

# **Payroll System Reflection Report**

## Technical Learnings:

- Strengthened software engineering skills in requirements analysis, Agile development, and full-stack implementation of a CLI application.
- Gained experience in integrating Python with PostgreSQL, handling authentication security and email automation.
- Early planning and modular design improved efficiency in parallel development.
- Signal Handling for Forced Logouts: Implemented Ctrl+C signal handling to prevent sudden exits and ensure proper time tracking for employees.
- Identified need for comprehensive unit testing early to reduce bug-fixing time later.
- Addressed challenges in payroll calculations (e.g., Māori bonus, early logout penalties) through iterative testing and stakeholder validation.

## Teamwork and Process Improvement:

- Effective communication (daily stand-ups, check-ins) prevented misunderstandings.
- Agile practices (Jira, sprint ceremonies) synchronized efforts between backend and business logic teams.
- Team diversity led to better edge-case analysis and innovative solutions.
- Future improvement: Rotating leadership roles to enhance skills and responsibility sharing.

## Cultural Considerations:

- Te Tiriti o Waitangi principles (partnership, participation) guided development.
- Consultation with Kaiārahi (Māori cultural advisor) helped integrate cultural features (e.g., Te Reo Māori payslips, Māori holidays).
- Required additional time for cultural alignment but resulted in higher acceptance and trust.

## Challenges and Key improvements:

- **Time Estimation challenges:**

- Some features, particularly payroll compliance rules and multi-language support, took longer than expected. Future projects should include buffer periods for complex features and better sprint planning to minimize last-minute delays.

- **Remote Collaboration Adjustments**

- Given the diverse backgrounds of the team members, some challenges in coordinating across time zones and working styles were observed. Implementing more flexible meeting schedules and asynchronous task tracking would improve future projects.

## Cultural Considerations and Inclusivity:

One of the most unique aspects of this payroll project was its commitment to Te Tiriti o Waitangi (The Treaty of Waitangi) principles. Unlike generic payroll systems, this project required thoughtful integration of Māori cultural values, ensuring that Māori employees' needs were respected in payroll processing.

Key cultural elements included:

- **Te Reo Māori Payslips:** Employees could opt for payslips in either English or Te Reo Māori, fostering language inclusivity.
  - **Recognition of Māori Holidays:** The system accounted for Māori public holidays, ensuring compliance with cultural leave policies.
  - **Equitable Compensation for Māori Employees:** A 5% additional pay bonus for Māori staff, aligned with the company's equity policy.
  - To ensure authentic cultural representation, the team consulted a Māori advisor throughout the project. This helped refine the below
1. System Terminology to align with Māori work values

2.Users experience testing with Māori employees to validate accessibility and cultural respect.

3.stack holder engagement process to ensure community buy-in and trust.

A significant lesson learned was the time investment required for meaningful cultural integration. While it extended the project timeline slightly, it resulted in a far more inclusive and widely accepted payroll system. Future projects should allocate dedicated planning time for cultural considerations from the outset.

## Retrospective and further encouragement:

After completing the development, retrospective analysis helped identify the strengths and future enhancements.

### Strengths:

1. Strong stakeholder collaboration, especially with HR and Māori representatives.
2. Agile sprints improved flexibility and risk management.
3. High testing standards reduced payroll calculation errors significantly.
4. Cultural alignment increased employee trust and adoption of the system.

## Areas of Improvements:

1. More precise time estimation for cultural inclusive activities.
2. Expanded testing automation for leave management and compliance scenarios.
3. Strong post deployment monitoring to track payroll errors and usage trends.

## Further Enhancements:

- 1.Payroll and payslip generation Automation.
- 2.Annual hike Automation.
- 3.Generating reports to the HR for analysis.
- 4.Integration with other Payroll systems.
- 5.Web based UI

