

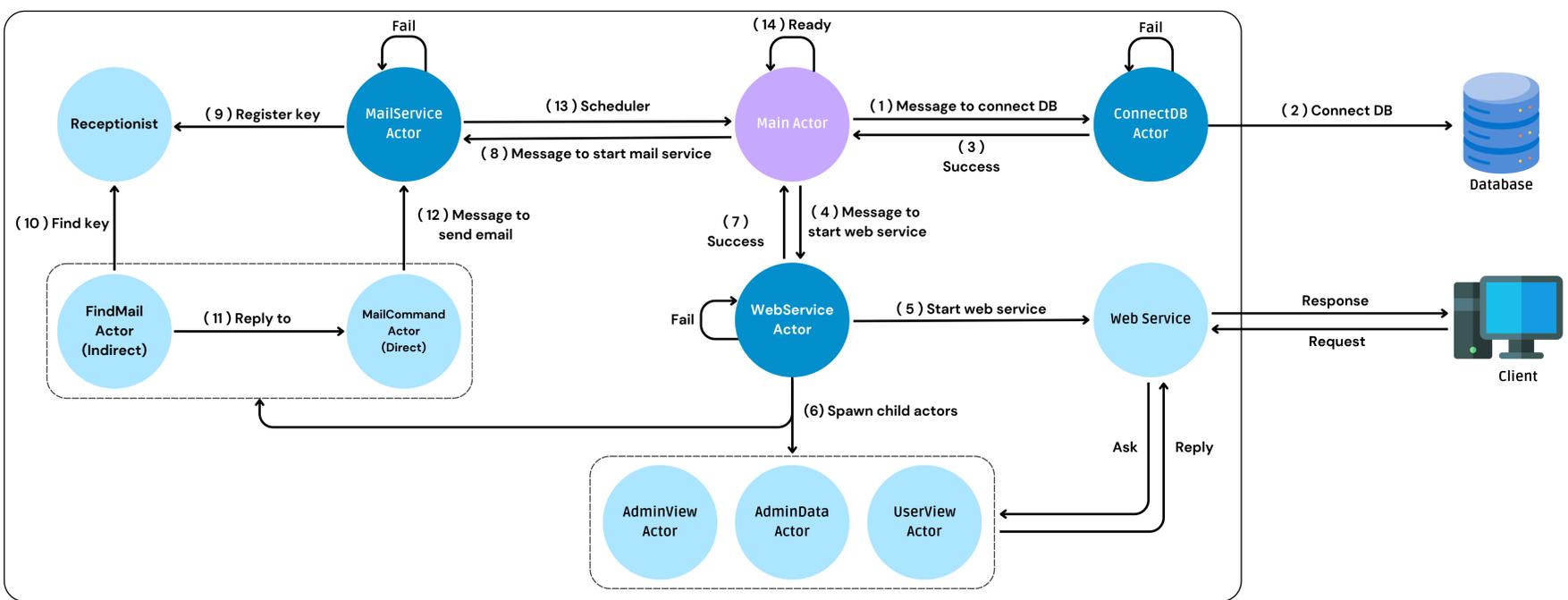
## Abstract

Tradition Brokers (Thailand) Co., Ltd., Chiang Mai Branch, Registration No. 00001, has an internal system for recording employee work attendance. However, the existing system was built using outdated technologies that are no longer the company's primary focus and do not align with the company's software development standards. As a result, long-term maintenance and support for the system have become increasingly difficult. To address these issues and enhance maintainability, the company has decided to develop a new system using its primary technology stack: Scala, with Apache Pekko, a framework based on the actor model architecture and PostgreSQL as the relational database management system. The new system is designed to retain the original functional and non-functional requirements while enabling future improvements and easier maintenance.

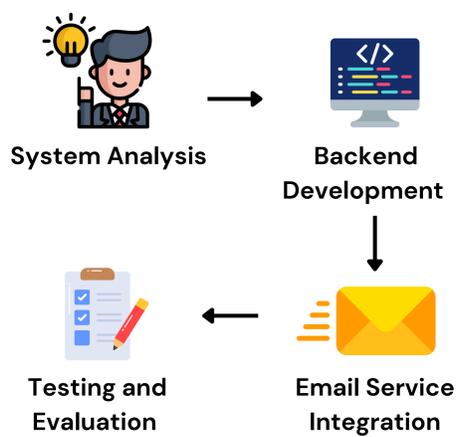
## Introduction

Tradition Brokers (Thailand) Co., Ltd., Chiang Mai Branch, No. 00001, specializes in developing software for financial products. The author was responsible for redeveloping the backend of the work attendance record system. This redevelopment followed the company's standard software development practices, ensuring seamless integration with the existing frontend and database systems. The process focused on optimizing system efficiency while preserving the core functionalities of the original system.

## System Design



## Work Process



## Results

Test Case	Description	Expected Result	Status
Login Test	Verify user login with valid and invalid credentials	Successful login or proper error message	✓
Database Connect	Check connection to PostgreSQL database	Successfully connects and allows queries	✓
Authorization and Role Management	Test different access levels for admins and employees	Access is restricted based on user roles	✓
CRUD Test	Test Create, Read, Update, Delete operations on database	Successful CRUD operations for entities	✓
API Test with Frontend	Test API responses and integration with frontend	Correct data rendering on UI	✓
Mail Service	Verify email sending using Mailgun	Email sent successfully	✓
Cron Job	Ensure scheduled mail service runs automatically	Email report is sent on schedule	✓

## Technologies



## References

1. "Tour of Scala" Scala Documentation. Available: <https://docs.scala-lang.org/tour/tour-of-scala.html>.
2. "What is PostgreSQL?" PostgreSQL. Available: <https://www.postgresql.org/docs/current/intro-what-is.html>.
3. "Apache Pekko". Available: <https://pekko.apache.org/>.

## Conclusion

The redevelopment of the work attendance record system successfully modernized the existing infrastructure by adopting Scala, Apache Pekko, and PostgreSQL, enhancing maintainability and scalability. The new system retains core functionalities while aligning with the company's software standards, providing a reliable foundation for future enhancements and long-term support.