SYSTEM ARCHITECTURE FOR A FINANCIAL SYSTEM THAT OFFERS VIRTUAL CARDS TO USERS FOR PAYMENTS PROCESSING

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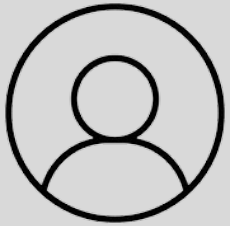
FUNCTIONAL REQUIREMENTS

User Authentication

Card Creation

Payment Processing

Notification

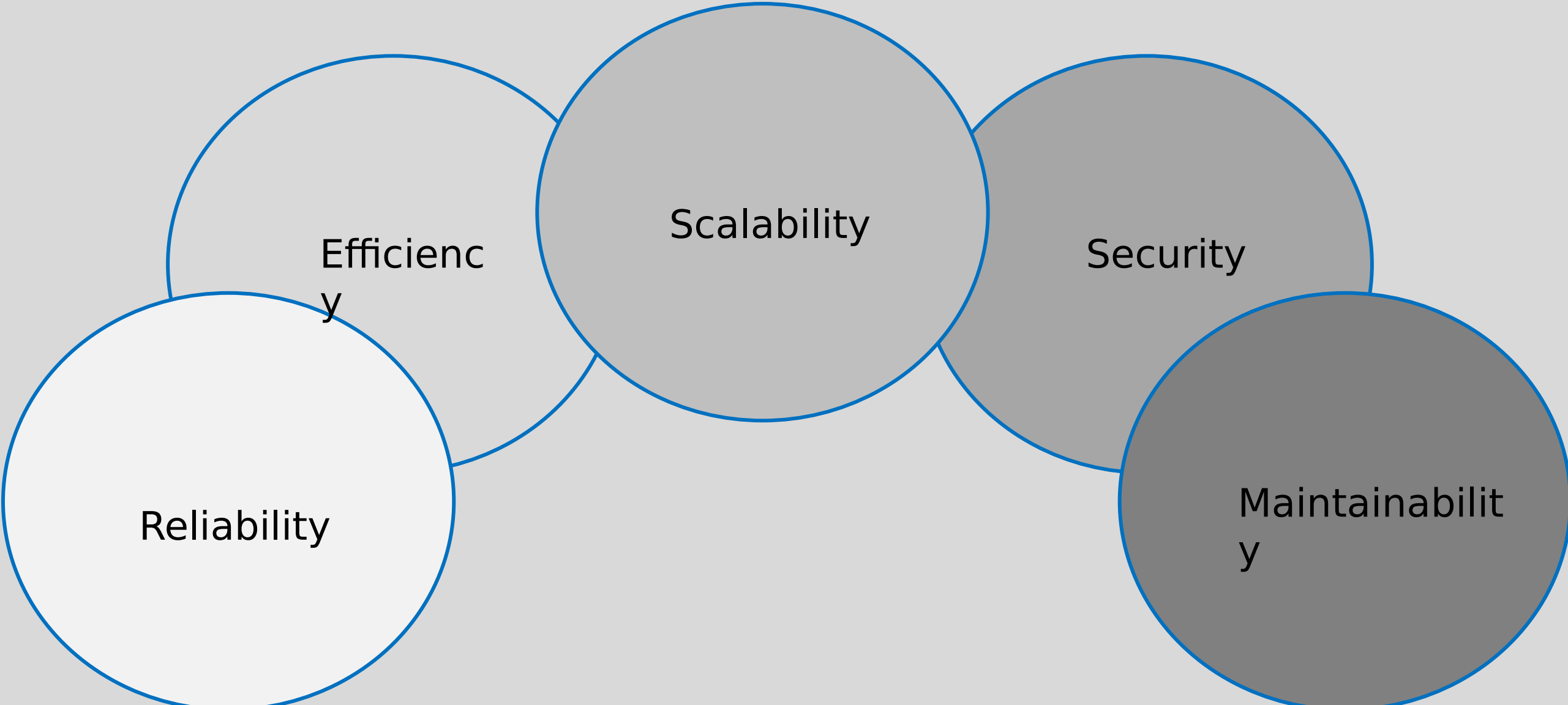


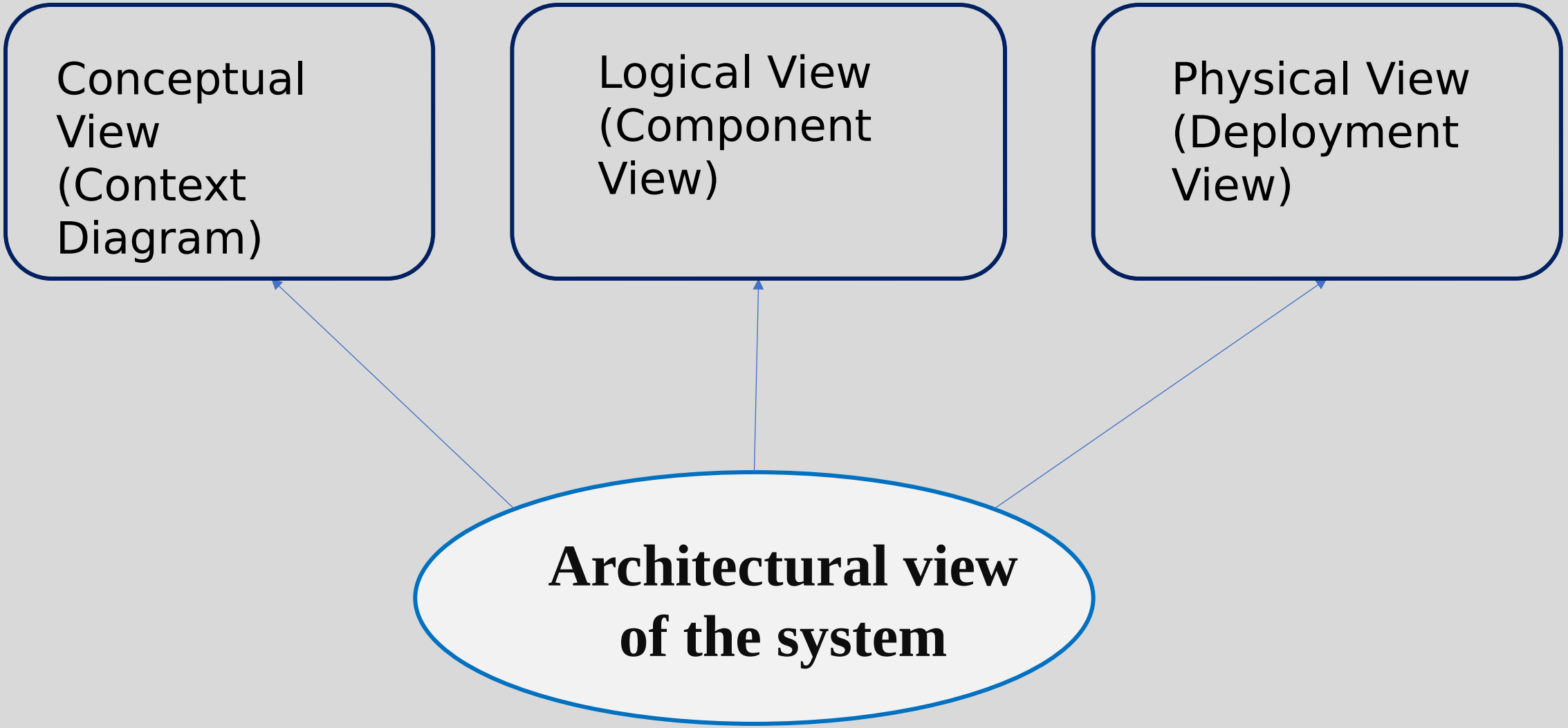
User Management

Cashing

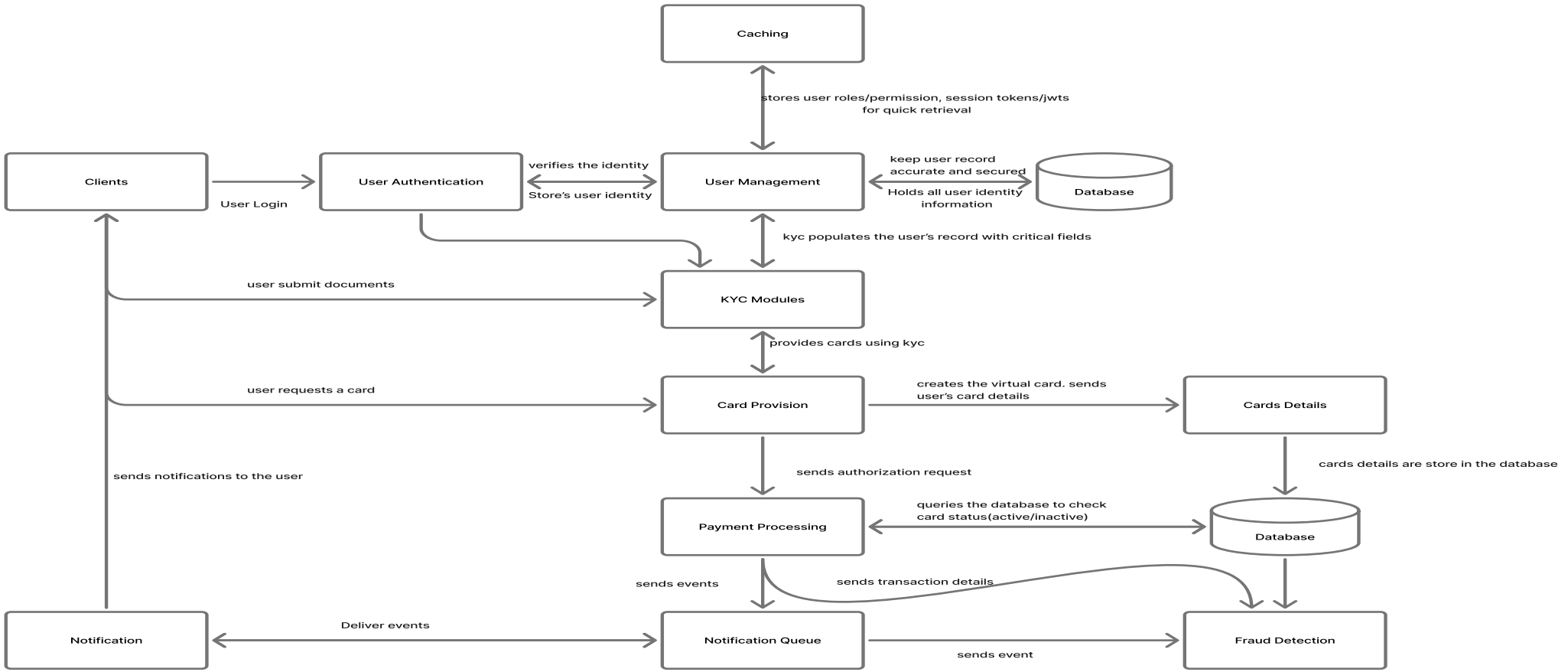
Fraud detection

NON-FUNCTIONAL REQUIREMENTS




Conceptual View (Context Diagram)
Logical View (Component View)
Physical View (Deployment View)
Architectural view of the system

System Architecture

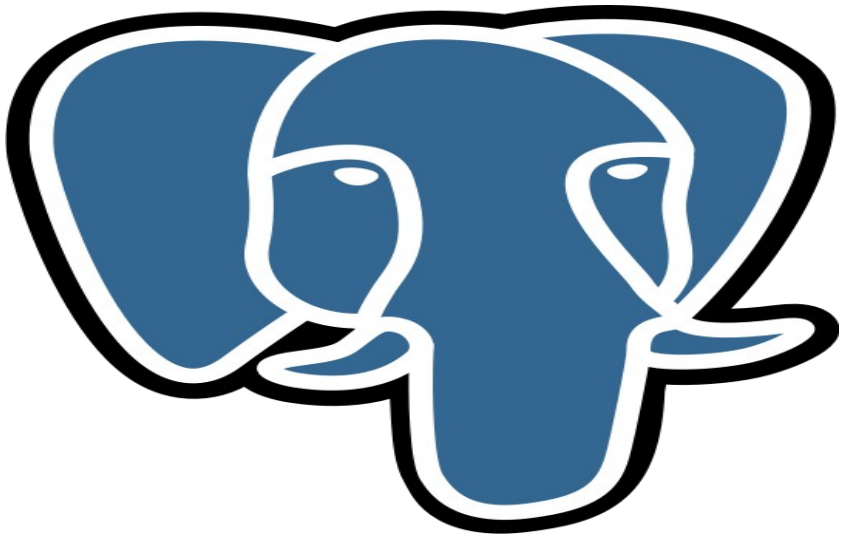


Tech Stack

Programming language

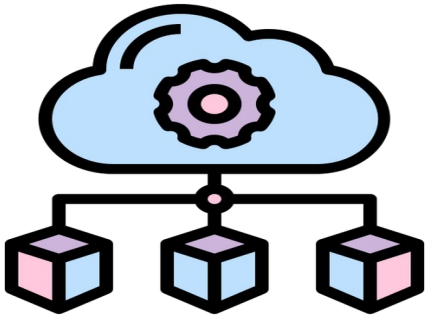
JAVA

DBMS



Postgresql

Architecture



Micro-service

Client Interaction and API Gateway Orchestration

Mobile Client

- Primary Interface: Native or cross-platform mobile app
- Request Initiation: Initiates login, card requests, and payment transactions
- Notifications: Receives push notifications for transaction alerts
- Communication: Connects to backend via API Gateway using HTTPS

API Gateway

- Single Entry Point: Routes all client requests to appropriate microservices
- Request Validation: Validates and transforms incoming requests
- Rate Limiting: Implements throttling to prevent abuse
- API Management: Handles versioning and load balancing

Secure User Access and Profile Management

Authentication Module

Manages user login and session management

Issues and validates JWT tokens for stateless authentication

Integrates with Redis cache for fast token storage and retrieval

Validates user credentials against the database

User Management Module

Stores and retrieves user profile information securely

Maintains user account details in the database

Provides verification results to other modules

Manages user permissions and roles

Fetches user information from User Management module