CREATED BY: Patrick Musaza

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LAUNDROMAT SYSTEM DOCUMENTATION

Simple Format

Use Case Diagram

Actors and core interactions for Smart Laundromat

ACTORS

- Customer (Walk-In)
- Staff (Employee)
- Delivery Agent
- Accountant
- Admin

Use Cases

- Place Laundry Order
- Select Wash Type (Hot / Cold)
- Make Payment (Cash, Mobile Money, Card)
- Print EBM Receipt

- Place & Track Delivery Order
- Register for Loyalty
- Switch Language

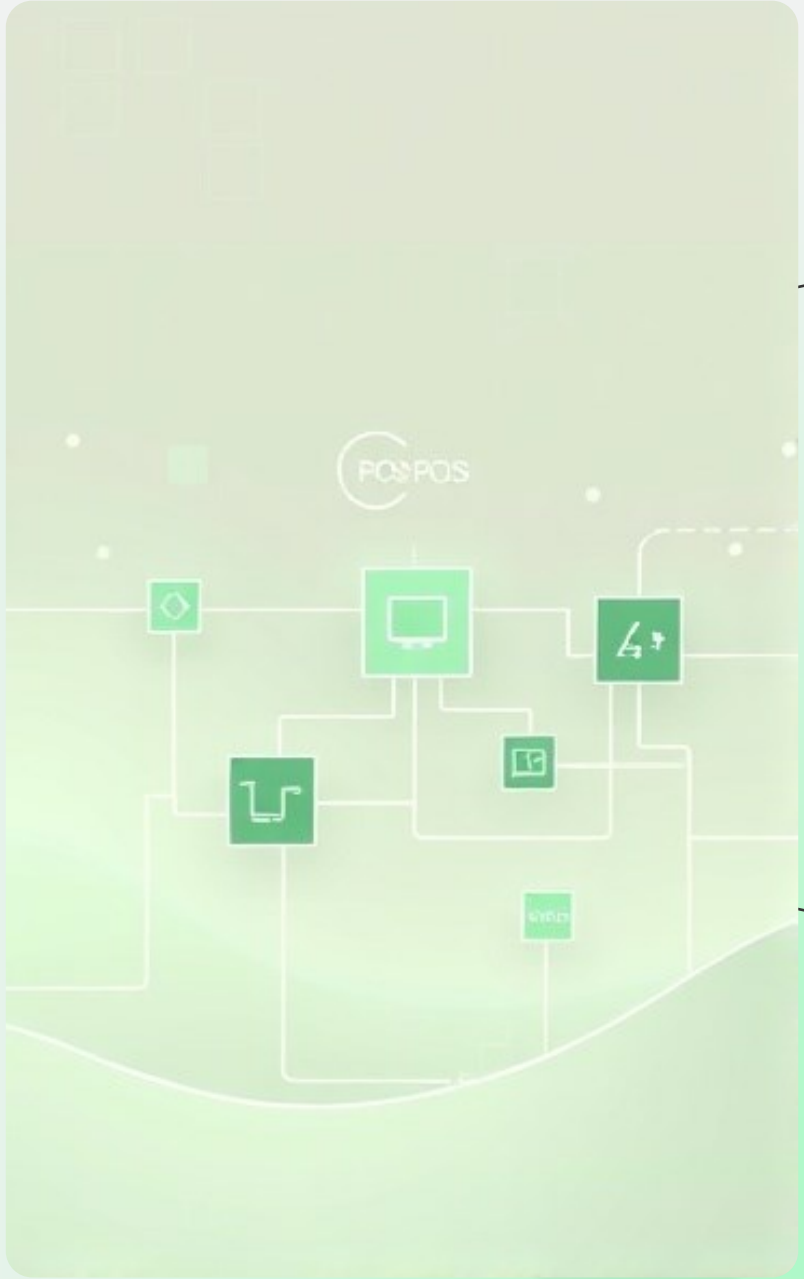
- Manage Prices & Promotions
- Manage Machines & Users
- Generate Reports
- Monitor System

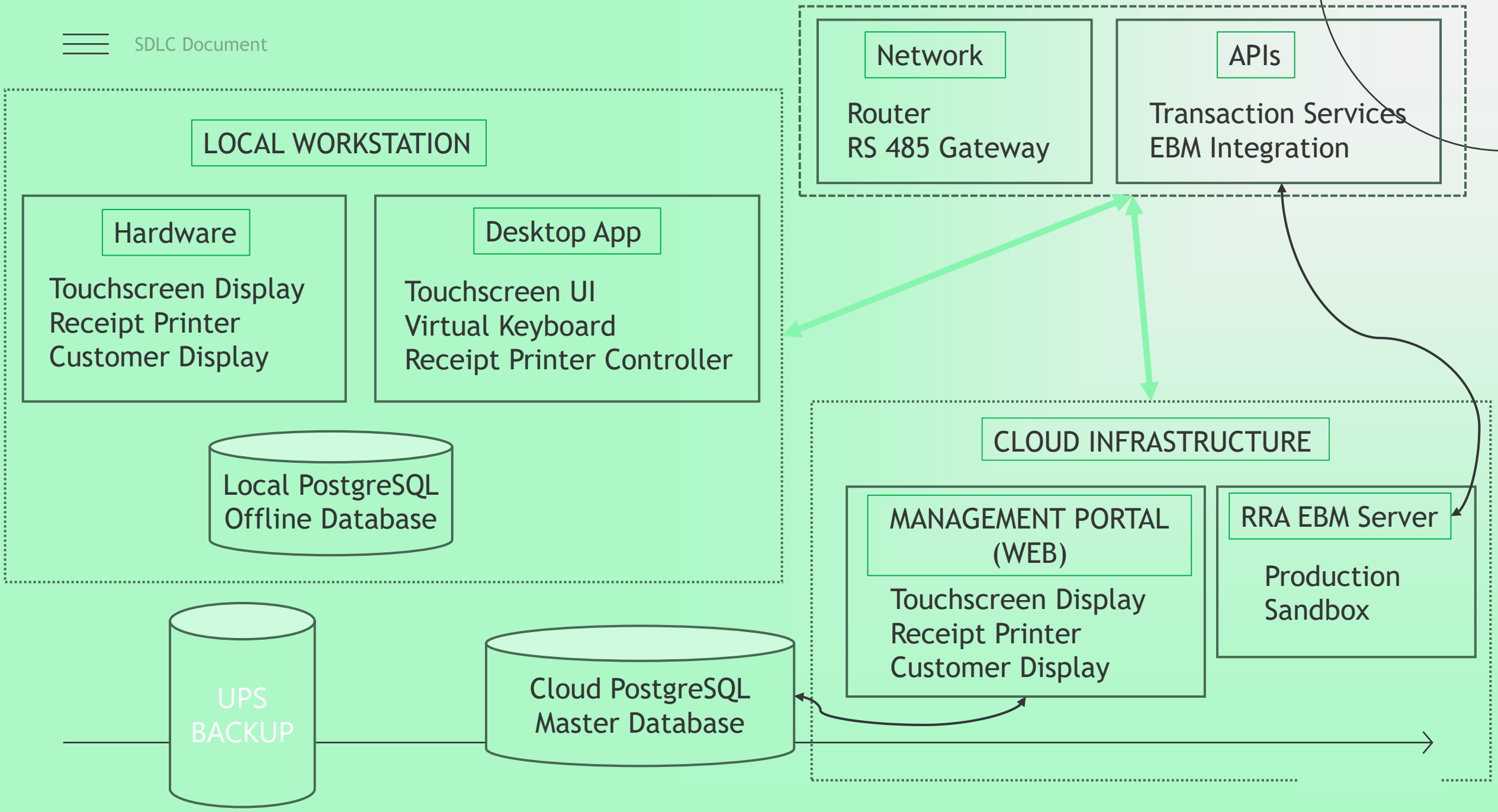
- Sync Offline Invoices
- Configure Settings

System Architecture

System Components

Includes POS, Edge Server, IoT Devices, Receipt Printer, Cloud Backend, and Management Portal.




Network
Router
RS 485 Gateway
APIs
Transaction Services
EBM Integration
LOCAL WORKSTATION
Hardware
Touchscreen Display
Receipt Printer
Customer Display
Desktop App
Touchscreen UI
Virtual Keyboard
Receipt Printer Controller
Local PostgreSQL
Offline Database
CLOUD INFRASTRUCTURE
MANAGEMENT PORTAL
(WEB)
Touchscreen Display
Receipt Printer
Customer Display
RRA EBM Server
Production
Sandbox
UPS
BACKUP
Cloud PostgreSQL
Master Database

Database Schema

Tables to include:

- ❑ Customers
- ❑ Orders
- ❑ OrderItems
- ❑ Payments
- ❑ Invoices
- ❑ Machines
- ❑ Users
- ❑ Promotions
- ❑ SyncQueue

◯ Database Structure

Overview of database schema including SQLite and PostgreSQL with key tables.

To be detailed later

Class Diagram

Classes

Key classes include Customer, Order, OrderItem, Payment, Invoice, Machine, User, Role, Promotion, EBMService, IoTService, SyncManager.

Include

Focus on attributes, methods, and relationships such as association and aggregation.

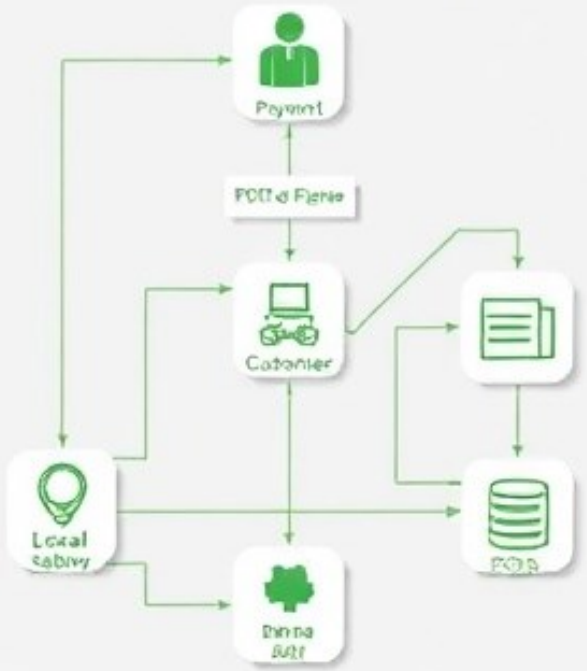
Data Flow Diagram

Data Flow

Customer interacts with POS, which connects to various systems including Payment Gateway and Local Database.

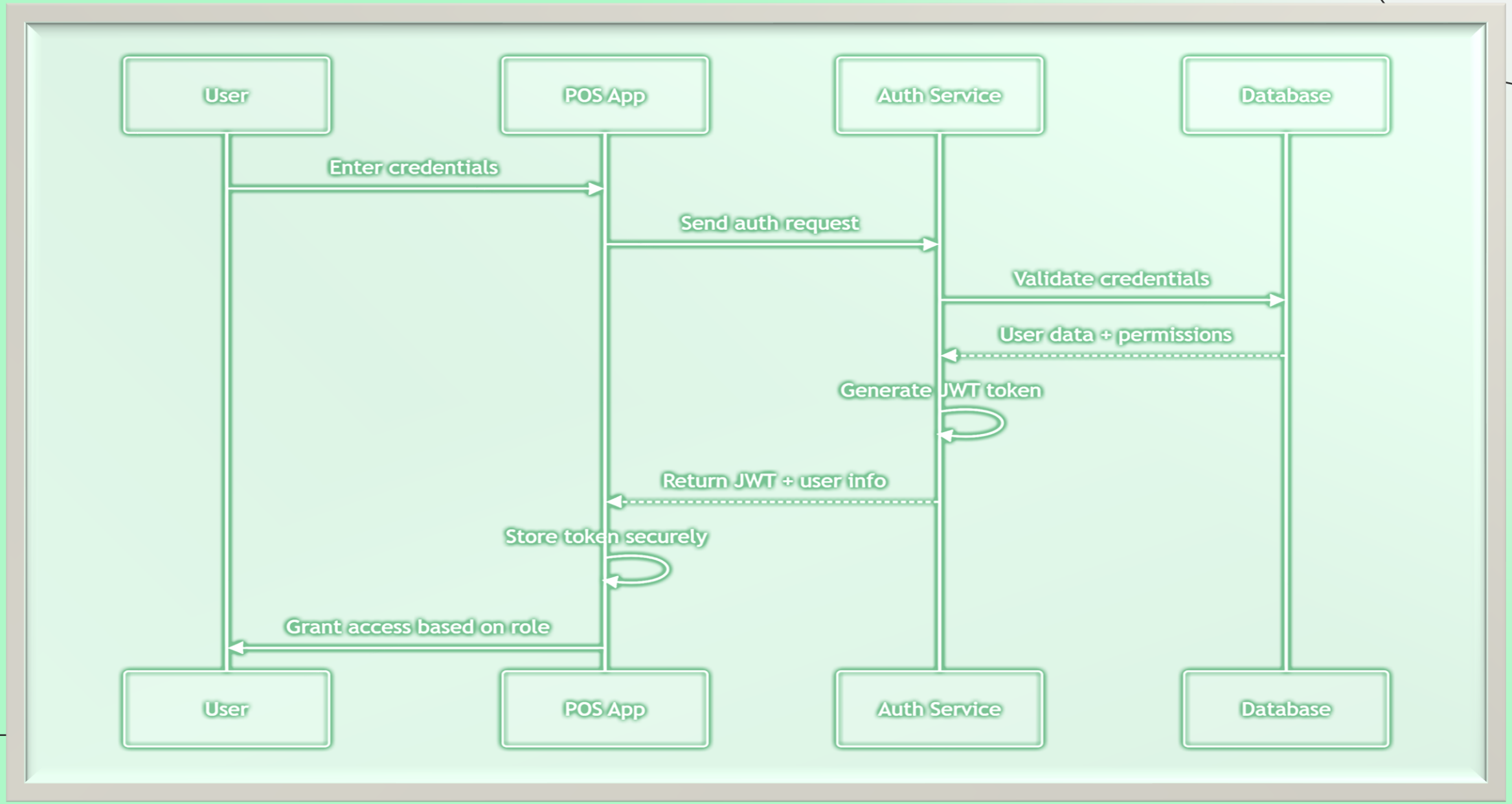
Flow:

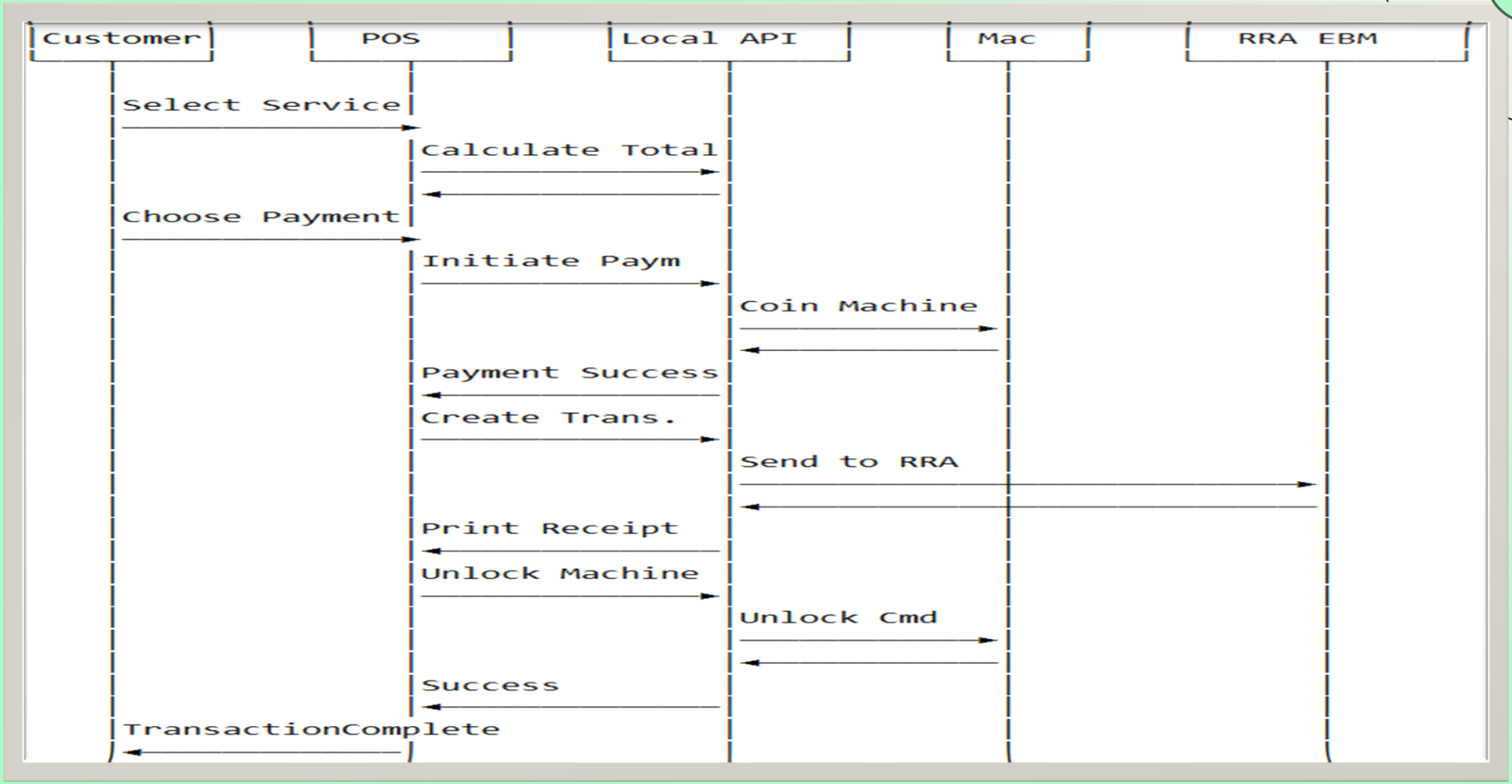
i. Customer → POS
ii. POS → Payment Gateway
iii. POS → EBM System
iv. POS → Receipt Printer
v. POS → Local Database
vi. Local Database → Cloud Backend



Sequence Diagram

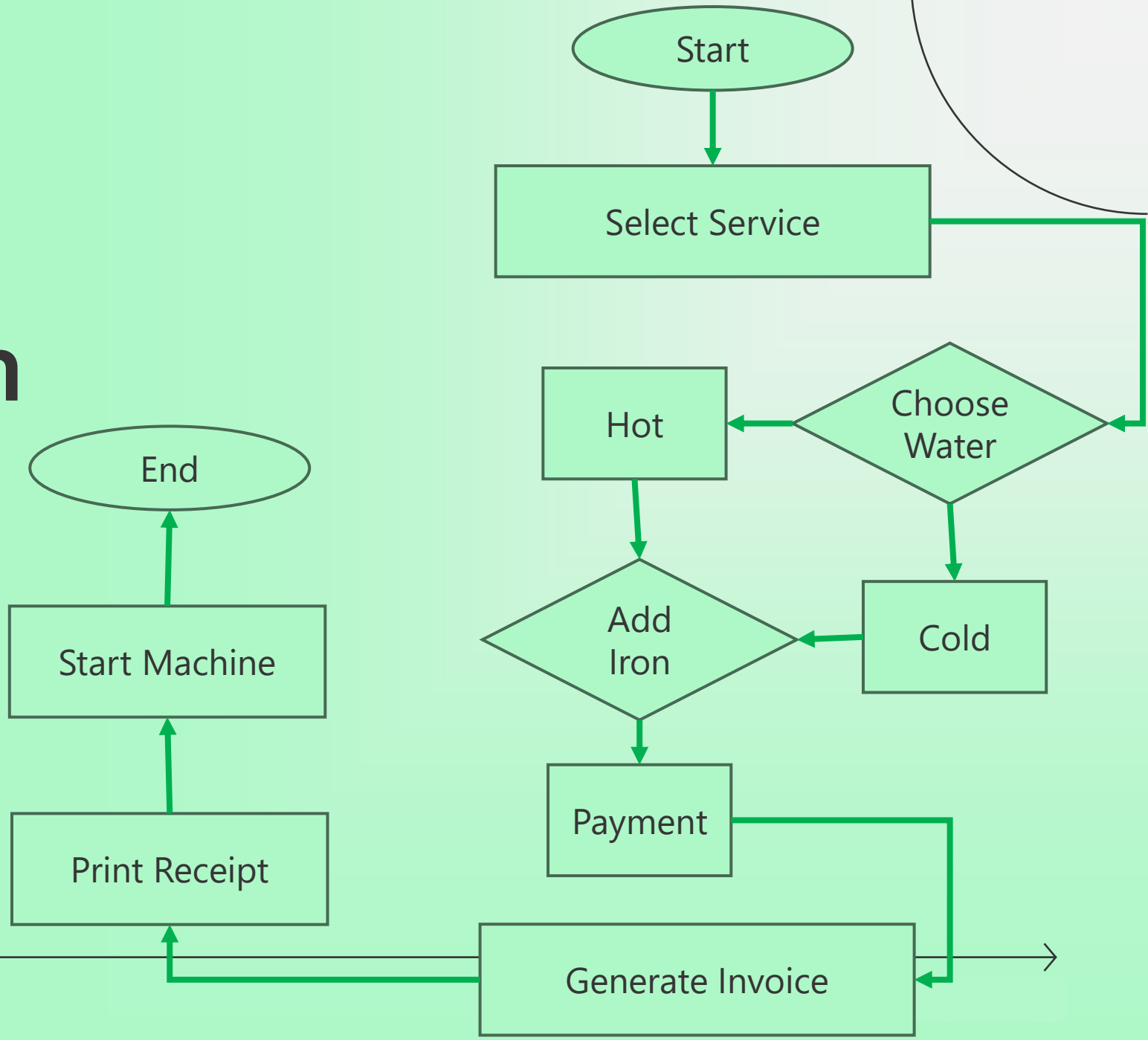
Customer interacts with POS, which connects to various systems including Payment Gateway and Local Database.


User
POS App
Auth Service
Database
Enter credentials
Send auth request
Validate credentials
User data + permissions
Generate JWT token
Return JWT + user info
Store token securely
Grant access based on role
User
POS App
Auth Service
Database

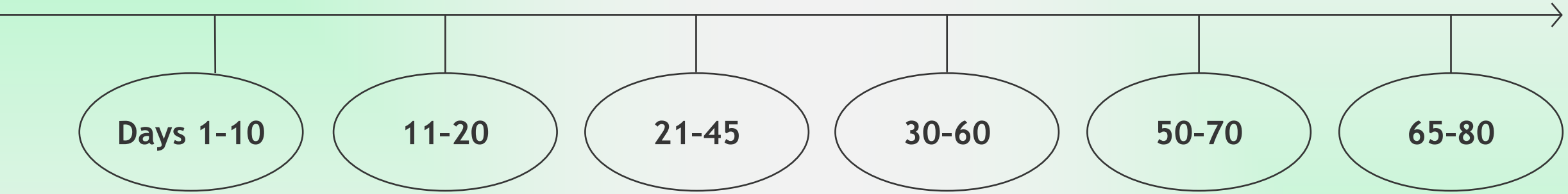

Customer
POS
Local API
Mac
RRA EBM
Select Service
Calculate Total
Choose Payment
Initiate Paym
Coin Machine
Payment Success
Create Trans.
Send to RRA
Print Receipt
Unlock Machine
Unlock Cmd
Success
TransactionComplete

Activity Diagram

Laundry Order Flow



100-Day Timeline



Days 1-10

Requirements & Analysis

Initial phase focusing on gathering requirements and analyzing project needs.

11-20

Architecture & UI Design

Designing the system architecture and user interface.

21-45

POS Development

Development of the Point-of-Sale system.

30-60

Backend & Web Admin

Building backend systems and web administration tools.

50-70

IoT Integration

Integrating Internet of Things components.

65-80

EBM Integration

Integrating RRA Electronic Billing Machine systems.