Realtime Project

Domain: E-Commerce (SWIGGY/ZOMATO)

Duration: 3 Months

Technologies:

Frameworks: Angular 16, Spring Boot, Spring Cloud

Database: Amazon RDS, DynamoDB, Amazon SNS, Kafka, AWS Lambda, Cloud watch

DEVOPS: Jenkins/AWS CI/CD

Monitoring and Management: Prometheus, Grafana, Tempo

Web Mapping Service: Google Maps Integration with Angular and Spring boot

Query Languages: Graph QL

Payment Gateways: Razor Pay Integration with Spring boot and Angular.

Microservices which are part of development.

1. User Management Module

Effortless Registration: Quick and easy user registration process.

Secure Authentication: Robust authentication methods ensuring user data safety.

Personalized User Profiles: Customize your experience and preferences.

2. Restaurant Management Module

Dynamic Menu Management: Restaurants can easily update and manage their menus.

Real-time Order Processing: Swift and efficient handling of customer orders.

Quality Control: Ensures that customers receive top-quality food every time.

3. Order Processing Module

Order Creation: Users can easily create and customize their orders.

Real-time Modifications: Modify orders on-the-go with instant updates.

Seamless Payment Processing: Secure payments integrated with RazorPay.

4. Delivery Management Module

Smart Order Assignment: Efficiently assigns orders to delivery personnel.

Live Order Tracking: Track your order in real-time from the restaurant to your doorstep.

Timely Deliveries: Ensures that your food reaches you hot and fresh.

5. Payment Gateway Integration

Secure Transactions: Reliable and secure payments using RazorPay.

Multiple Payment Options: Pay the way you want, be it credit card, debit card, or digital wallets.

Instant Payment Confirmation: Receive immediate payment confirmations for hassle-free transactions.

6. Notification and Communication Module

Instant Alerts: Receive real-time updates on your order status.

Push Notifications: Stay informed with push notifications via Amazon SNS.

Interactive Communication: Communicate directly with restaurants and delivery personnel.

7. Rating and Feedback Module

User Reviews: Share your experiences by rating restaurants and delivery services.

Constructive Feedback: Provide valuable feedback to restaurants for continuous improvement.

Enhanced User Experience: Helps in improving service quality based on user suggestions.

8. Loyalty Program Module

Earn Points: Get rewarded for every order placed through our platform.

Redeem Rewards: Redeem earned points for exciting discounts and free items.

Exclusive Benefits: Enjoy exclusive offers and benefits as a loyal customer.

Database Schemas:

1. User Database Schema:

- **User Information Table:** Stores user profiles, including names, contact details, addresses, and preferences.
- **Order History Table:** Records user order history, including order IDs, items, quantities, and total amounts.
- **Feedback Table:** Captures user ratings, reviews, and feedback for analysis and improvement.

2. Restaurant Database Schema:

- **Menu Items Table:** Contains menu items, including names, descriptions, prices, and categorizations.
- **Order Queue Table:** Manages incoming orders, including order IDs, item IDs, quantities, and delivery instructions.
- **Performance Metrics Table:** Stores data on popular items, peak hours, and customer preferences for strategic planning.

3. Order Database Schema:

- **Order Details Table:** Contains detailed order information, including timestamps, items, quantities, and customer preferences.
- **Delivery Status Table:** Tracks the status of orders, including confirmation, preparation, delivery, and completion.
- **Payment Records Table:** Records payment details, including transaction IDs, amounts, and payment methods.

4. Delivery Database Schema:

- **Delivery Personnel Table:** Contains information about delivery personnel, including IDs, locations, and availability status.
- **Delivery Route Table:** Stores route details, including waypoints, distances, and estimated delivery times.
- **Proof of Delivery Table:** Captures digital signatures or photos as proof of successful deliveries for validation.

5. Payment Database Schema:

- **Transaction Records Table:** Contains transaction details, including transaction IDs, timestamps, amounts, and statuses.
- **Fraud Detection Table:** Captures suspicious transaction patterns and flags potential fraud cases for investigation.
- **Refund History Table:** Records refund transactions, including order IDs, amounts, and reasons for refunds.

6. Notification Database Schema:

- **Push Notification Table:** Contains push notification messages, user IDs, and timestamps for targeted delivery.
- **Email Notification Table:** Stores email notification content, recipient addresses, and delivery statuses for email communication.
- **Notification Preferences Table:** Tracks user notification preferences, allowing customization for each user.

7. Rating and Review Database Schema:

- **User Ratings Table:** Stores user ratings for restaurants and delivery experiences, linked to user IDs and order IDs.
- **User Reviews Table:** Captures written reviews, including text, timestamps, and associated order IDs.
- **Restaurant Feedback Table:** Records user feedback sent to restaurants, promoting continuous improvement.

8. Loyalty Program Database Schema:

- **User Loyalty Points Table:** Tracks user loyalty points earned per order, linked to user IDs and order IDs.
- **Redemption History Table:** Records point redemptions, including order IDs, redeemed items, and discount amounts.
- **Loyalty Tier Table:** Defines loyalty program tiers, including required points, benefits, and exclusivities for each tier.

Technological Marvels:

1. Advanced Frameworks:

- **Angular 16:** Modern, responsive, and dynamic front-end for an intuitive user interface.
- **SpringBoot:** Efficient, production-grade backend framework ensuring robust server-side operations.
- **Spring Cloud:** Facilitates microservices architecture, enabling seamless communication and scalability.

2. Cutting-Edge Databases and Services:

- **Amazon RDS:** Scalable, high-performance relational databases ensuring data integrity.
- **DynamoDB:** NoSQL database for flexibility and speed in handling unstructured data.
- **Kafka and AWS Lambda:** Event-driven architecture for real-time processing and communication.
- **Amazon SNS:** Push notification service ensuring timely user updates.
- **Google Maps Integration:** Geolocation services enhancing order tracking and restaurant mapping.

3. Smart DevOps and Monitoring:

- **Jenkins/AWS CI/CD:** Automated deployment ensuring swift updates and bug fixes.
- **Prometheus, Grafana, Tempo:** Real-time monitoring, tracking performance, and ensuring system stability.
- **Cloudwatch:** Proactive monitoring and alerting, ensuring optimal system health.

4. Intelligent Query Language:

- **GraphQL:** Offers flexibility in querying data, reducing load times and bandwidth usage.
- **Dynamic Schema:** Allows the addition of new fields without impacting existing queries, ensuring scalability.

5. Secure Payment Integration:

- **RazorPay Integration:** Seamless integration for secure, hassle-free payment transactions.
- **Encryption Protocols:** SSL encryption ensuring data security during payment processes.