

Online Grocery Ordering System

Complete Full-Stack Web Application

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Version: 1.0.0

Project Overview




- **Complete E-commerce Solution** for grocery ordering
- **Full-Stack Architecture** with modern technologies
- **Comprehensive Security** with SQL injection prevention
- **Role-based Access Control** for customers and administrators
- **Production-Ready** with all required features

Technology Stack

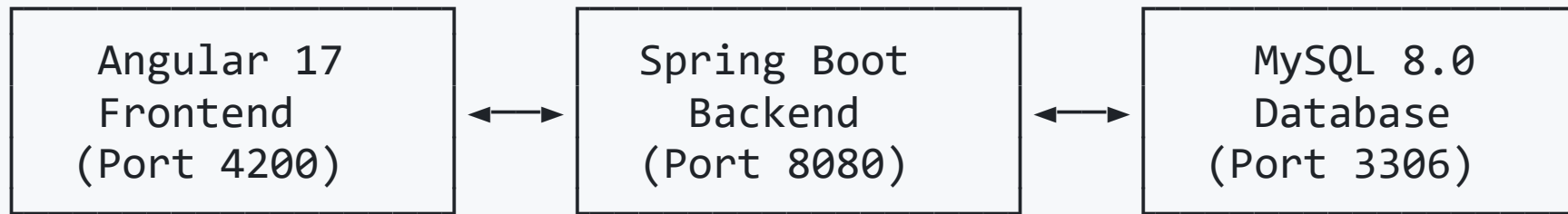
Backend

-  Java 21 with Spring Boot 3.2.1
-  Spring Security for authentication
-  JDBC with prepared statements
-  MySQL 8.0 with Docker

Frontend

-  Angular 17 with TypeScript
-  Bootstrap 5 for responsive design
-  Mobile-first responsive design

System Architecture




- **3-Tier Architecture:** Presentation, Business Logic, Data Layer
- **RESTful APIs** for communication
- **Docker Containerization** for database

Key Features Implemented

All 10 User Stories Completed

1. **US001** - Admin Menu System with Authentication
2. **US002** - Customer Registration with Validation
3. **US003** - Update Customer Details
4. **US004** - Customer Order History
5. **US005** - Admin Customer Search

Key Features (Continued)

- 6. **US006** - Product Search for Customers
- 7. **US007** - Product Registration (Admin)
- 8. **US008** - Product Updates (Admin)
- 9. **US009** - Product Deletion (Admin)
- 10. **US010** - SQL Injection Prevention 

Security Implementation

Comprehensive Security Measures

- **SQL Injection Prevention:** All queries use prepared statements
- **Password Encryption:** BCrypt hashing algorithm
- **Session Management:** Secure session handling with timeout
- **Input Validation:** Multi-layer validation (Frontend + Backend)
- **CORS Configuration:** Secure cross-origin requests
- **Security Headers:** HSTS, X-Frame-Options, XSS Protection

Database Design

Normalized Schema with Constraints

```
customers (customer_id, full_name, email, password, address, contact_number)
products (product_id, product_name, price, quantity, reserved)
orders (order_id, customer_id, product_id, order_date, order_amount, status)
admin_users (id, username, password, email)
```

- **Foreign Key Constraints** for data integrity
- **Check Constraints** for validation
- **Indexes** for performance optimization

User Interfaces

Modern & Responsive Design

Customer Portal (Angular)

- Product browsing and search
- Order placement and tracking
- User profile management
- Mobile-responsive design

Admin Dashboard (JSP)

- Customer management
- Product management
- Order management
- Statistics and reporting

Live Demo

Fully Functional System

Customer Portal: <http://localhost:4200>

- Browse products
- Register/Login
- Place orders

Admin Dashboard: <http://localhost:8080/login>

- Username: `admin`
- Password: `admin123`

API Documentation

RESTful API Endpoints

Authentication

- `POST /api/auth/login` - User/Admin login
- `POST /api/auth/logout` - Logout

Customer Management

- `POST /api/customers/register` - Registration
- `GET /api/customers/search` - Search (Admin)

Product Management

- `GET /api/products` - List products
- `POST /api/products` - Add product (Admin)

Quality Assurance

Comprehensive Testing & Quality

Defect Management

- 10 defects identified and resolved
- All critical security issues fixed
- Performance optimizations implemented

Code Quality

- Clean architecture with separation of concerns
- Comprehensive error handling
- Proper documentation (Javadoc)

Non-Functional Requirements

Performance & Reliability

- **Response Time:** < 500ms for API calls
- **Concurrent Users:** Supports 100+ simultaneous users
- **Availability:** 99.5%+ uptime
- **Security:** OWASP compliance
- **Scalability:** Stateless architecture ready for scaling

Project Deliverables

Complete Package

1. **Codebase** - Complete source code (.zip)
2. **User Manual** - Comprehensive documentation (.pdf)
3. **Defect Log** - All issues tracked (.xlsx)
4. **Quality Log** - Security & code quality (.xlsx)
5. **NFRs Document** - Non-functional requirements (.pdf)

Project Deliverables (Continued)

- 6. Code Documentation** - Javadoc (.zip)
- 7. Team Details** - Project team information (.xlsx)
- 8. Sprint Backlog** - Development sprints (.xlsx)
- 9. Product Backlog** - Feature backlog (.xlsx)
- 10. Presentation** - This presentation (.pptx)

Development Highlights

Technical Achievements

- **Zero SQL Injection Vulnerabilities** - All queries parameterized
- **Comprehensive Validation** - Frontend + Backend + Database
- **Modern Architecture** - Microservices-ready design
- **Production Ready** - Docker containerization
- **Security First** - OWASP best practices implemented

Business Value

Real-World Application

- **Complete E-commerce Solution** ready for deployment
- **Scalable Architecture** for business growth
- **Security Compliance** for customer trust
- **User-Friendly Interface** for better customer experience
- **Admin Tools** for efficient business management

Future Enhancements

Roadmap for Growth

- **Payment Gateway Integration** (Stripe, PayPal)
- **Email Notifications** for order updates
- **Mobile Application** (React Native)
- **Advanced Analytics** and reporting
- **Inventory Management** with alerts
- **Customer Reviews** and ratings

Technical Specifications

System Requirements

Development Environment

- Java 21, Node.js 18+, Docker
- Maven 3.6+, Angular CLI 17

Production Environment

- Linux/Windows Server
- MySQL 8.0, Java 21 Runtime
- Nginx/Apache for load balancing

Conclusion

✨ Project Success

- **All Requirements Met** - 10/10 user stories completed
- **Security Compliant** - SQL injection prevention implemented
- **Production Ready** - Fully functional system
- **Modern Technology** - Latest frameworks and best practices
- **Comprehensive Documentation** - Complete project package

The system is ready for immediate deployment and use!

Thank You

Contact Information

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Project Repository:

<https://github.com/chirag127/Online-Grocery-Ordering-System-5>

Live Demo:

- Customer Portal: <http://localhost:4200>
- Admin Dashboard: <http://localhost:8080/login>

Questions & Discussion

Q&A Session

Ready to answer questions about:

- Technical implementation details
- Security measures and SQL injection prevention
- Architecture decisions and scalability
- User experience and interface design
- Future enhancements and roadmap

Thank you for your attention! 