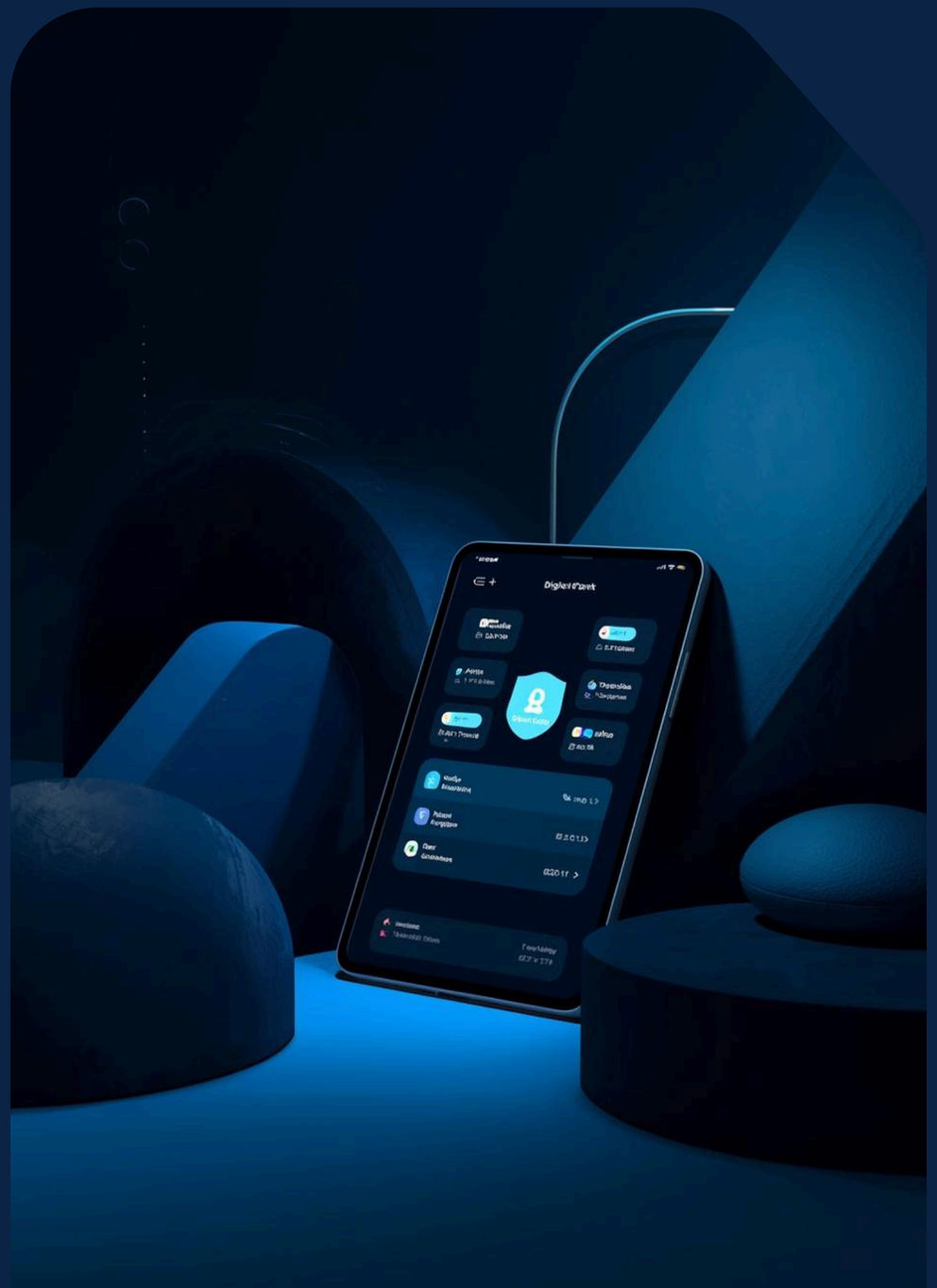
RevPay – Secure Digital Banking System

Presented by: Rahul, January 26, 2026



Problem Statement

- Existing payment systems lack strong security and access control.
- No single platform supports both personal and business users effectively.
- Transaction handling is often error-prone and poorly managed.
- Business users lack built-in invoice and loan management features.
- Need for a secure, scalable Java-based digital banking solution.

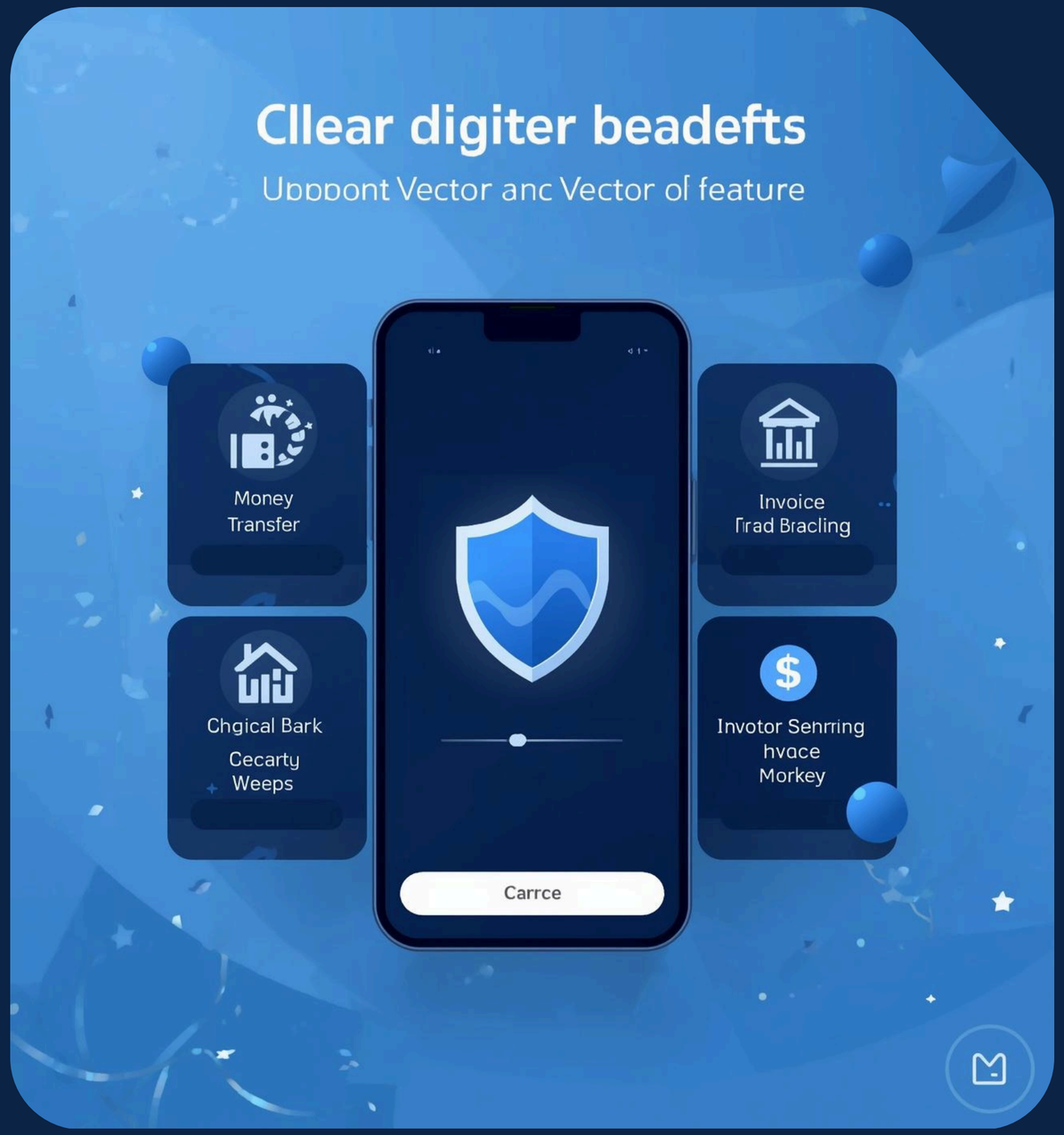
Issues with traditional payment systems

The project addresses significant issues in traditional payment systems, including:

- Lack of security and scalability
- Errors from manual transaction handling
- Limited financial features for businesses
- Need for a secure, role-based solution

Overview

RevPay is a **secure digital banking solution** designed for personal and business users. It facilitates money transfers, wallet management, and invoices, all powered by a robust Java and MySQL backend, ensuring reliability and efficiency.

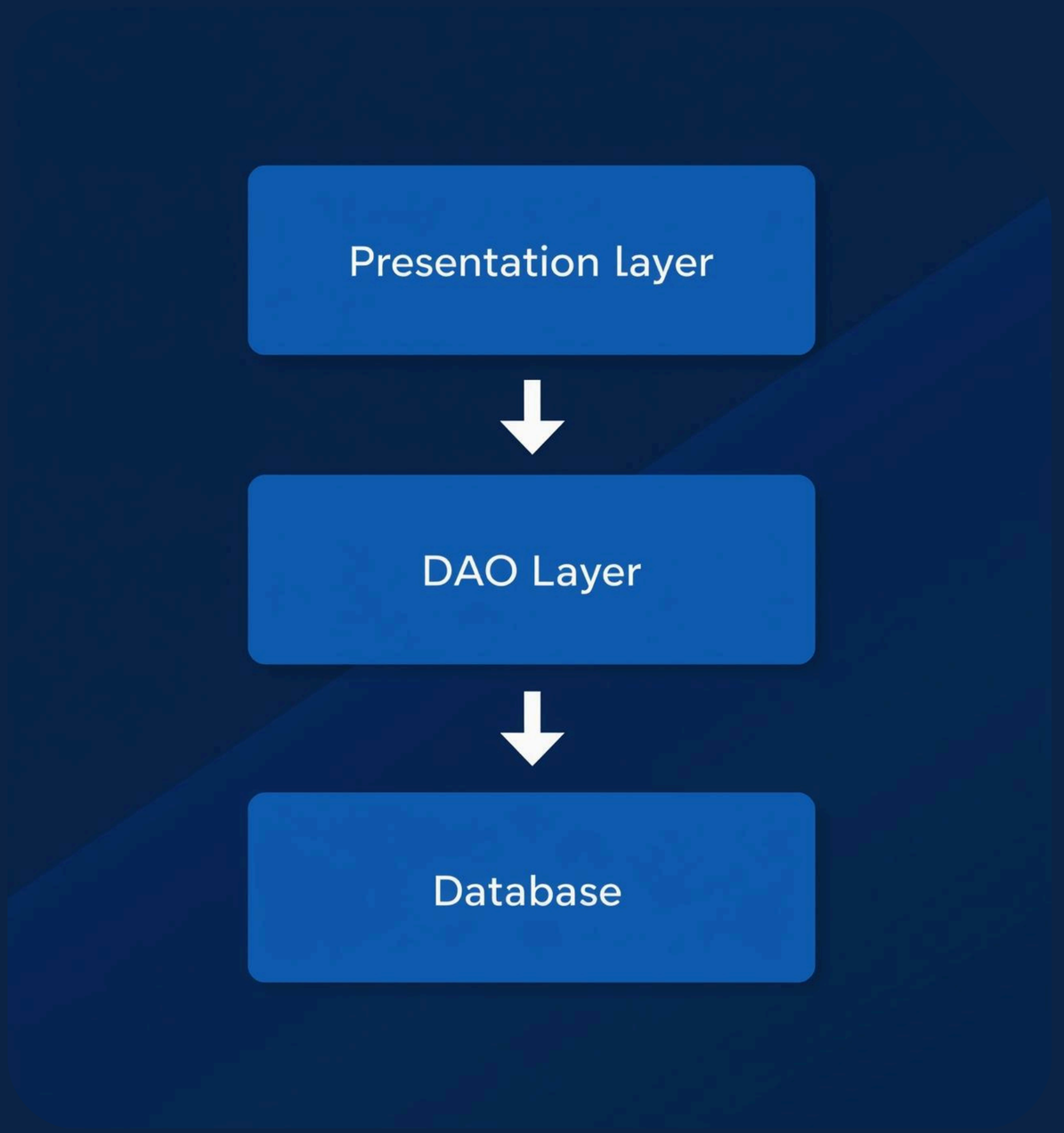


Technologies

RevPay is powered by a robust technical stack that includes:

- **Java** (Core Java, JDBC)
- **MySQL Database** for data management
- **Log4j** for efficient logging
- **DAO & Service Layer Architecture**
- **Console-based User Interface** for user interaction

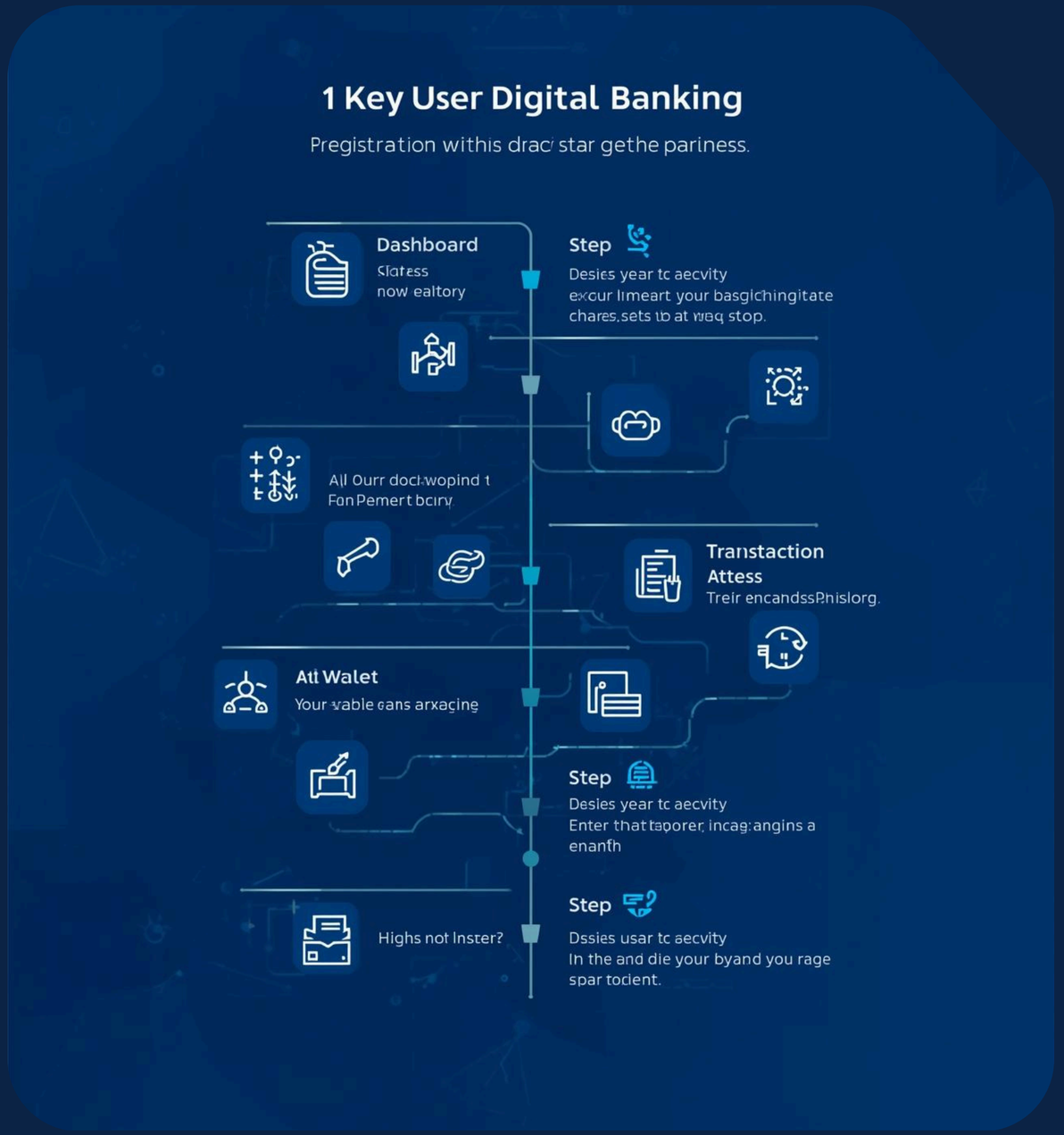
Architecture



RevPay utilizes a **layered architecture** for efficient processing and separation of concerns. Key components include:

- Presentation Layer: Console UI
- Service Layer: Business logic
- DAO Layer: Database interaction
- Database Layer: MySQL

Workflow



The application workflow includes essential user activities such as:

- User Registration & Login
- Role-based Dashboard (Personal / Business)
- Wallet Operations: Add, Send, Request Money
- Business Operations: Invoices, Loans
- Transaction History & Logout

Security

RevPay incorporates essential security features to ensure **safe transactions**:

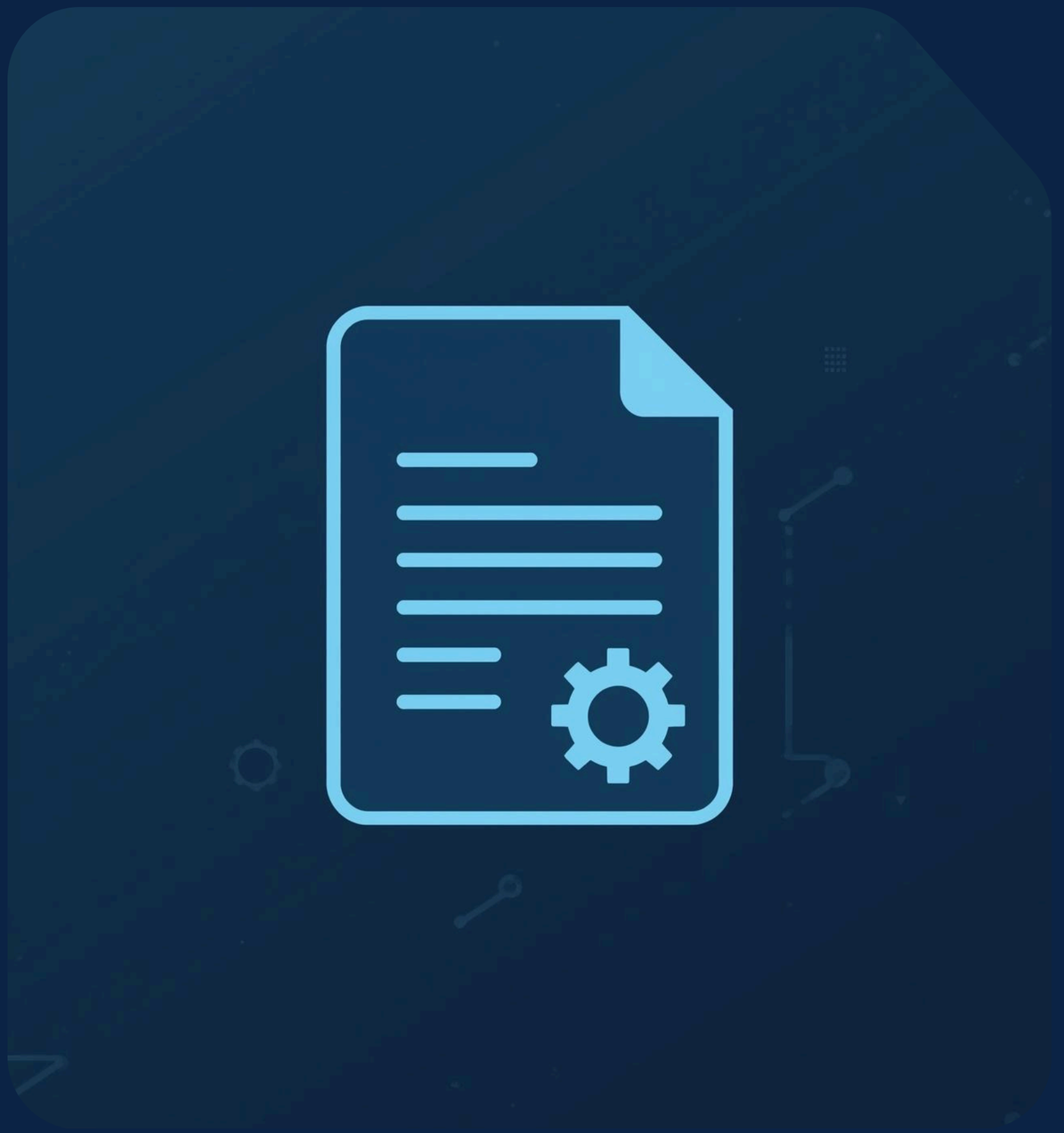
- Password hashing for user authentication
- PIN-based verification for transactions
- Role-based access control mechanisms
- Secure database connectivity practices

Testing

The testing phase ensures application reliability and performance. Key methods include:

- Unit testing with JUnit
- Database connection validation
- Functional transaction testing
- Manual user flow assessment

Logging



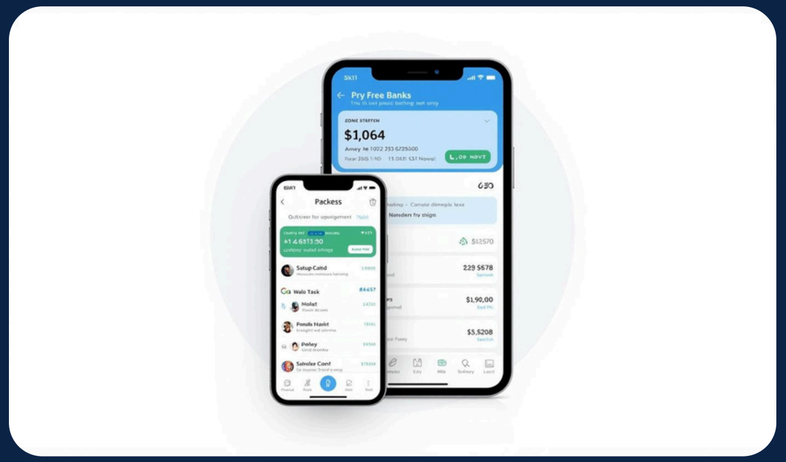
- Implemented using **Log4j 2** for flexible logging
- INFO logs track application flow efficiently
- ERROR logs capture runtime issues for analysis
- FATAL logs report critical failures immediately
- Supports debugging and monitoring of system health

Challenges

Key development hurdles encountered during the creation of RevPay include:

- Designing secure transaction flow
- Handling concurrent balance updates
- Database schema design complexities
- Error handling and input validation

Future Enhancements for RevPay System



Web UI

Expanding access via a responsive web platform

Spring Boot

Migrating to a more efficient framework

API Integration

Connecting to third-party services for functionality

Thank You for Your Attention

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