BANKING-APPLICATI0N

This document describes the complete microservices architecture of the Banking Applica on, including Discovery and Config servers, API Gateway, Auth, Customer, Account, Payment, Audit, Feedback, and No fica on services. It also explains Angular frontend integra on, Ka a messaging, and deployment architecture.

GlobalSystemOverview:

The Banking Applica on is implemented as a microservices ecosystem: - Angular Frontend for user interface - API Gateway as a single-entry point - Discovery Server for service registry - Config Server for centralized configura ons - Domain-driven microservices (Customer, Account, Payment, etc.) - Ka a and Zookeeper for messaging.

Discovery &ConfigServices- Discovery Service (Eureka): Registers and discovers microservices dynamically. - Simplifies API Gateway rou ng by avoiding hard-coded URLs. - Enables load balancing. Config Server: Centralized configura on management for all microservices. - Externalized proper es for different environments (dev, QA, prod). - Integrated with Git for version control.

API Gateway- Acts as a single entry point for client (Angular) requests. - Performs authen ca on, rou ng, and load balancing. - Handles CORS, rate limi ng, and logging.

Auth Service- Provides login, registra on, and JWT token genera on. - Integrates with API Gateway to enforce authoriza on policies. - Uses Spring Security for authen ca on.

Customer Service- Stores and manages customer profiles and KYC informa on. - Supports CRUD opera ons via REST endpoints. - Communicates with AuditService to log all profile updates.

Account Service- Manages account data including balances and account types. - Exposes APIs for fetching and upda ng balances. - Called by PaymentService for fund valida on.

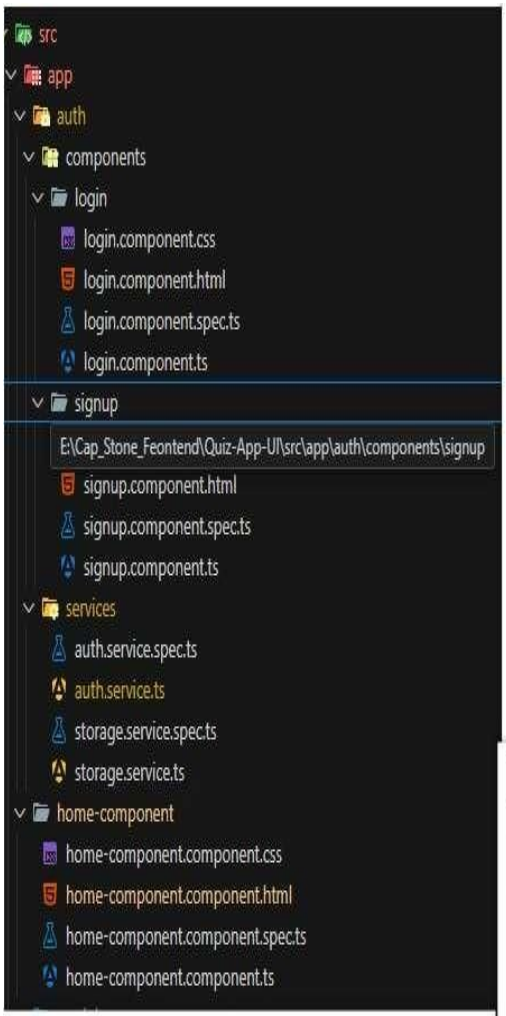
Payment Service- Handles fund transfers and payment workflows. - Communicates with AccountService, AuditService, and No fica onService. - Publishes Ka a events for asynchronous no fica ons.

Audit Service- Maintains logs for all cri cal ac ons and transac ons. - Provides APIs for querying audit records. Integrated with PaymentService and CustomerService. Feedback Service- Collects and stores customer feedback. - Communicates with No fica onService to send alerts based on nega ve feedback. No fica on Service- Sends no fica ons via email. - Listens to Ka a events (e.g., payment confirma on)

Angular-Backend Communica on Flow 1. Angular sends authen ca on request via API Gateway. 2. JWT token is issued by AuthService and stored by Angular. 3. Angular makes secured requests to Gateway with token headers. 4. Gateway routes requests to respec ve services (Customer, Payment, etc.). 5. Ka a events no fy No fica onService asynchronously.

ANGULAR VIEW OUTPUTS

Folder Structure: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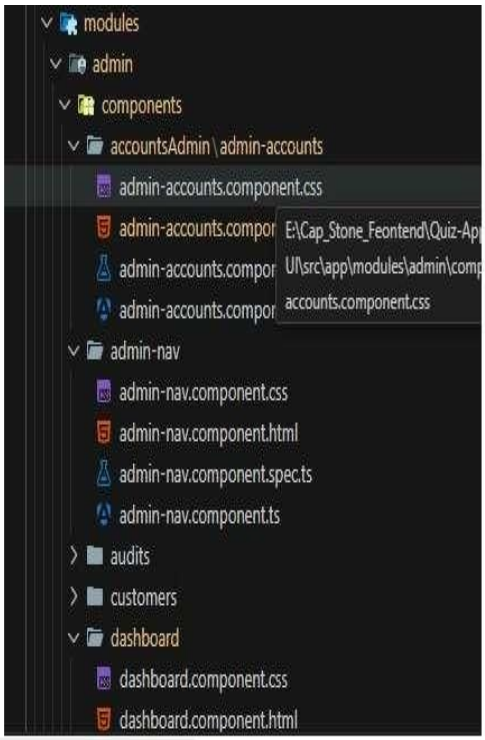
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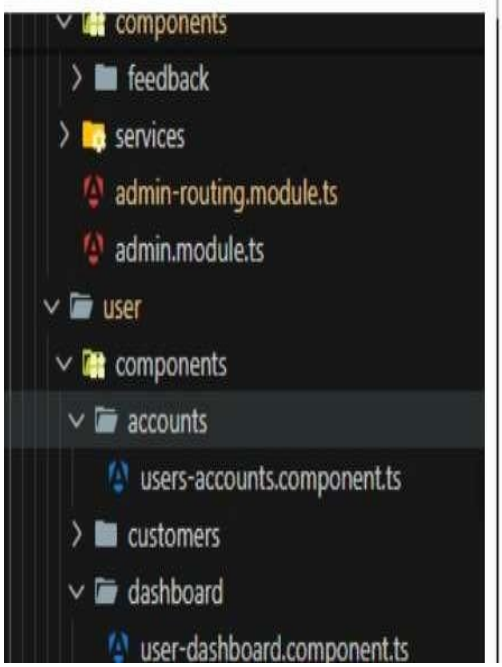
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app.config.ts
app.routes.server.ts
app.routes.ts
material.module.ts
environments
environment.prod.ts
environment.ts
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main.server.ts
main.ts
server.ts
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.editorconfig
.gitignore
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package-lock.json
package.json
README.md
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tsconfig.json
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dashboard.component.ts
user-routing.module.ts
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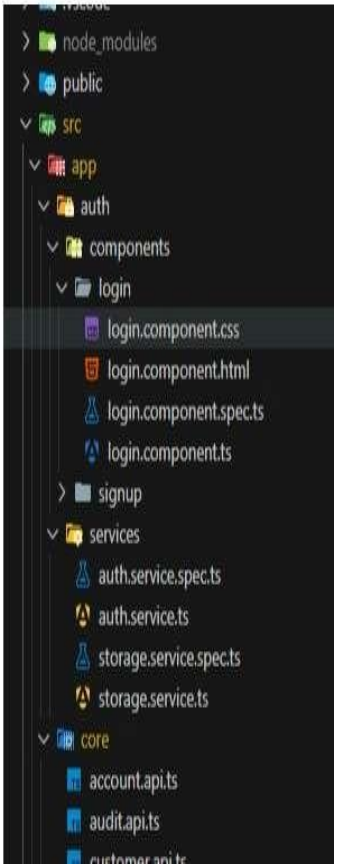
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core
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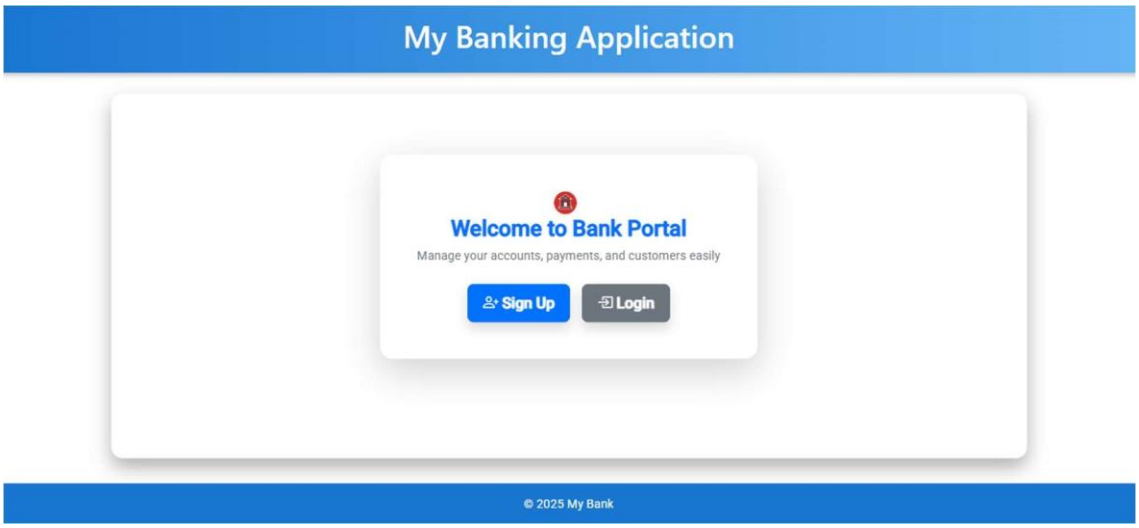
audit.api.ts

HOME PAGE:



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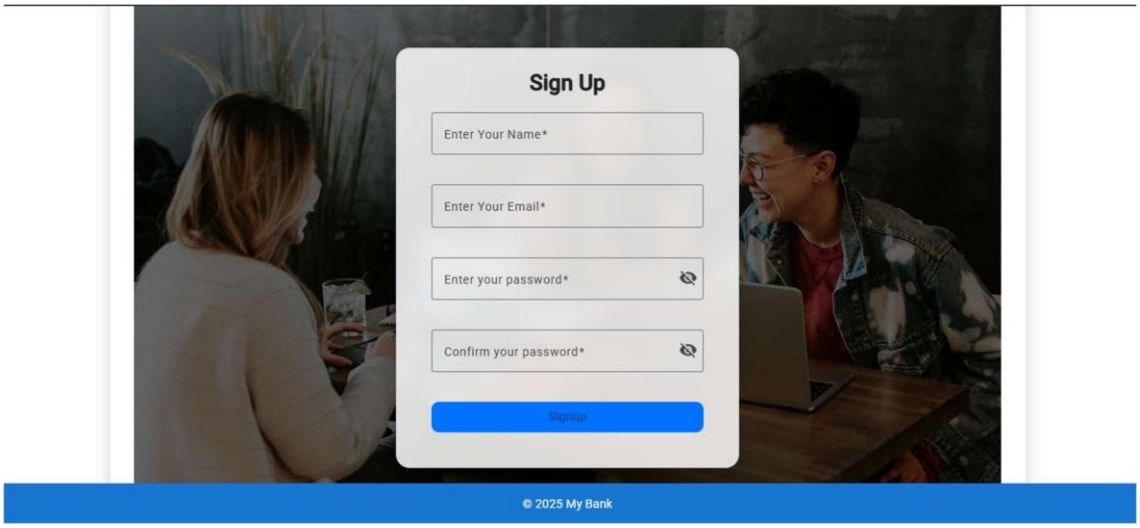

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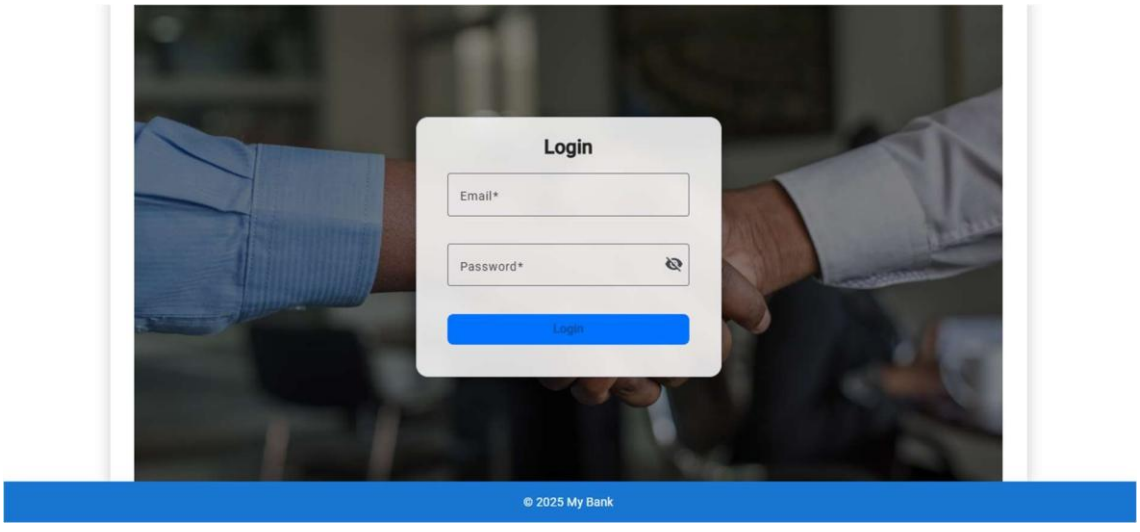

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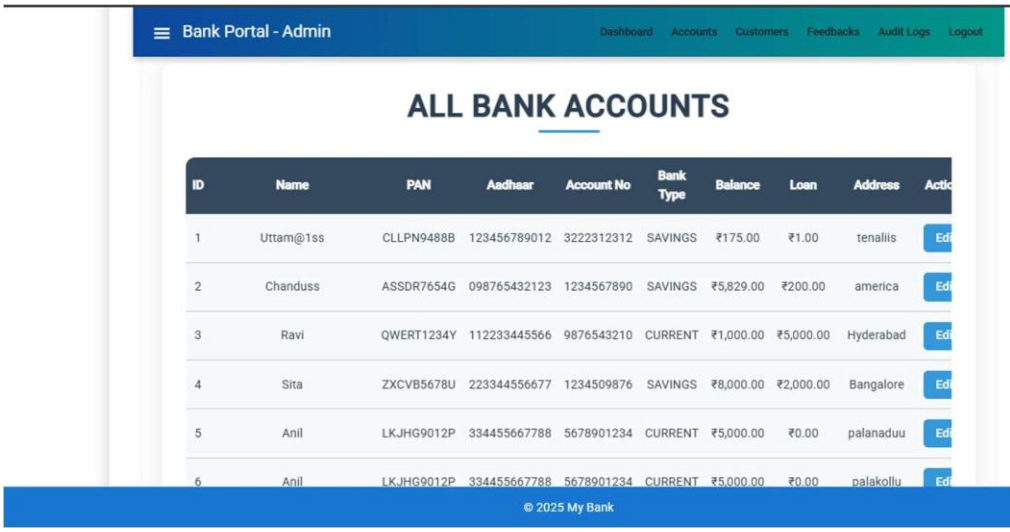
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Customers
Feedbacks
Audit Logs
Logout
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ID
Name
PAN
Aadhaar
Account No
Bank Type
Balance
Loan
Address
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3 Ravi QWERT1234Y 112233445566 9876543210 CURRENT ₹1,000.00 ₹5,000.00 Hyderabad
4 Sita ZXCVB5678U 223344556677 1234509876 SAVINGS ₹8,000.00 ₹2,000.00 Bangalore
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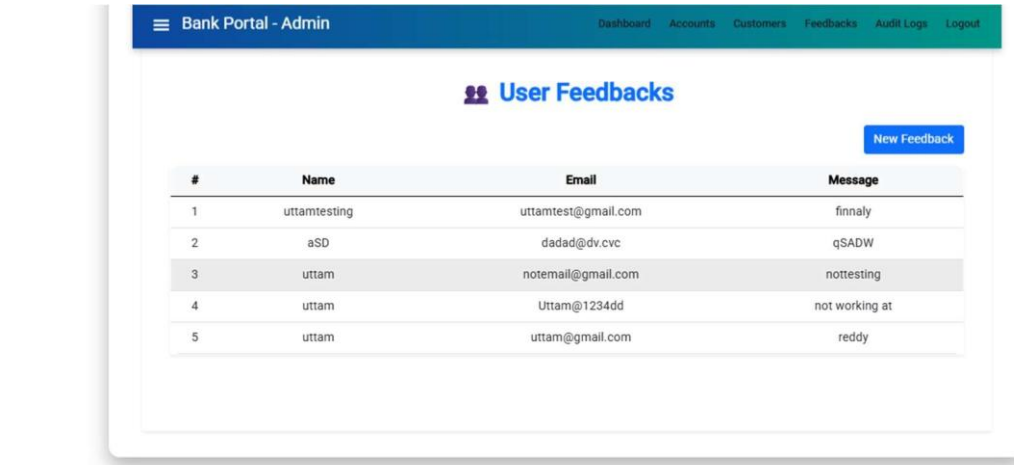
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Customers
Feedbacks
Audit Logs
Logout
User Feedbacks
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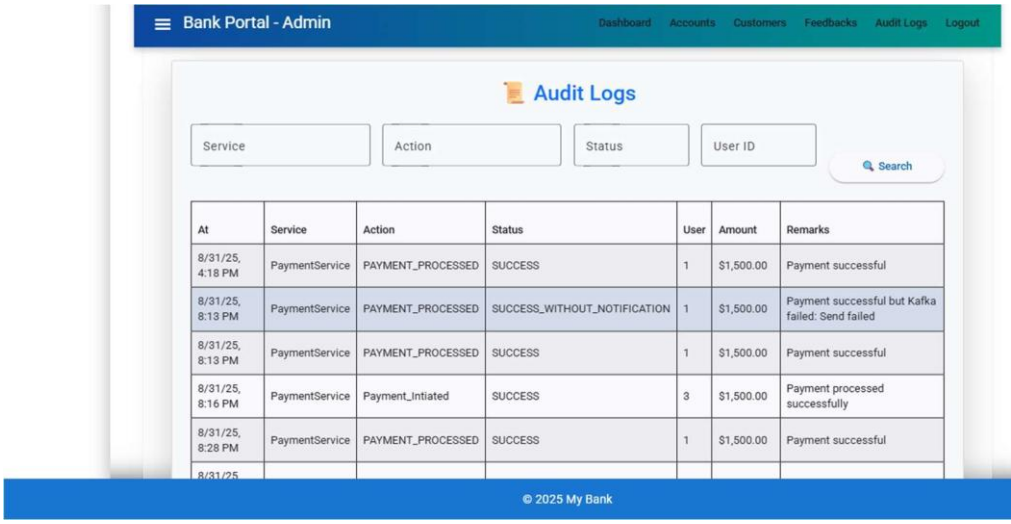
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8/31/25, 8:13 PM PaymentService PAYMENT_PROCESSED SUCCESS_WITHOUT_NOTIFICATION 1 $1,500.00 Payment successful but Kafka failed: Send failed
8/31/25, 8:13 PM PaymentService PAYMENT_PROCESSED SUCCESS 1 $1,500.00 Payment successful
8/31/25, 8:16 PM PaymentService Payment_Intiated SUCCESS 3 $1,500.00 Payment processed successfully
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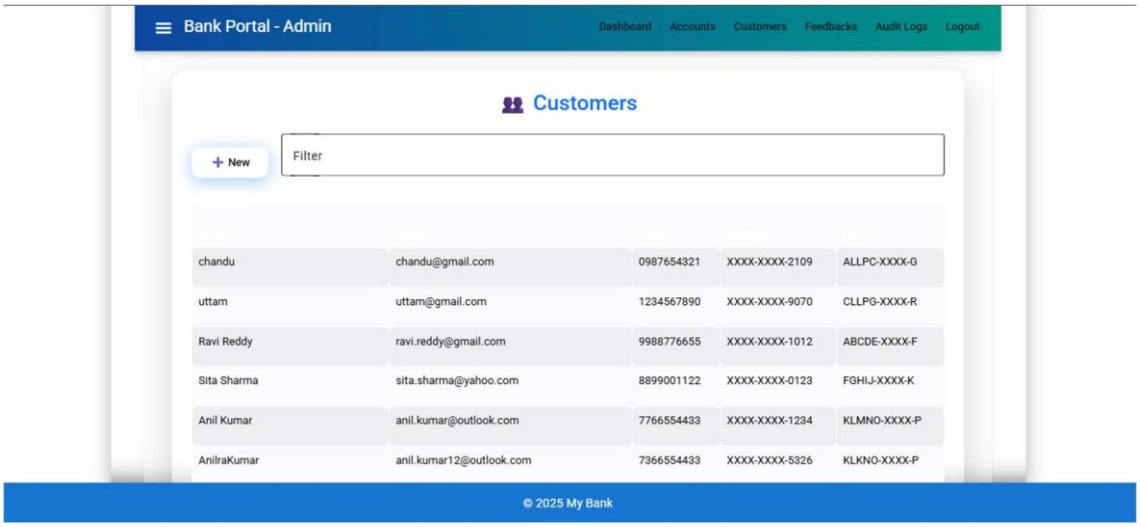
© 2025 My Bank



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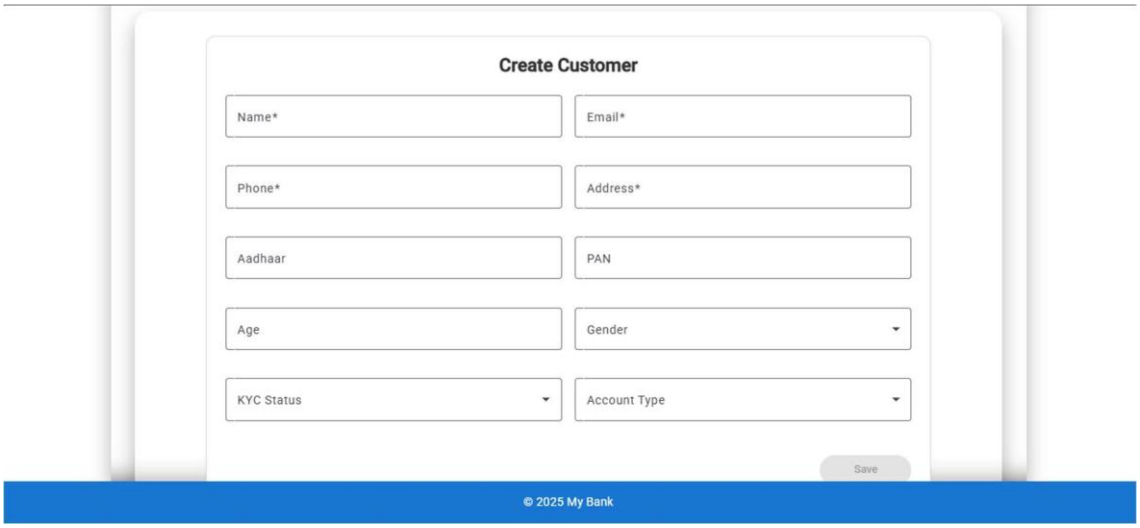
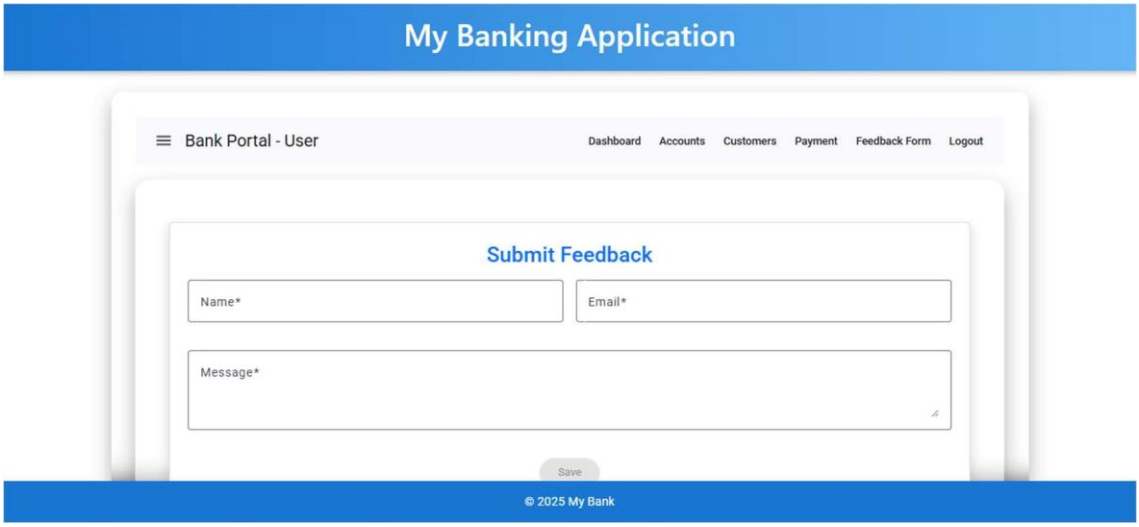
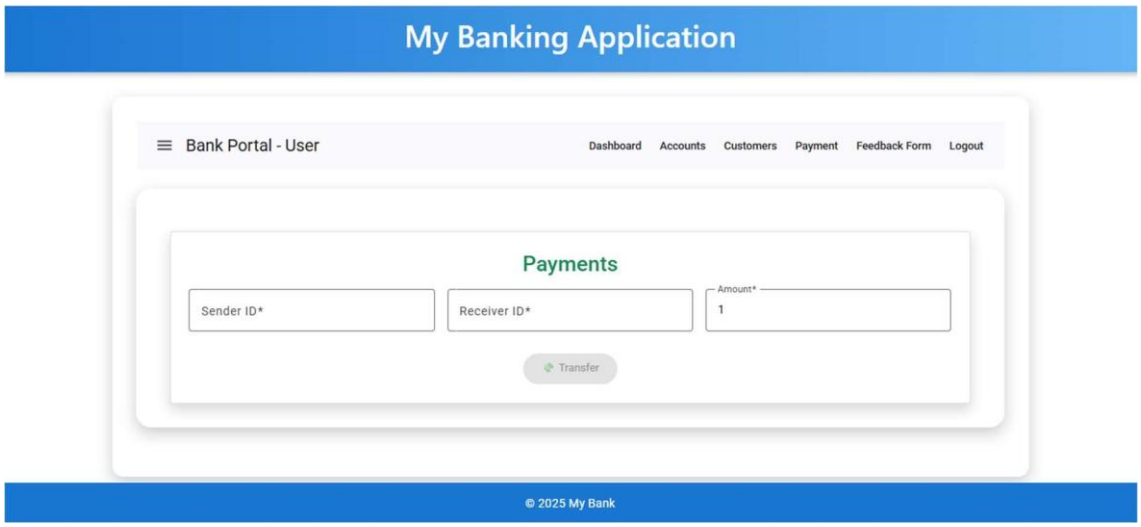
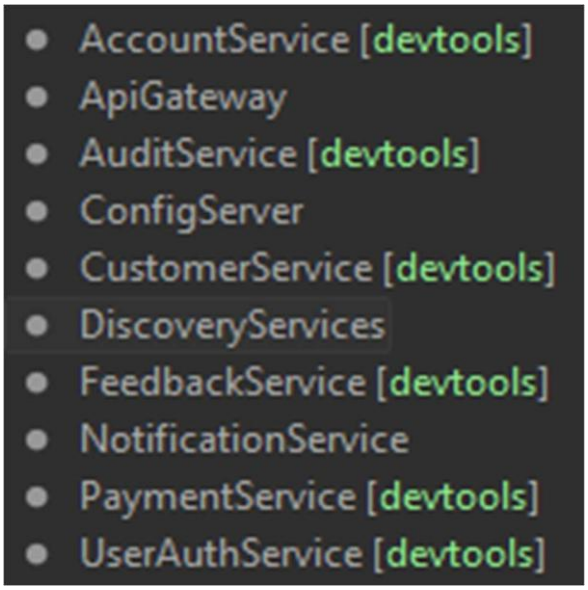






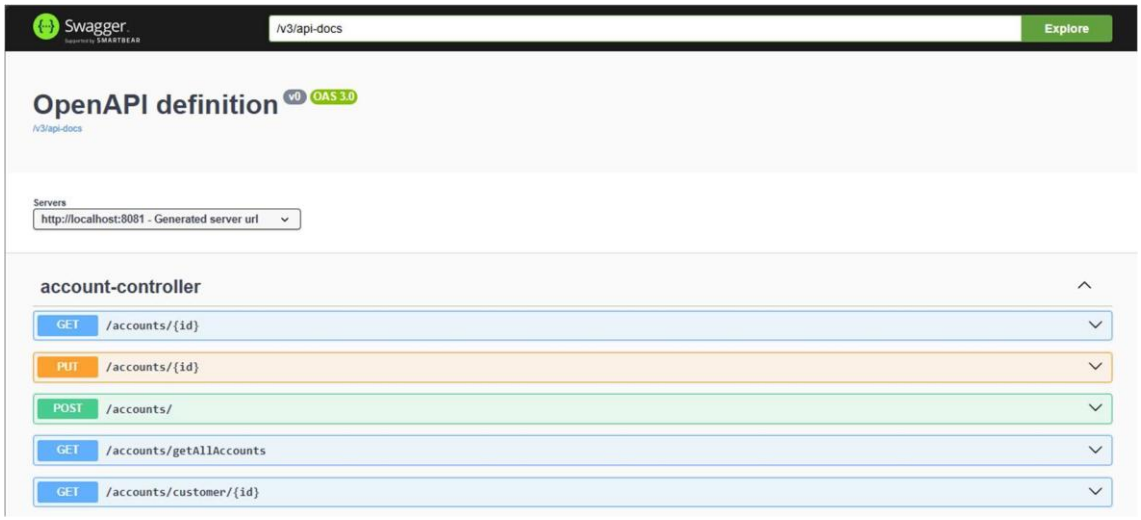
JAVA-SPRING_BOOT_MICROSERVICES:

SERVICES:



Service	Responsibility	Database
API Gateway	Routes client requests, handles load balancing	N/A
AuthService	User authentication, JWT issuance	AuthDB
AccountService	Account data and balance management	AccountDB
CustomerService	Customer profile and KYC data	CustomerDB
PaymentService	Handles payments, transaction workflow	PaymentDB
FeedbackService	User feedback storage and reporting	FeedbackDB
NotificationService	Async notifications via Kafka	NotificationDB
AuditService	Transaction logs, audit trails	AuditDB

SWAGGER and ZIPKIN and PROMETHEUS and GRAFANA :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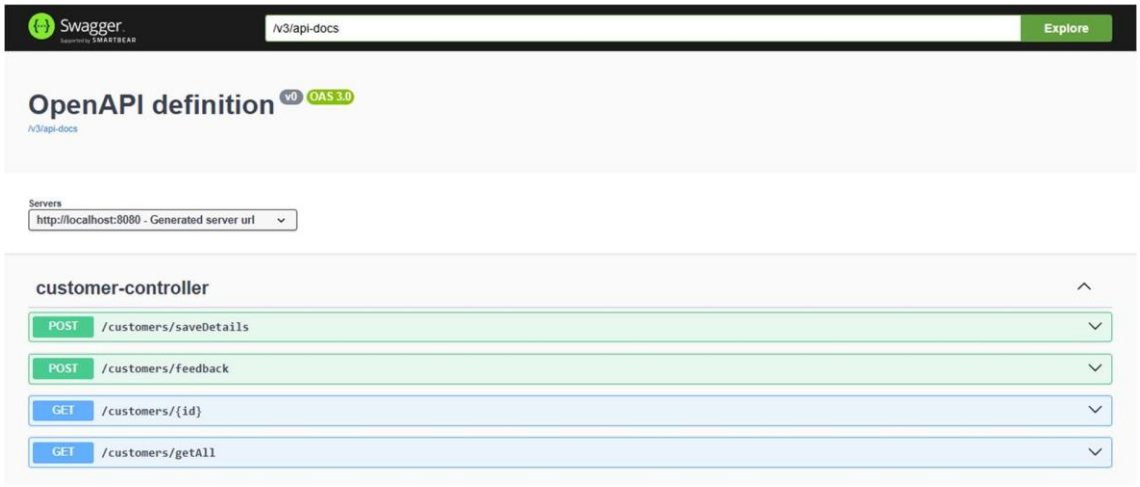
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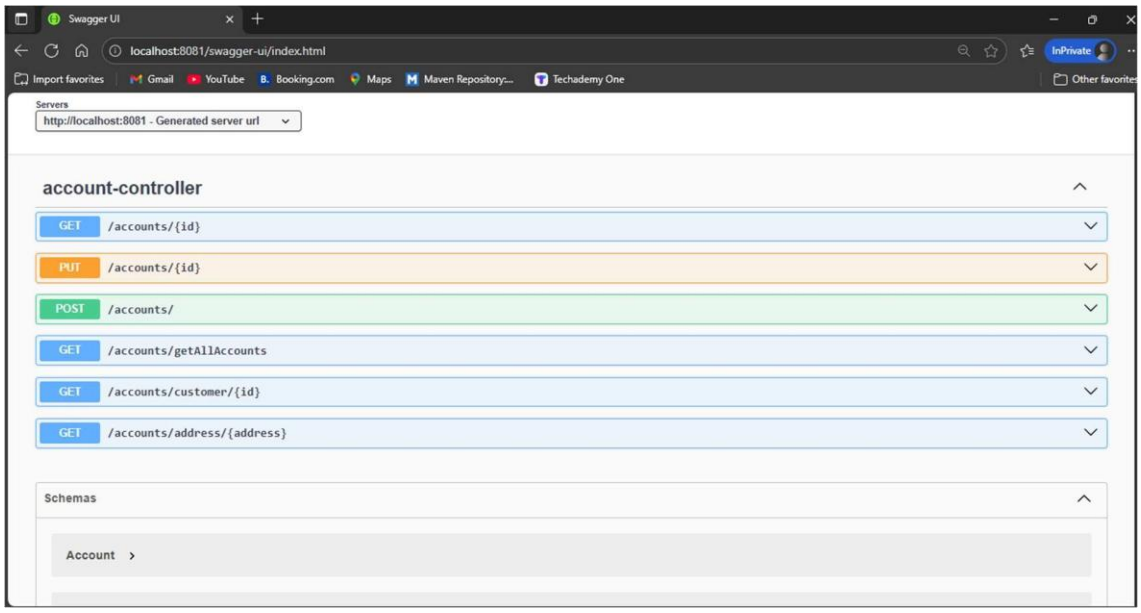
POST /customers/feedback
GET /customers/{id}
GET /customers/getAll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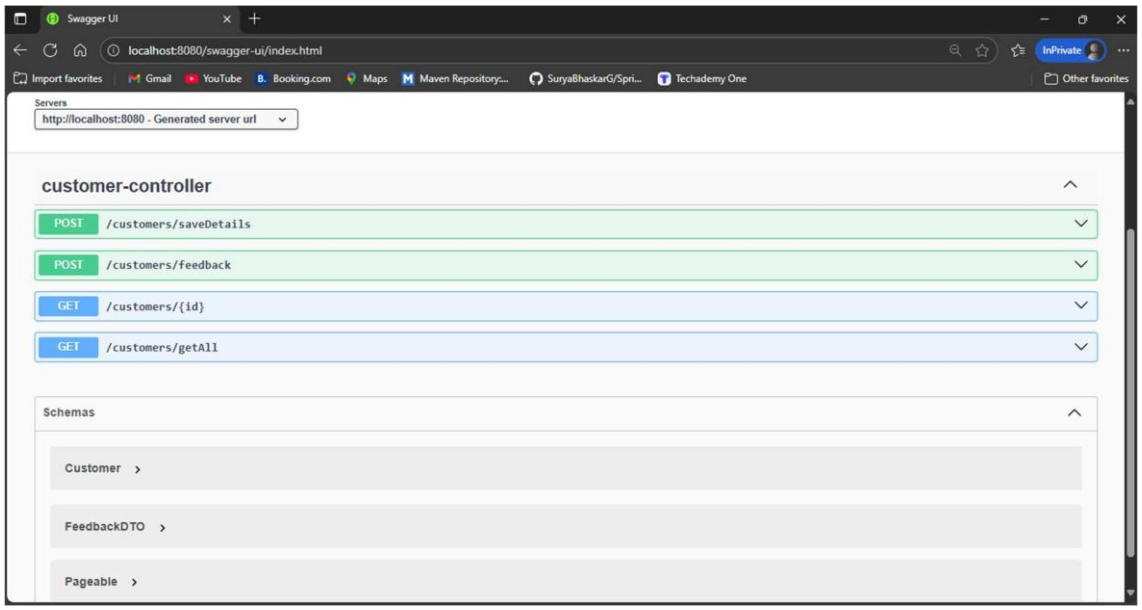
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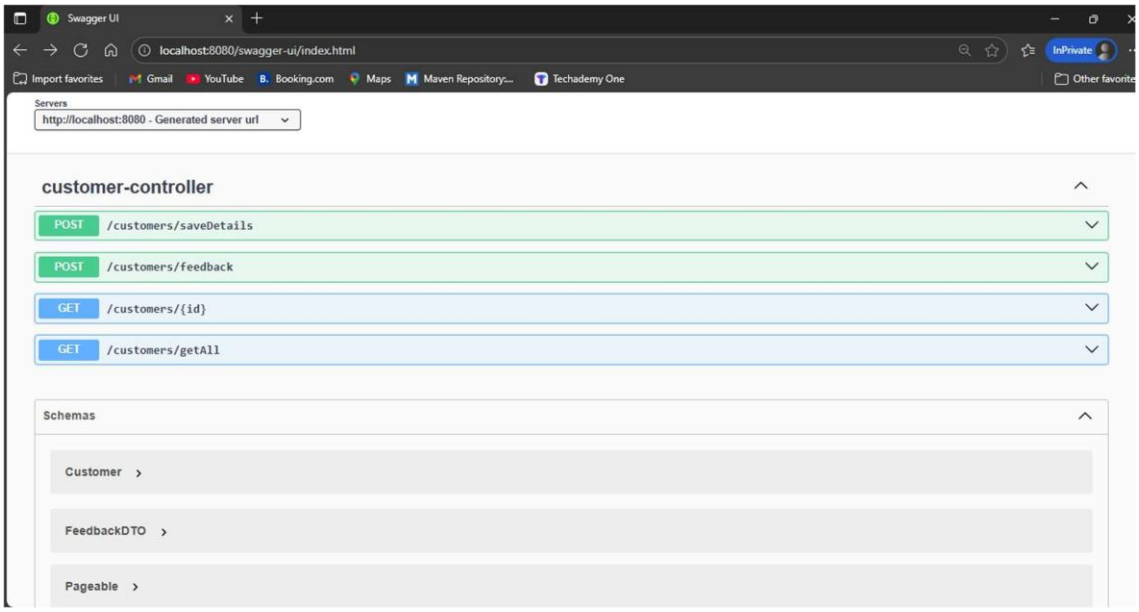
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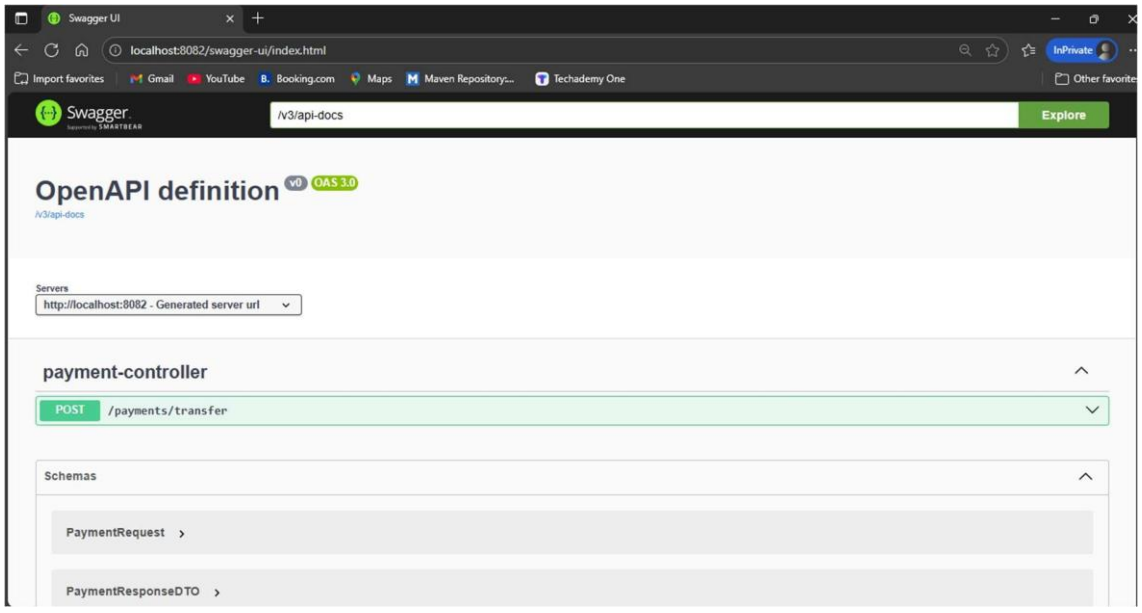
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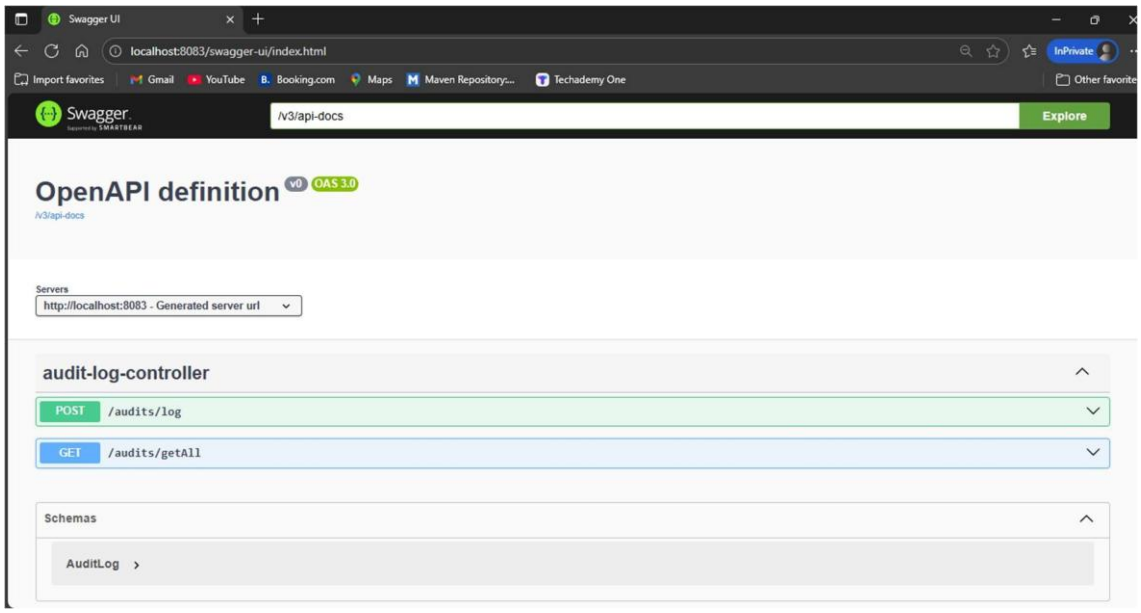
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Other favorites
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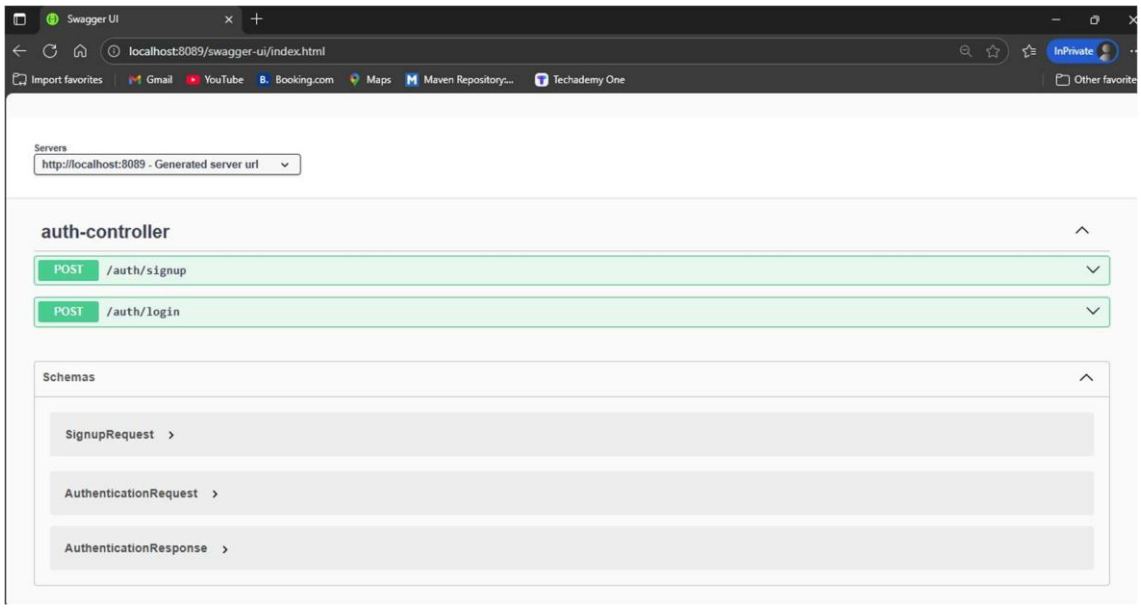
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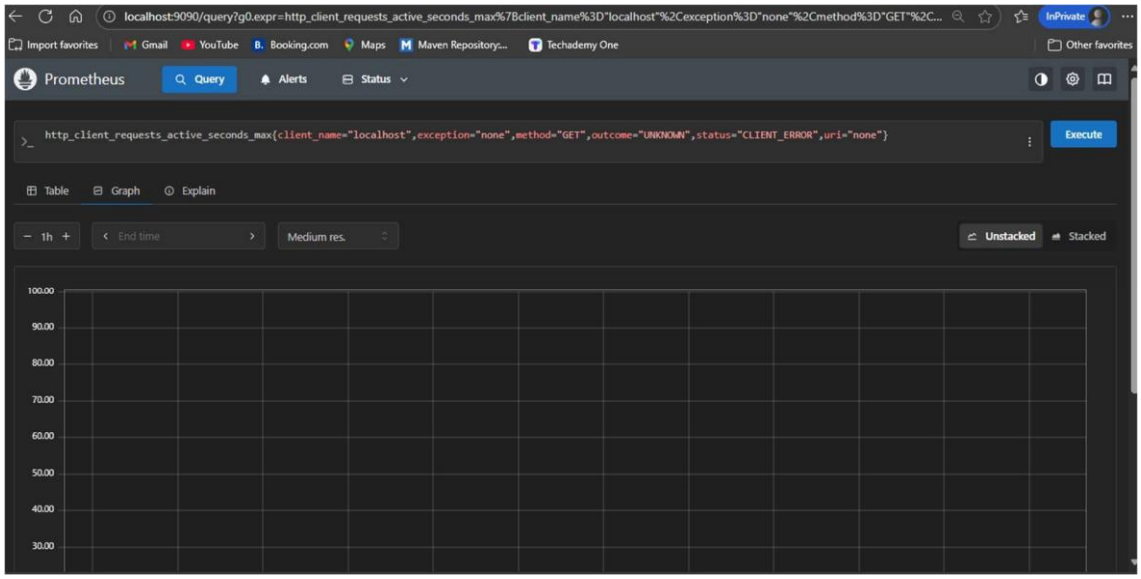
POST /auth/login
Schemas
SignupRequest
AuthenticationRequest
AuthenticationResponse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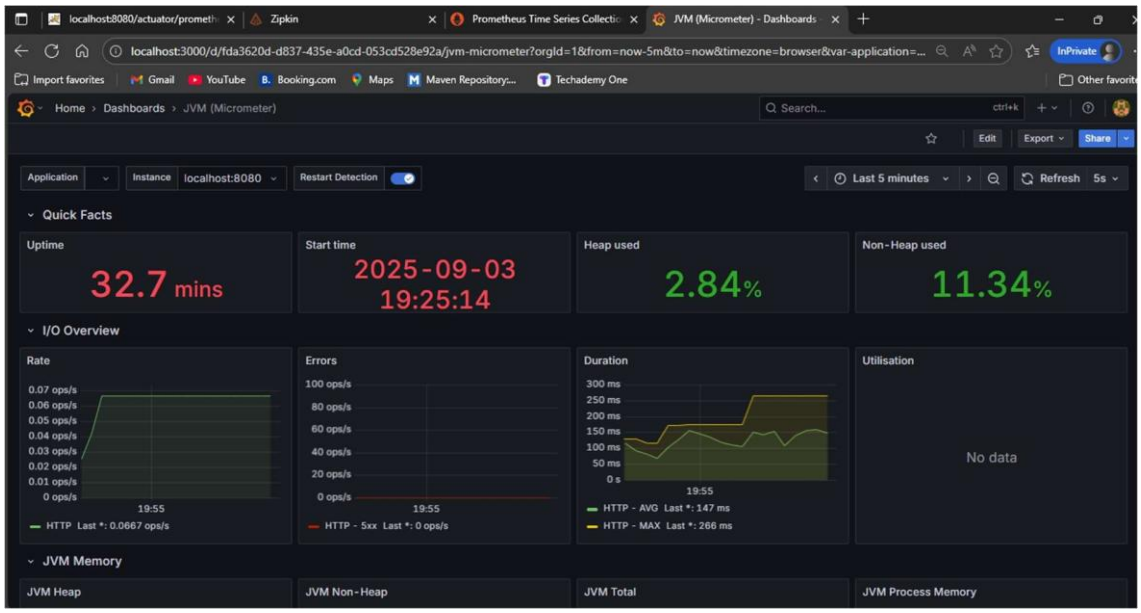

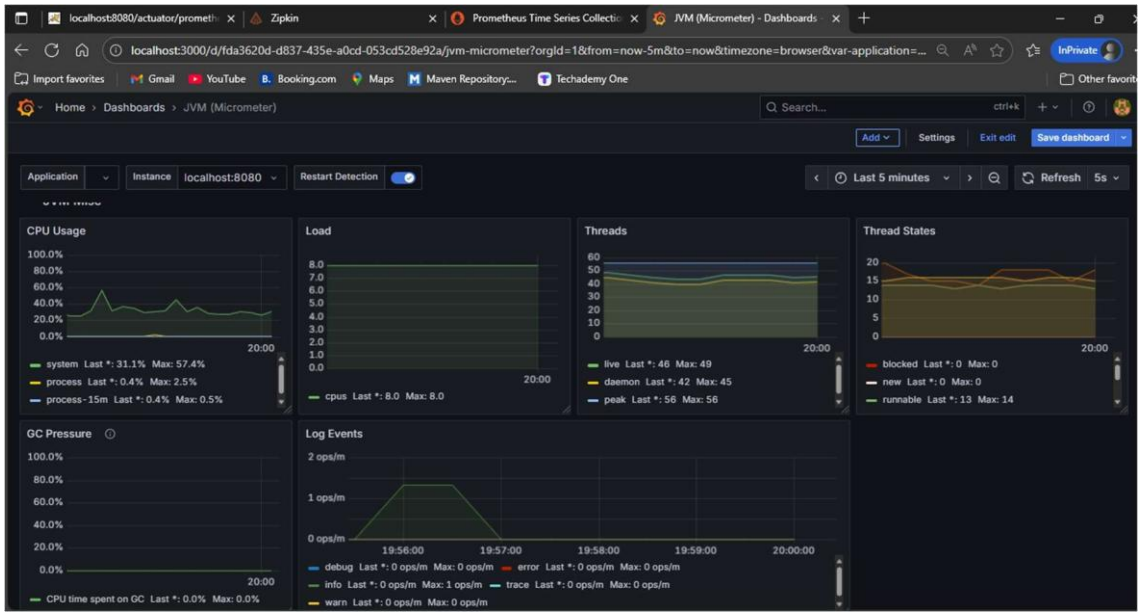

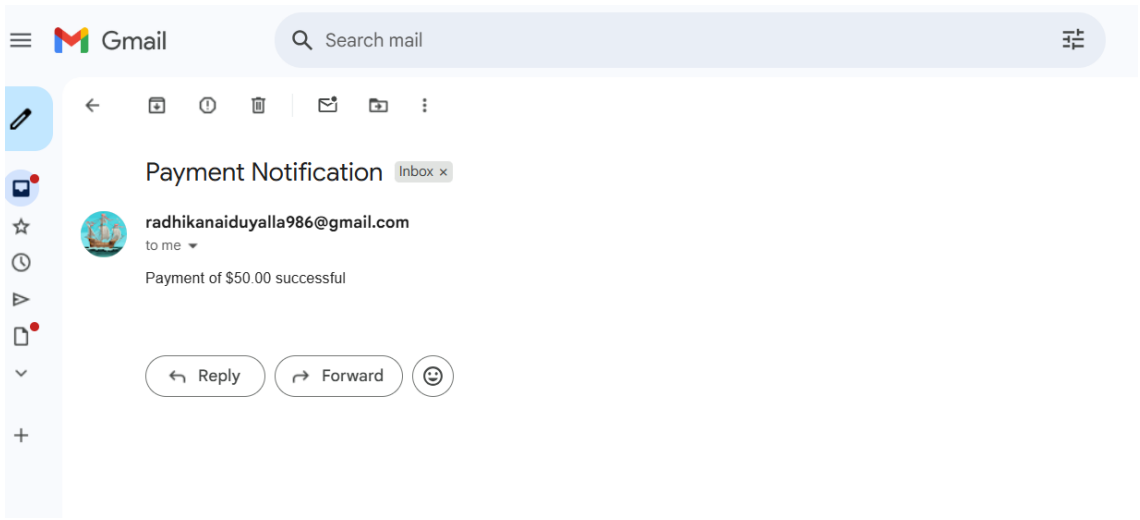

OVERVIEW:

The Banking Web Application project demonstrates a robust, microservicesbased architecture built with Angular and Spring Boot. Core functionalities, including

customer management, accounts, payments, feedback, audit, and notifications, are seamlessly integrated, with Kafka enabling asynchronous communication between Payment and Notification services and Feign Clients facilitating synchronous inter-service calls. Supported by API Gateway, Config Server, and Discovery Service, the system is secure, scalable, and maintainable. This project highlights modern enterprise-level development practices and provides a solid foundation for real-world banking solutions.

Acknowledgment / Conclusion:

This project has been completed successfully under the guidance of Ramakrishna Sir. I have applied my knowledge of Angular, Spring Boot, and Microservices to develop a scalable and secure Banking Web Application. I hope this project meets the objectives and expectations outlined at the start.

Submitted By:

Radhika yalla

BATCH _II

radhikanaiduyalla986@gmail.com

ANGULAR