recent payroll processing for "noelbingco - June." The top navigation bar provides access to other sections including Dashboard, Employees, and Payroll, while the upper right corner features Admin and Logout buttons for account management.

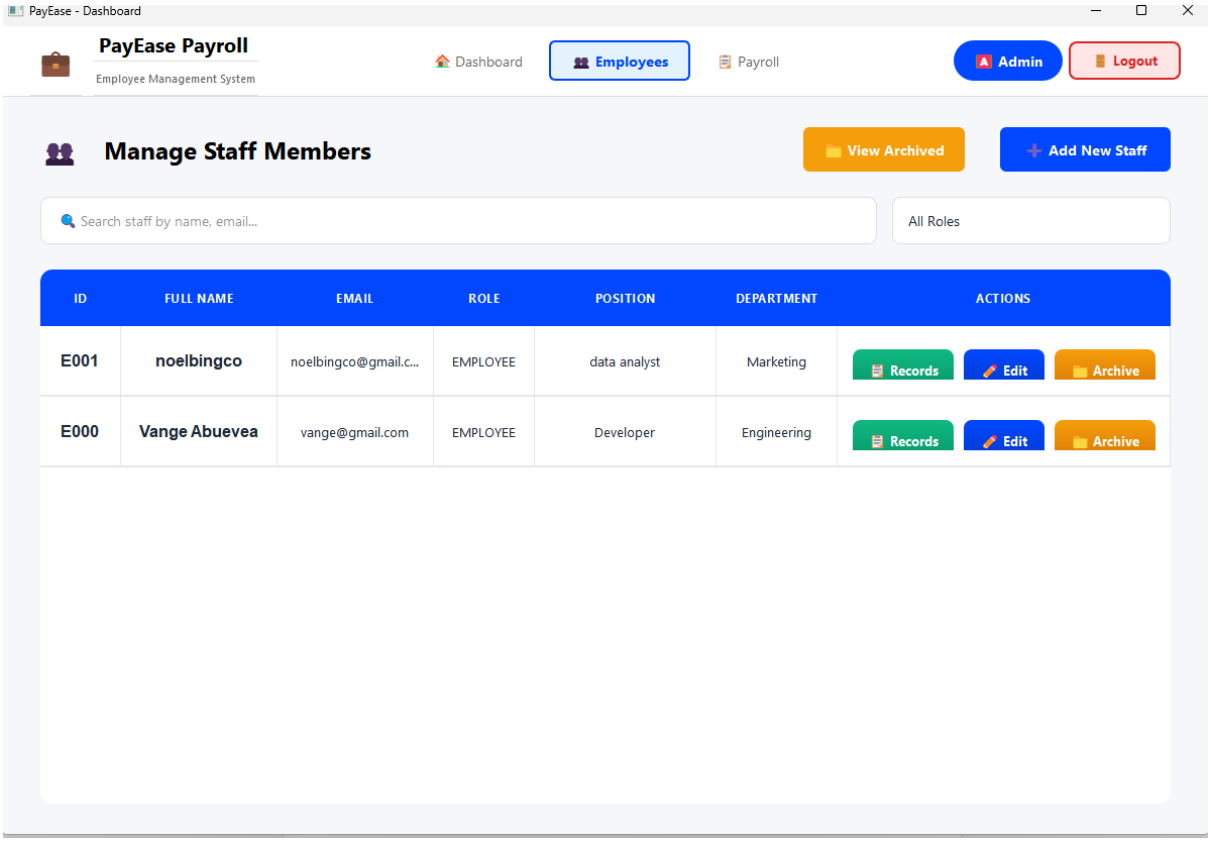


Figure 7: Manage staff Members

The Employees page in PayEase Payroll provides a comprehensive staff management interface where administrators can view, search, and manage all employee records. The page features a search bar for filtering staff by name or email, a role filter dropdown, and action buttons to view archived employees or add new staff members. The main display shows a detailed employee table with columns for ID, Full Name, Email, Role, Position, Department, and Actions, currently listing two active employees: noelbingco (E001), a data analyst in Marketing, and Vange Abuevea (E000), a developer in Engineering. Each employee record includes three action buttons—Records (green) to view detailed information, Edit (blue) to modify details, and Archive (orange) to deactivate employees providing administrators with complete control over workforce management.

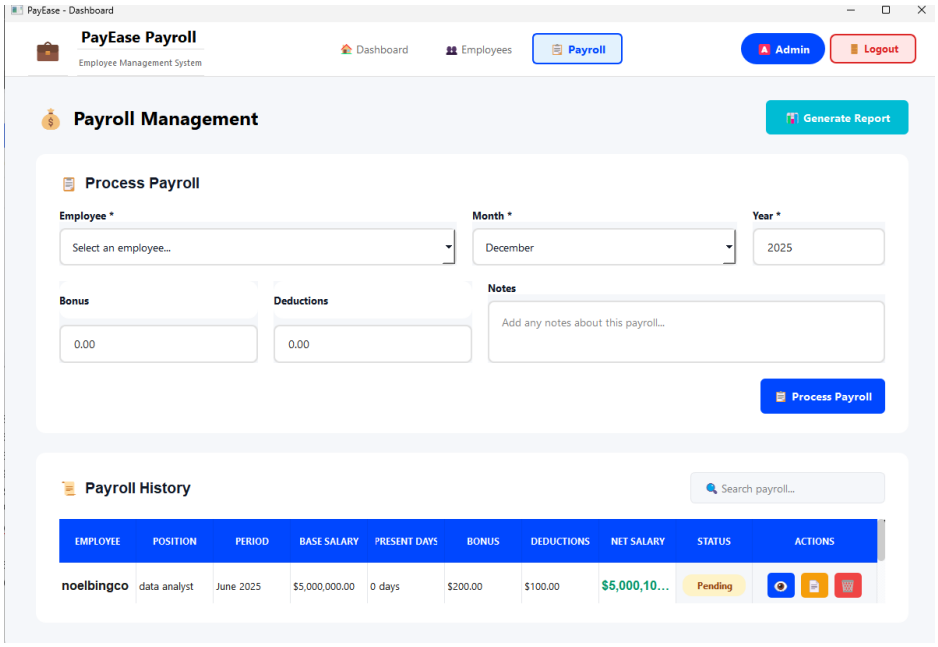


Figure 8: Payroll Management

The Payroll page in PayEase Payroll enables administrators to process employee salaries and view payment history. The Process Payroll form allows selection of an employee, month, and year, with fields for entering bonuses, deductions, and notes before processing the payment. The Payroll History table displays all processed payroll records with detailed information including employee name, position, period, base salary, present days, bonus, deductions, net salary, and status, with action buttons for viewing, editing, and deleting entries, ensuring comprehensive tracking and management of all payroll transactions.

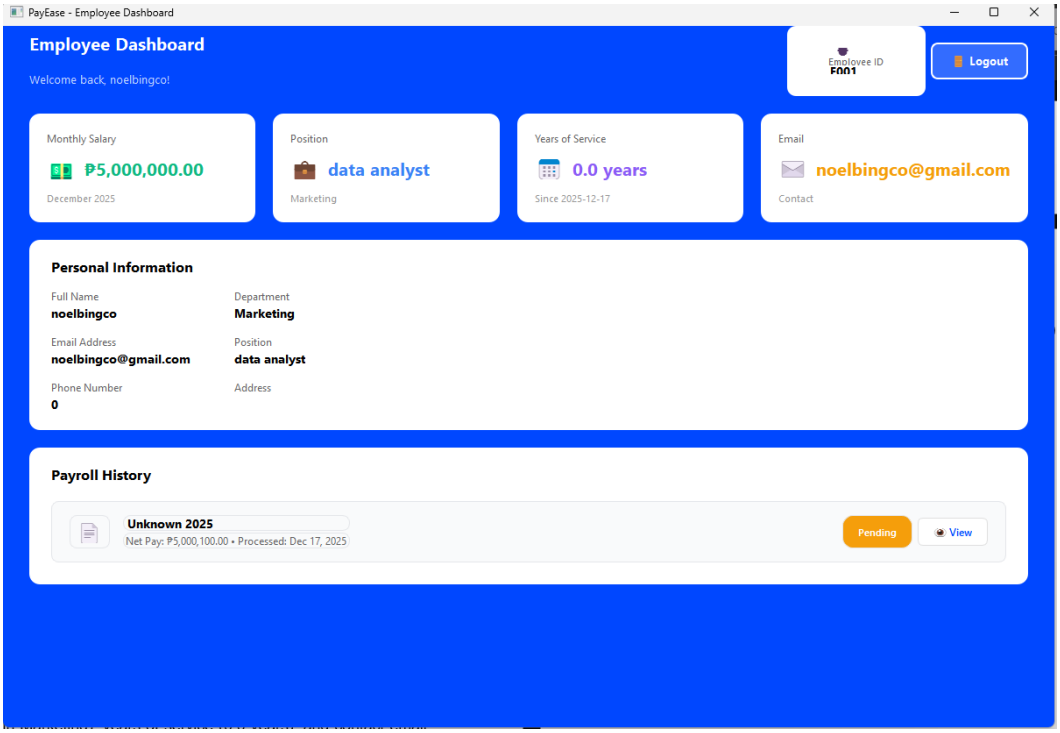


Figure 9 : Employee Dashboard

The **Employee Dashboard** in PayEase Payroll provides staff members with a comprehensive view of their employment and payroll information. The dashboard displays key details including monthly salary (₱5,000,000.00 for December 2025), position (data analyst in Marketing), years of service (0.0 years), and contact email. The Personal Information section shows complete employee details such as full name, department, email address, position, phone number, and address. The Payroll History section lists all processed salary payments with their status, currently showing one pending entry for December 17, 2025, with a net pay of ₱5,000,100.00 that employees can view for detailed payment information.

References

[1] &. F. FilePino, "Sample Payroll in the Philippines (Salary Computation Guide," 2025, June 27.

[2] A. M. Ahmed, "Web-based payroll management system: design, implementation, and evaluation. Journal of Electrical Systems and Information Technology," 2023. [Online]. Available: https://doi.org/10.1186/s43067-023-00082-5.

[3] S. A. Nitami and Permana, B. R. S., "Design of a Web-Based teacher Payroll Information System using CodeIgniter 4 Framework at MTS Ma'arif 30 Sumber Rejeki Mataram, Lampung.," 2025.

[4] H. G. (. Acker, " Automation of a factory payroll computation - ProQuest.".

[5] M. Isaacson, "A comprehensive guide to employee record management. Healthcare Human Capital Management," August 13 2024.

[6] A. S, "op 8 types of Payroll Management Systems to your business.," 27 january 2025. [Online]. Available: https://savantlabs.io/blog/automation-payroll-system-benefits.

[7] A. Diard, "ayroll Management: Processes and Solutions - PeopleSpheres. PeopleSpheres.," 20 august 2025. [Online]. Available: https://peoplespheres.com/payroll-management-processes-and-solutions/.

[8] A. Diard, ". Payroll Management: Processes and Solutions," 5 november 2025. [Online]. Available: https://peoplespheres.com/payroll-management-processes-and-solutions/.

[9] B. R. Accounting, "How Your Employees Can Benefit from Your Payroll Structure.," 9 February 2024. [Online]. Available: https://www.bluerocketaccounting.com/news/how-your-employees-can-benefit-from-your-payroll-structure.

[10] H. &. T. H. Team, "How to keep small business payroll Records.," 12 june 2025. [Online]. Available: https://www.joinhomebase.com/blog/payroll-records.

[11]