

# Multi-Layer Supplier Data Validation

## Introduction:

This project involved developing a secure, web-based platform that streamlines how suppliers and buyers manage and update business information. To ensure accuracy, compliance, and trust, every update undergoes a structured, multi-layer approval process that includes validations, role-based access controls, and audit trails. The system enhances transparency while reducing errors and unauthorized changes. By combining strong security protocols with a user-friendly design, the platform simplifies collaboration between suppliers and buyers, accelerates approval cycles, and strengthens data integrity. This solution demonstrates how technology can enhance efficiency, foster trust, and promote compliance in supplier-buyer relationships.

## Client Details:

**Name:** Confidential | **Industry:** Software | **Location:** USA

## Technologies:

- Frontend: ReactJS, Redux, Tailwind
- Backend: Java, MySQL, JWT, REST API
- Cloud Infrastructure: Oracle Cloud Infrastructure (OCI)
- Additional Technologies: RabbitMQ

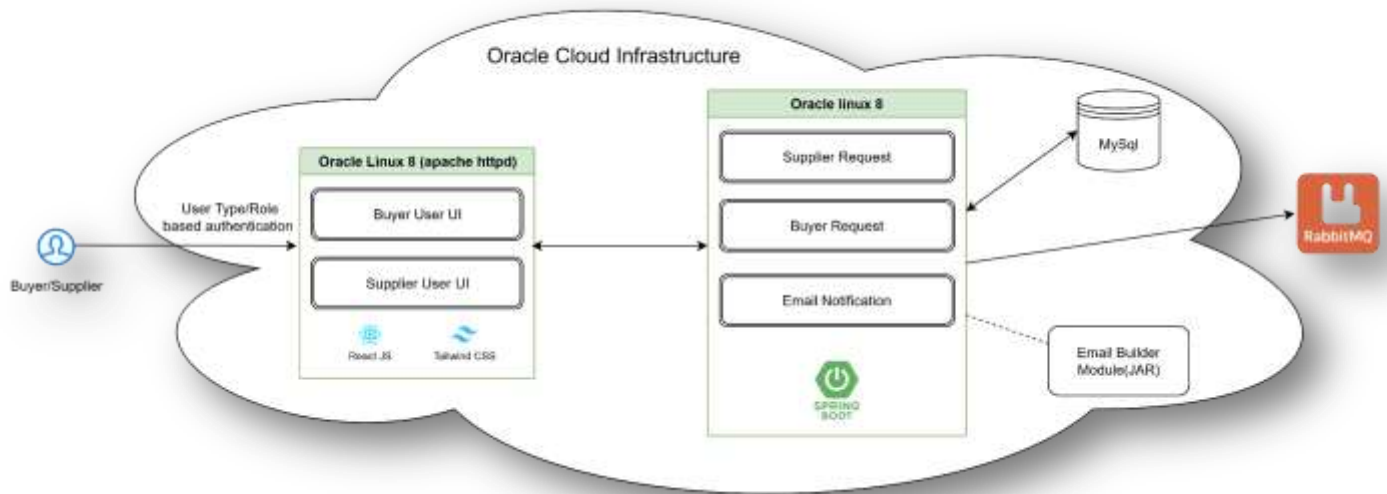
## Project Description

This project delivers a secure, collaborative platform that streamlines information management between buyers and suppliers. Buyers retain full control over what details suppliers can update, while suppliers can request changes to contact, organizational, or banking information. All financial data is encrypted to ensure security.

Each change request follows a structured approval workflow, giving buyers complete visibility and governance. Once approved, updates are automatically synchronized with the ERP system—eliminating manual effort and minimizing errors. The solution enhances data accuracy, compliance, and transparency while fostering stronger buyer-supplier collaboration.

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## Architecture



## Key Features:

### 1. Template-driven data collection:

Buyers create configurable templates (forms) defining which supplier data fields can be updated. There is flexible support for different categories of information (e.g., communication, organization, banking). Dynamic form generation ensures reusability and consistency.

### 2. Supplier Self-Service Updates:

Suppliers can log in and update their profile information based on the active template. Information categories include communication details, organizational details, banking details, etc.

### 3. Secure Banking Data Handling:

Sensitive financial information is encrypted using AES-256 encryption (with GCM mode for integrity), ensuring compliance with data security standards.

### 4. Role-Based Access Control (RBAC):

Buyers and suppliers have distinct roles and permissions. Ensures suppliers can only edit their own data, buyers manage templates, and authorize changes.

### 5. Notifications & Alerts:

Real-time updates keep users informed of key actions and events.

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## Benefits:

- **Improved Security:**  
Robust security measures protect supplier data and ensure compliance with regulatory standards.
- **Efficiency:**  
Reduces manual work through automation and supplier self-service.
- **Collaboration:**  
Strengthens trust and interaction between buyers and suppliers.
- **Data Accuracy:**  
Ensures supplier information is always up to date and consistent.
- **Transparency:**  
Provides full visibility and accountability across workflows.

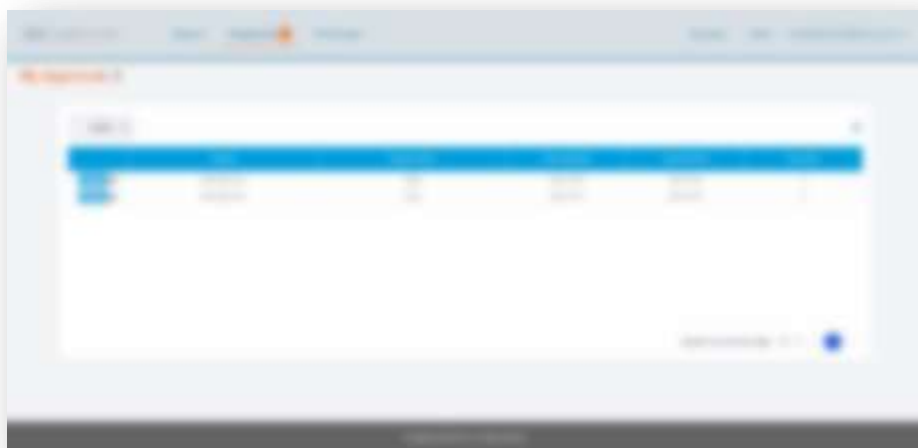
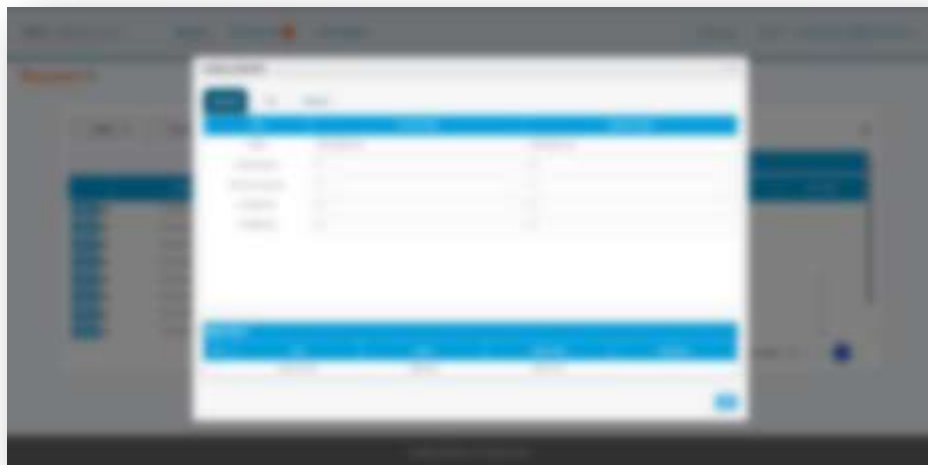
## Conclusion:

The implementation of this secure web application successfully streamlined supplier-buyer data management by introducing a robust, multi-layer approval workflow. The platform not only safeguarded sensitive business information but also ensured compliance, accountability, and transparency at every stage of the process. By reducing manual interventions and errors, it enhanced efficiency and built greater trust between stakeholders. This project demonstrates how a well-designed digital solution can simplify complex approval systems, accelerate decision-making, and provide long-term value for organizations seeking secure and reliable supplier-buyer collaboration.

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## Screenshots:

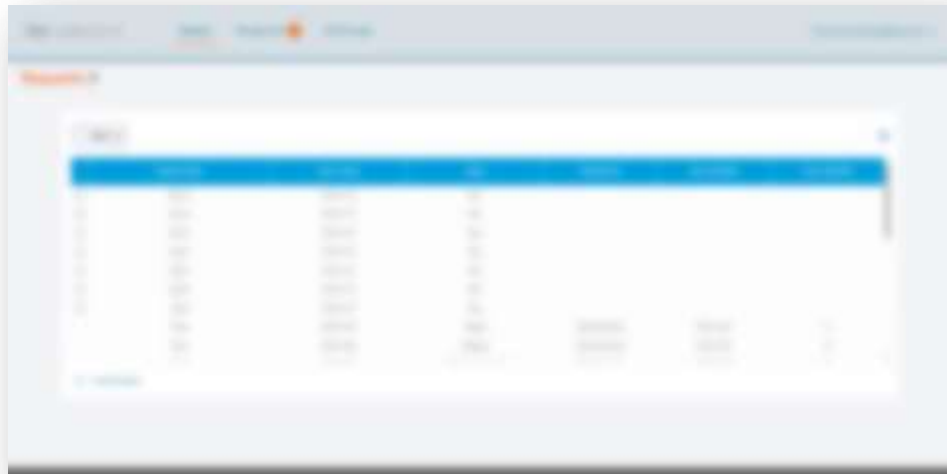
Buyer User: -



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Supplier User : -



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