Documentation: Hackathon 3 - Q-Commerce Coffee Shop (Day 2)

Introduction

This documentation outlines the technical progress made on Day 2 of the Hackathon 3: Q-Commerce Coffee Shop Marketplace. The focus was on building a robust technical foundation to support a high-performance, quick-commerce coffee shop.

1. System Architecture 🏗️

Overview:

The architecture integrates multiple components to enable seamless operations:

- Frontend: Built using Next.js for dynamic, responsive user interfaces.
- Sanity CMS: Centralized content management for inventory and product details.
- Payment API: Secure payment processing for customer transactions.
- Shipping API: Real-time tracking of deliveries.

Key Features:

- Real-time inventory synchronization.
- Express delivery tracking with live updates.
- SLA (Service Level Agreement) monitoring for delivery performance.
- Payment processing workflow with order status updates.

2. Enhanced Schema Design 📊

Schema Improvements:

The schema was enhanced to accommodate:

- Detailed product metadata, including customization options.
- User profiles for subscription plans and delivery preferences.
- Order statuses and timestamps for tracking and SLA monitoring.

3. Extended API Endpoints 🔌

Q-Commerce-Specific Endpoints:

Order Management:

- `POST /order/create`: Place a new order.
- `GET /order/:id`: Retrieve order details and status.

Inventory Management:

- `GET /inventory`: Fetch real-time stock availability.
- `PATCH /inventory/update`: Update stock levels.

Delivery Management:

- `POST /delivery/assign`: Assign express delivery to an order.
- `GET /delivery/track/:id`: Fetch real-time tracking information.

SLA Monitoring:

- `GET /sla/status`: Retrieve SLA compliance status.

4. Key Workflows 🔄

1. Order Processing Workflow
2. Customer places an order.
3. Real-time stock verification.
4. Payment is processed securely.
5. Order is confirmed and assigned to an express delivery service.
6. Real-time tracking updates are sent to the customer.

Inventory Management Workflow

1. Automatic stock updates after each order.
2. Low-stock alerts are generated.
3. Real-time product availability updates.
4. Monitoring reorder points to prevent stockouts.

SLA Monitoring Workflow

1. Delivery time tracking for every order.
2. SLA breach detection for delayed deliveries.
3. Performance analytics generated for continuous improvement.
4. Real-time status updates for proactive issue resolution.

5. Q-Commerce Optimizations ⚡

Optimized Features:

- **Real-time Stock Updates:** Stock synchronization every 30 seconds for up-to-date inventory.
- **Delivery Route Optimization:** Efficient delivery routes for faster service.
- **Smart Queuing System:** Prioritized order processing for high-demand periods.
- **Automated SLA Monitoring:** Instant alerts for SLA breaches.
- **Dynamic Pricing:** Pricing adjusts based on demand and delivery times.

Conclusion

Day 2 of the Hackathon solidified the technical foundation for the Q-Commerce Coffee Shop Marketplace. By implementing advanced workflows, optimized API endpoints, and real-time synchronization, the project is now equipped to provide an exceptional user experience. These enhancements ensure seamless order processing, efficient inventory management, and reliable SLA monitoring, setting the stage for a high-performance quick-commerce solution. Stay tuned for further updates as we continue building!