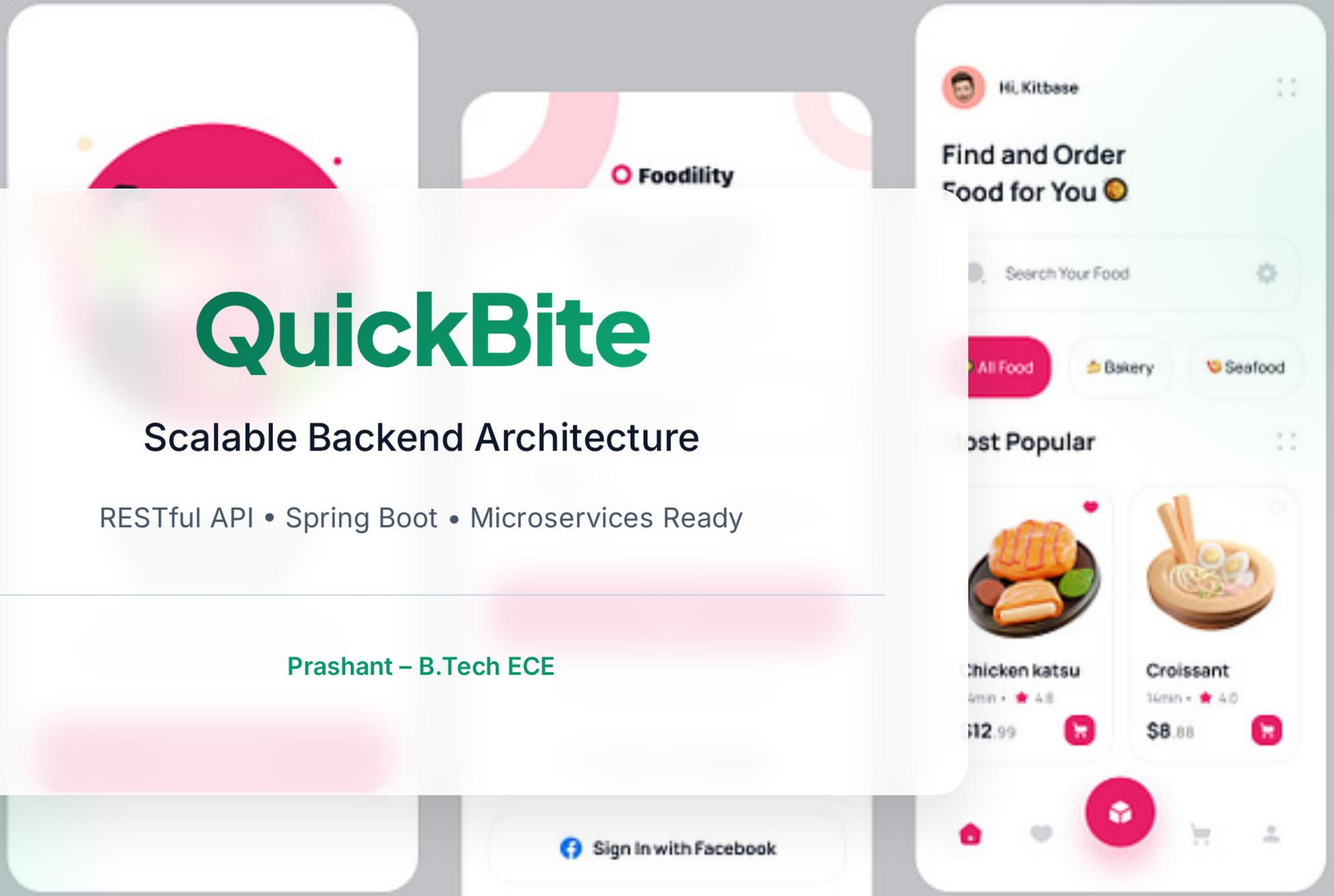


QuickBite

Scalable Backend Architecture

RESTful API • Spring Boot • Microservices Ready

Prashant – B.Tech ECE

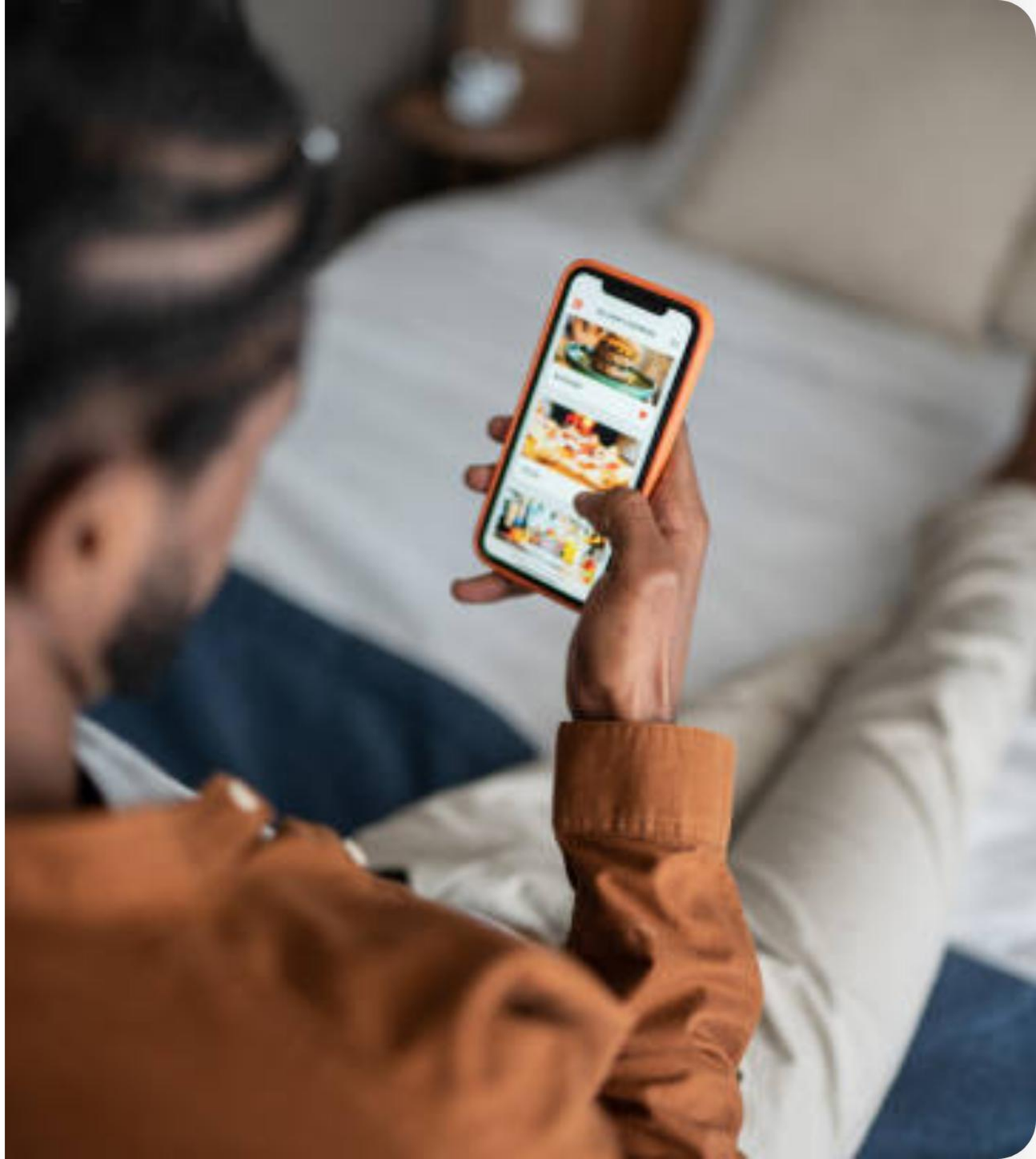
Modern Food Delivery

QuickBite is a high-performance backend system designed to bridge the gap between hungry customers, busy restaurants, and efficient delivery logistics.

Clean Architecture
Modular, layered design for scalability

RESTful API
Standardized endpoints for web & mobile

Robust Data Layer
JPA + Postgres for data integrity



Core Features

User Mgmt

Secure registration, authentication, and profile management for customers.

Restaurants

Vendor profiles, dynamic menu creation, and category organization.

Smart Cart

Persistent shopping cart sessions with real-time total calculation.

Orders

Complete lifecycle management: Placed → Confirmed → Delivered.

Coupons

Flexible discount engine supporting percentage and flat-rate codes.

Security

Robust error handling and input validation across all endpoints.

Technology Stack

Core Framework

Java 17
LTS version for stability

Spring Boot 3.5.4
Rapid application development

Spring Web
RESTful MVC Architecture

Data & Tools

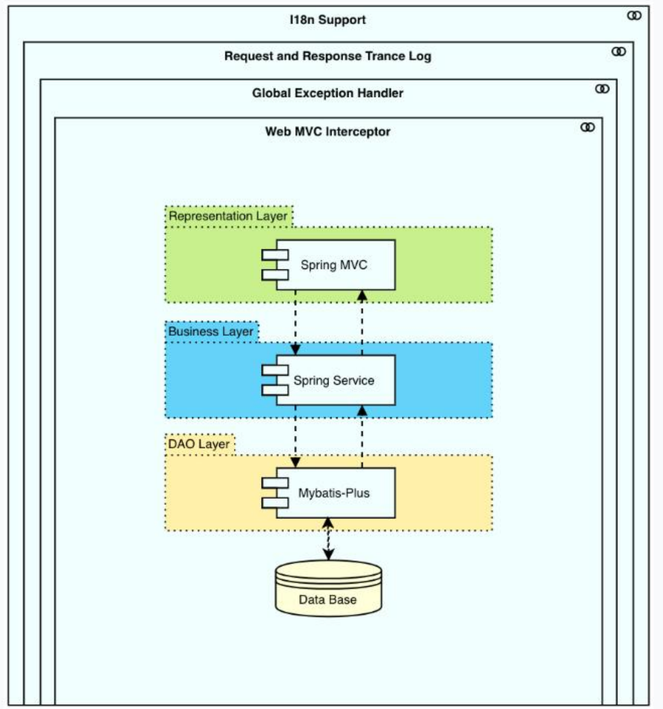
PostgreSQL & H2
Production & Dev databases

Spring Data JPA
Hibernate based ORM

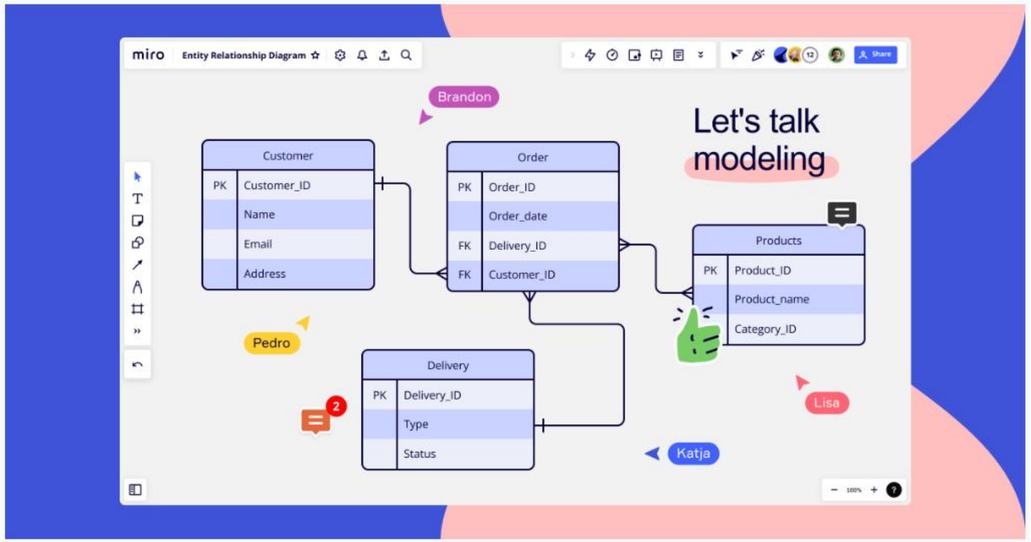
JUnit 5
Unit & Integration testing

Layered Architecture

```
📦 com.quickbite.backend
├── 📁 config
├── 📁 controller // API Layer
├── 📁 service // Business Logic
├── 📁 repository // DB Access
├── 📁 entity // Domain Model
└── 📁 dto // Data Transfer
```



Domain Entities



User
Login, Address, Orders (1:N)

Restaurant
Menu Products (1:N), Orders

Order
OrderItems, Total, Status

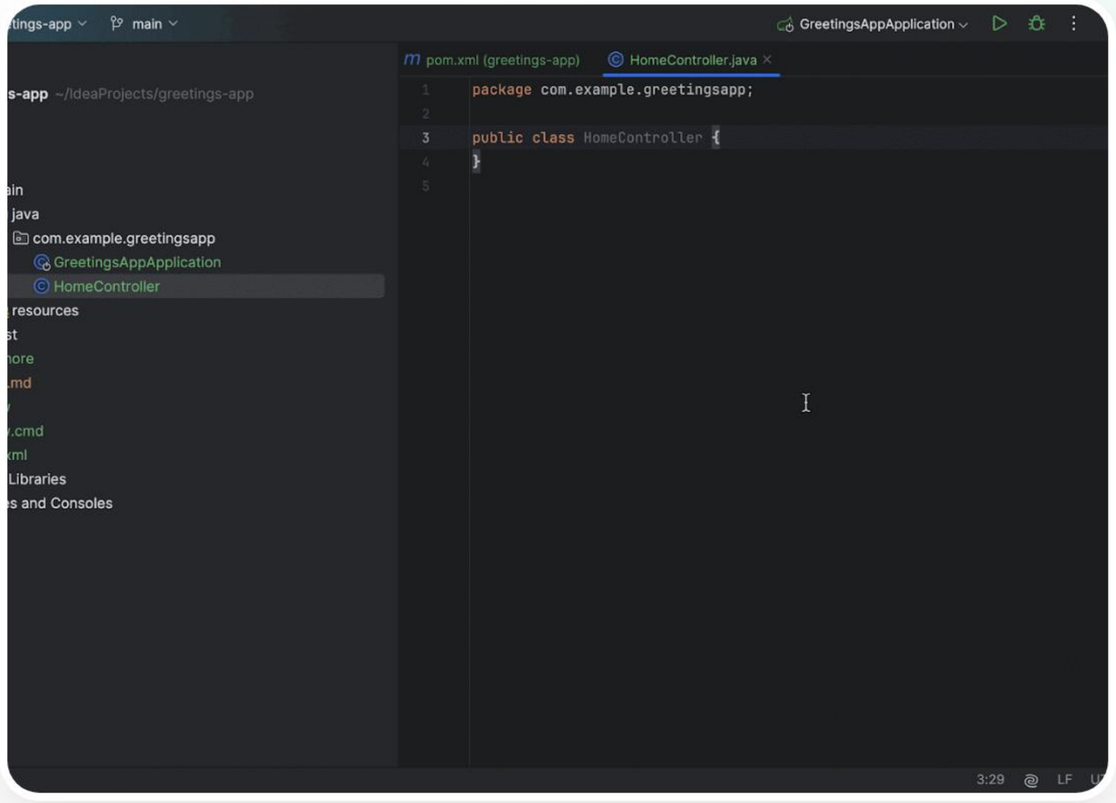
DTO & Mapper Pattern

Why DTOs?

We decouple the internal database entities from the external API to ensure security and flexibility.

Security
Hide internal IDs & passwords

Serialization
Prevent circular reference errors



Business Logic

Validation

Checks stock availability, restaurant operating hours, and user balances before processing.

Calculations

Computes cart totals, applies tax rates, and validates coupon applicability logic.

Checkout

Atomically creates orders, clears shopping cart, and reserves inventory.

Status

Manages order state transitions: PENDING → PREPARING → DELIVERED.

Exceptions

Throws business-specific exceptions (e.g., `OutOfStockException`) when rules fail.

Notifications

(Future) Triggers email or push notifications on status changes.

REST API

Method	Endpoint	Description
POST	/api/users/register	Create a new customer account
GET	/api/restaurants/{id}	Fetch restaurant details & menu
PUT	/api/cart/add	Add item to current session cart
POST	/api/orders/checkout	Finalize cart and place order
GET	/api/orders/history	List past orders for logged in user

Dual Database Strategy

</> Development (H2)

In-memory database. Fast, zero-config, and resets on every restart. Perfect for rapid prototyping and unit tests.

Production (PostgreSQL)

Enterprise-grade object-relational database. Ensures data persistence, concurrency control, and scalability.

Future Roadmap

1

JWT Auth

Stateless security token implementation

2

Payments

Stripe/PayPal Gateway Integration

3

Live Track

WebSocket based driver tracking

4

Scale

Migration to Microservices

Thank You!

Ready to deliver code.

/prashant-quickbite

prashant@example.com

Image Sources

https://media.istockphoto.com/id/1370737264/photo/young-man-ordering-food-online-with-smartphone-at-home.jpg?s=612×612&w=0&k=20&c=E0w92sJG7VehTGf-17LSp_t2LuDDTpnCxoP8Xosp_kQ=

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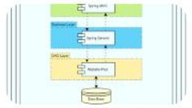

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