Soaper Internship

Yassin Benelhajlahsen

Spring 2026

CISC 4900

Brooklyn College

Stakeholders

- **Primary Developer (Intern)**
Yassin Benelhajlahsen

- **Company**
Soaper LLC

- **Supervisor**
Ling Zhou; lingzhou@soaper.ai

- **System Stakeholders**
- Physicians
- Pharmacies
- Patients
- Healthcare Administrators

- **External Service Providers**
- Surescripts Network
- Epic FHIR APIs
- Quest Diagnostics
- Stripe Payments

Abstract

- This project documents my ongoing work as a software engineering intern contributing to a production healthcare EMR system.

- The project does not follow a fixed development plan; instead, tasks are assigned daily or weekly based on real company priorities, meaning project scope evolves over time.

- So far this semester, my primary focus has been on the electronic prescribing network, including quality assurance, bug fixes, security, and reliability.

Tools

Languages

- Python
- TypeScript

Frameworks

- FastAPI
- React

Data Systems

- PostgreSQL
- Redis

Security

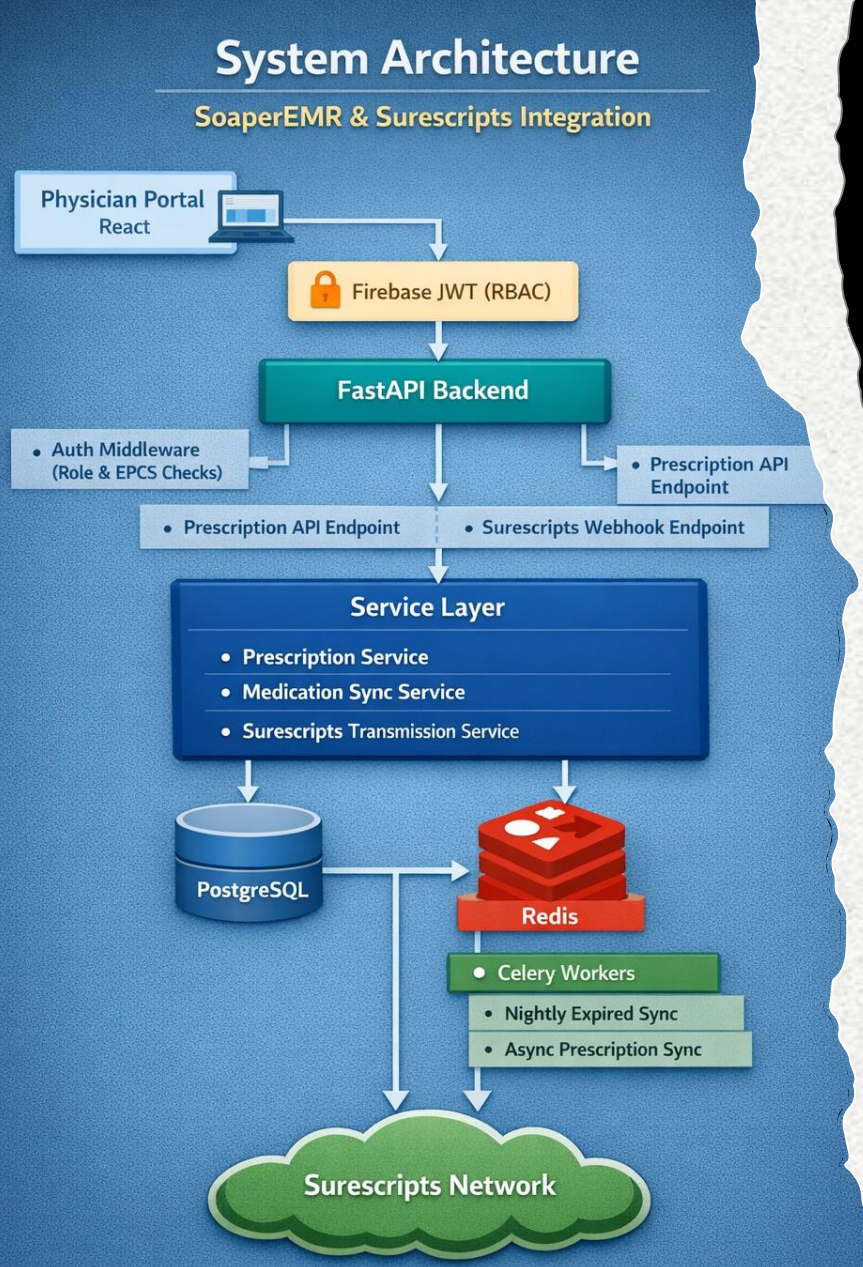
- Firebase Authentication
- OAuth
- RBAC validation
- EPCS authorization checks

Infrastructure

- Celery workers
- Async task processing

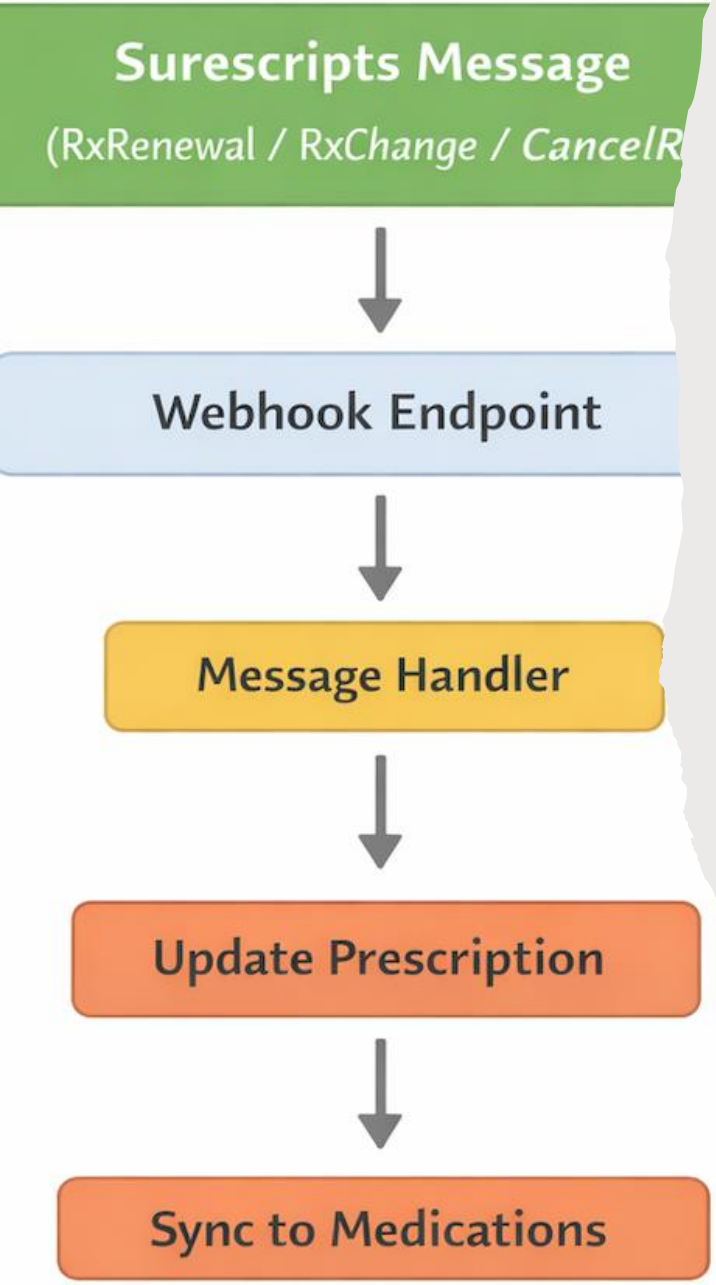
Integrations

- Surescripts
- Epic FHIR
- Stripe
- Zoom



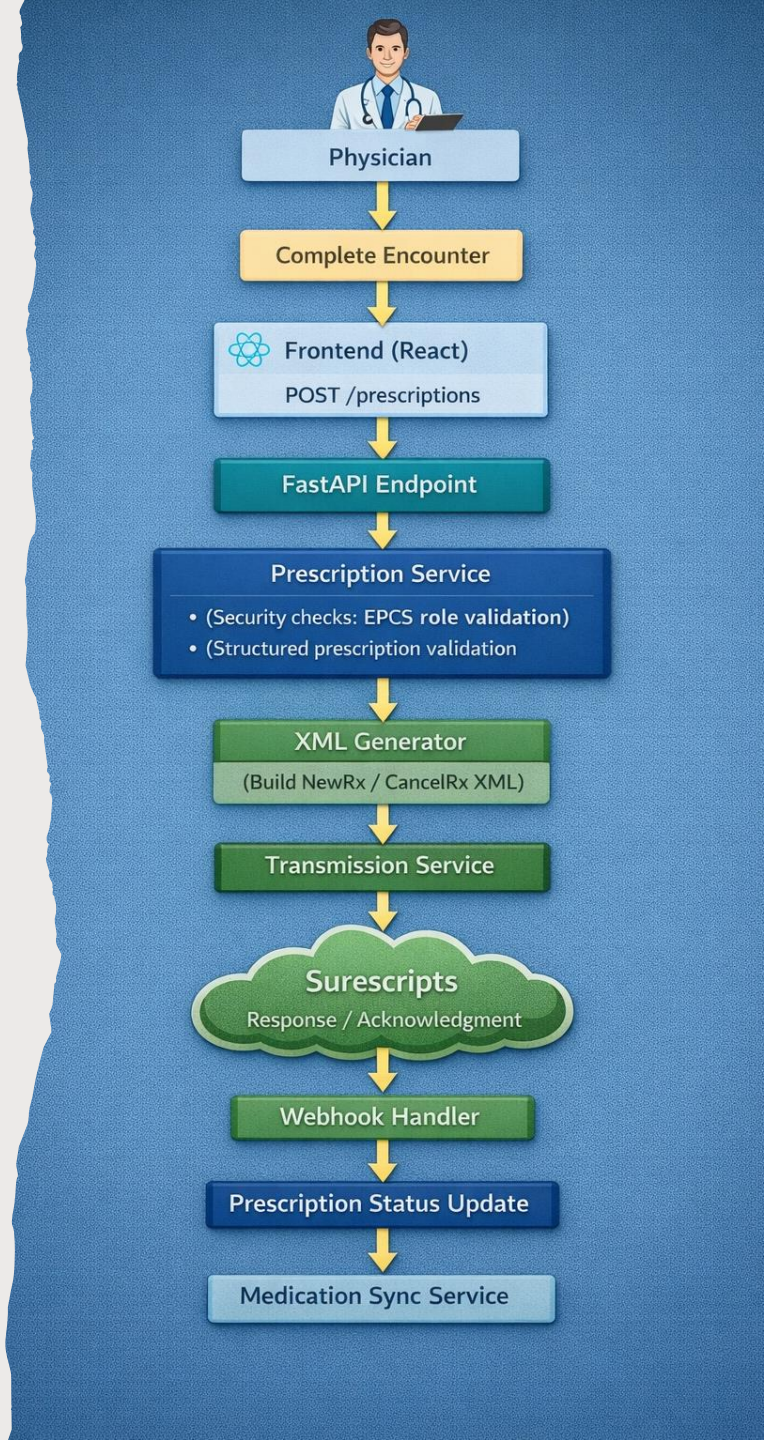
Overall System Architecture

- Layered architecture separates concerns
- Secure API gateway controls access
- Services handle business logic
- Workers process async tasks
- Designed for scale, reliability, compliance



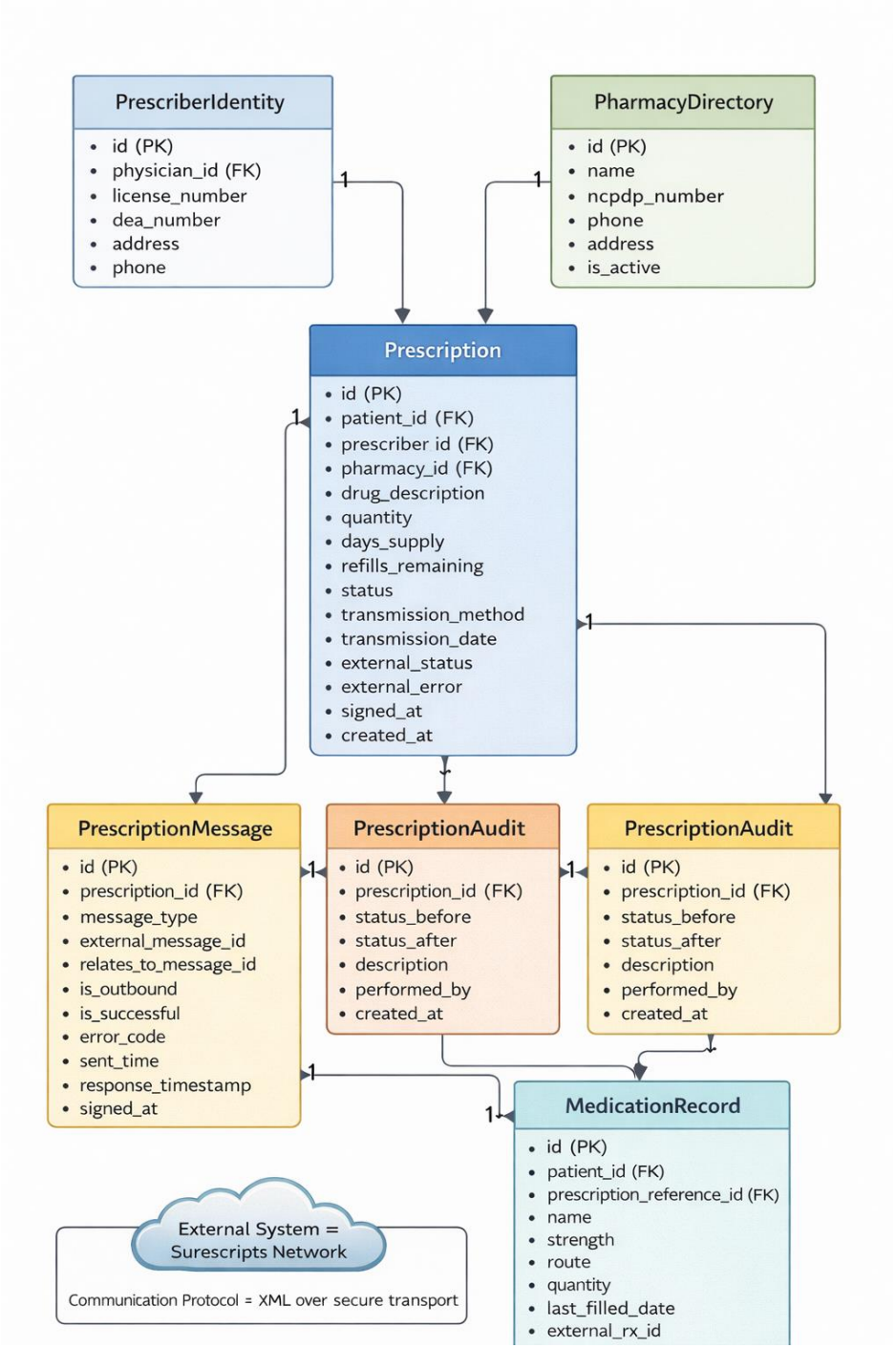
Inbound & Outbound Flows

- Outbound requests validated before transmission
- Security rules enforce authorization
- External responses handled asynchronously
- Inbound webhooks verified and parsed
- System state updated and synchronized



Prescription Data Model

- Central Prescription table links all workflow entities
- Prescriber and Pharmacy tables store validated identity data
- Messages track external network communication events
- Audit tables record status changes for traceability
- Medication records maintain patient medication history



Task Breakdown & Time Estimates

Schedule Note: Tasks are assigned dynamically on a weekly or daily basis according to company priorities; therefore, a fixed long-term project schedule cannot be predetermined.

Task	Time (hours)
EPCS validation completion	8
Integration testing expansion	10
Webhook reliability improvements	6
Performance optimization	5
Security validation + audit review	9

Data Sources & Dataset Types

- Provider prescription requests
- External pharmacy responses
- Healthcare network messages
- Internal database records
- Authentication and audit logs

System Use Cases

These workflows demonstrate secure processing, system reliability, and integration support across the platform.

	Platform Request Processing	External System Synchronization
Scenario	User submits action through application interface.	Third-party system sends data to platform.
System Process	Authenticate user Validate permissions Process request Update database Log activity	Verify request source Parse payload Route to handler Update records Log event
Outcome	Action completed and recorded.	System data synchronized with external service.

Use Case: EPCS Authorization Enforcement

Scenario

A user without required credentials attempts to approve a controlled substance prescription within the system interface.

System Process

- UI disables approval action for unauthorized roles
- Backend validates permissions before processing request
- RBAC policy checks user credentials and authorization level
- Request rejected if compliance requirements not met
- Security event recorded in audit log

Outcome

- Prescription approval prevented
- Error message returned to user
- Action logged for compliance and traceability

Use Case: Prescription Renewal Workflow

Scenario

A patient requests a refill for an existing prescription through their pharmacy. The pharmacy sends a renewal request to the system for provider approval.

System Process

- Pharmacy submits renewal request via Surescripts network
- Webhook endpoint receives and verifies message authenticity
- System parses request and links it to existing prescription record
- Provider is notified within the physician portal interface
- Provider reviews medication history and patient data
- Provider approves, modifies, or denies renewal request
- Response message is generated and transmitted back to pharmacy
- Audit log records all actions and decision timestamps

Outcome

- Approved renewals generate updated prescription records
- Pharmacy receives response confirmation
- Patient medication history is synchronized and stored
- Full compliance audit trail maintained