American International University Bangladesh

SOFTWARE ENGINEERING

Section-D

Faculty-RAHNUMA TASNIM

Project Title: Online Food Ordering and Delivery System

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1. Project Overview

Project Name: Online Food Ordering and Delivery Management System

Objective: To create an online platform for easy, customizable food ordering with real-time tracking, nearby store recommendations, and payment options.

Purpose: Meet the growing demand for digital food ordering by providing a solution focused on speed, personalization, and a seamless user experience.

2. System Requirements

Platform: Web and mobile applications (iOS and Android), ensuring a consistent experience across devices.

-Database: Scalable cloud-based database to manage user profiles, order history, product inventory, and analytics.

-APIs: Integrate third-party services, such as location tracking (Google Maps API) for store finders and payment gateways for secure transactions.

-Security: High-level encryption and adherence to data protection standards (e.g., PCI compliance) to safeguard user data.

3. Functional Requirements

1.User Account and Profile Management:

-Registration and Login: Users register via email or social media integration, with multi-factor authentication for security.

-Profile Management: Users can update personal information, view order history, save favorite orders, set dietary preferences, and enable location sharing.

-User Tiering: Implement loyalty tiers, where regular customers can unlock discounts, exclusive products, and faster delivery options.

2. Menu Display and Product Catalog:

-Dynamic Menu Display: Product catalog organized by categories, with detailed descriptions, nutritional information, images, and current pricing.

-Real-time Inventory: Displays available items based on inventory and removes unavailable items to avoid customer disappointment.

-Promotions and Discounts: Feature promotional items, seasonal offers, and bundle discounts that can be dynamically applied.

3. Custom Pizza Builder:

- Customizable Options: Allows users to select crust type, sauce, toppings, and size. Users can view a real-time visual representation of their custom pizza.

-Pricing Calculation: Adjusts price based on chosen toppings and size, updating the cost in real-time as selections change.

4.Location-Based Store Finder:

-GPS Integration: Identifies the user's location and displays nearby stores, showing estimated delivery times and fees.

-Manual Location Entry: Option for users to manually enter their address if they prefer not to use GPS.

- Delivery Radius: Only displays stores within a defined delivery radius to ensure timely delivery.

5. Ordering and Payment:

-Order Placement: Users can select items, add them to the cart, and proceed to checkout with options for delivery or pickup.

-Order Customization: Allows for special instructions, like spice levels, allergy notes, or packaging preferences.

-Payment Options: Multiple payment methods including credit cards, mobile wallets (e.g., Apple Pay, Google Pay), and cash-on-delivery.

-Order Confirmation: Sends confirmation via app notification, SMS, or email, including order summary and expected delivery time.

6.Live Order Tracking:

-Order Status Updates: Real-time tracking showing stages: preparing, out for delivery, and delivered.

-GPS Delivery Tracking: Users can view the driver's location on a map, with an estimated arrival time.

-Push Notifications: Automatic updates on order status, with options for customers to modify or cancel orders before preparation.

7.Customer Feedback and Rating:

-Post-Delivery Feedback: Customers can rate their experience, quality, and delivery speed after each order.

-Issue Reporting: Simple interface for reporting problems with orders, which is sent directly to customer support for quick resolution.

-Analytics: Feedback data analyzed to identify trends and areas for improvement.

8.Admin Dashboard for Store Management:

-Order Management: View and manage incoming orders, update order statuses, and communicate with delivery teams.

-Inventory Management: Track ingredient stock, receive low-inventory alerts, and automate restocking orders.

-Product Management: Update menus, add new items, and manage promotional offers.

-Analytics Dashboard: View metrics on sales, popular items, peak order times, and customer demographics for strategic decision-making.

4. Non-Functional Requirements

-Scalability: Capable of handling peak order volumes with scalable server solutions and load balancing.

-Security: Data protection through encryption, SSL certificates, secure payment gateways, and regular security audits.

-Performance: System response time should be under 2 seconds for browsing and ordering functions, optimized for both web and mobile platforms.

-Reliability: Minimum 99.9% uptime with disaster recovery, daily data backups, and redundancy measures.

5. User Interface (UI) Specifications

Customer Interface:

-Navigation: Simple menu categories, a clear search bar, and easy filter options for food types and dietary preferences.

-Visual Custom Pizza Builder: Interactive, drag-and-drop feature for customizing pizzas with live visual feedback.

-Order Summary Screen: Shows selected items, prices, delivery time, and an option to add tips.

Admin Interface:

-Order Queue: Displays active orders by preparation stage, allowing staff to update statuses and add notes.

-Inventory Alerts: Notifications for low-stock ingredients, with options to reorder or mark items as unavailable.

-Sales Dashboard: Overview of daily, weekly, and monthly sales, top-selling items, and promotions' effectiveness.

6. Technology Stack

-Frontend:

-Web: React.js for a responsive, component-based web interface.

-Mobile: React Native for cross-platform mobile application development on iOS and Android.

-Backend: Node.js with Express framework for server-side operations and API endpoints.

-Database: MongoDB for flexibility in managing structured and unstructured data.

-Cloud Hosting: AWS (Amazon Web Services) or Google Cloud for scalability, hosting, and security.

-Payment Gateway: Stripe or PayPal for secure, PCI-compliant transactions.

-APIs: Google Maps API for location services, push notification services (Firebase Cloud Messaging or OneSignal).

7. Project Timeline and Milestones

-Week 1-2: Requirement gathering, UI/UX design, and prototyping.

-Week 3-6: Core development (user accounts, menu, cart, payment integration).

-Week 7-9: GPS integration, custom pizza builder, and live tracking.

-Week 10-11: Testing (unit testing, integration, and user acceptance).

-Week 12: Final review, deployment, and launch.

8. Testing and Quality Assurance

-Unit Testing: Validate key functions, like user registration, order placement, and payment processing.

-Integration Testing: Test the interaction between modules (e.g., order-to-payment, tracking updates).

-User Acceptance Testing (UAT): Gather user feedback to refine usability and flow.

-Load Testing: Ensure the system performs well under heavy loads.

-Security Testing: Validate data encryption, secure transactions, and role-based access controls.

9. Maintenance and Support

-Ongoing Updates: Regular updates for feature enhancements and bug fixes based on user feedback.

-24/7 Customer Support: Dedicated support team available for technical assistance and order-related inquiries.

-Monitoring and Analytics: Real-time system performance monitoring, error logging, and analytics for continuous improvement.