CSC 510 (001): Software Engineering (Proj1c1) - Group3

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1 New Use Cases

UC-1 Search for Restaurants and Food

Customers can discover and explore available restaurants and menu items based on location and search criteria.

Preconditions

1. Customer's device has an active internet connection
2. Customer has granted the app location permissions or is prepared to enter an address manually

Main Flow

1. Customer opens the app [S1]
2. System requests customer's current GPS location from device's operating system
3. System sends location coordinates to server and displays list of restaurants that deliver to customer's location [A1]

Subflows:

1. [S1] Customer enters keyword (e.g., "pizza") into search bar and system returns matching restaurants and menu items

Alternative Flows:

1. [A1] If no restaurant partners deliver to specified address, system displays message informing user that no delivery is available in their area

UC-2 Place a Food Order

Customers can complete a secure checkout process to purchase selected food items and generate revenue.

Preconditions

1. Customer is authenticated within the system
2. Customer has at least one item in their cart

Main Flow

1. Customer reviews items in cart and proceeds to checkout
2. System displays checkout screen with default delivery address, payment method, and itemized cost summary [S1]
3. Customer clicks the "Place Order" button
4. System sends payment details to Payment Gateway for authorization [A1]
5. Upon success, system creates order, transmits it to Restaurant Partner, and displays "Order Confirmed" screen

Subflows

1. [S1] Customer enters valid promotion code and system validates code and applies discount to order summary

Alternative Flows

1. [A1] Payment Gateway returns "declined" response and system displays error message returning customer to checkout screen

UC-3 Manage Restaurant Menu and Orders

Restaurant partners can control their online storefront, manage incoming orders, and communicate order status.

Preconditions

1. Restaurant has an active partnership with the platform
2. Restaurant Manager or Staff is logged into the partner portal

Main Flow

1. System sends new order to restaurant's device with alert [S1]
2. Restaurant Staff views and confirms the order
3. Staff enters estimated preparation time
4. System updates order status to "Preparing" and notifies Customer [A1]
5. Once ready, staff marks order as "Ready for Pickup" which dispatches a Delivery Partner

Subflows

1. [S1] Restaurant Staff navigates to menu management and toggles item status to "Out of Stock" and system immediately removes item from customer-facing menu

Alternative Flows

1. [A1] New order is not acknowledged by staff within predefined time and system automatically rejects order and notifies Customer

UC-4 Track Delivery Status

Customers and restaurants receive real-time visibility into order progress to increase trust and reduce anxiety.

Preconditions

1. Order has been successfully placed and confirmed
2. Delivery Partner has their app open with location services enabled

Main Flow

1. System displays current order status (e.g., "Preparing")
2. When order is ready, system assigns Delivery Partner and updates status [S1]
3. After pickup, status changes to "Out for Delivery" and system displays driver's location on real-time map
4. Delivery Partner confirms drop-off and system updates status to "Delivered" [A1]

Subflows

1. [S1] Customer taps "Contact Driver" to initiate anonymized phone call or chat to provide instructions

Alternative Flows

1. [A1] System's algorithm detects significant delay and automatically sends push notification to Customer with new ETA

UC-5 Rate and Review an Order

Customers can provide feedback on their order and delivery experience for quality control and future customer guidance.

Preconditions

1. Customer has a completed order in their history that has not yet been rated

Main Flow

1. System prompts Customer to rate their recent order

2. Customer selects star rating (1-5) for Restaurant/Food and another for Delivery [A1]
3. Customer optionally types text review and taps "Submit"
4. System saves feedback and displays confirmation message [A2]

Alternative Flows

1. [A1] If Customer provides low rating (1-2 stars), system displays list of common issues for selection and flags order for Customer Support review
2. [A2] If submission fails due to network error, system displays error message and saves entered data locally for future attempt

UC-6 Onboard a New Restaurant Partner

Restaurant owners can complete a streamlined self-service registration process to join the platform and expand food options.

Preconditions

1. Owner has a registered business, necessary permits, and digital menu

Main Flow

1. Restaurant Owner creates account
2. Owner completes multi-step form entering business information, uploading legal documents, providing banking details, and creating menu [A1] [A2]
3. Owner sets operating hours, reviews application, and submits it
4. System validates application and sends it to admin review queue

Alternative Flows

1. [A1] Platform Admin reviews application and rejects it with specific reason and system emails owner with link to edit submission
2. [A2] System's verification service cannot validate provided bank details and displays error message asking owner to double-check numbers

UC-7 Manage Delivery Tasks

Delivery partners can accept, manage, and complete deliveries through a simple mobile interface critical for customer satisfaction.

Preconditions

1. Driver is logged in, online, and has location services enabled

Main Flow

1. System sends new delivery offer to driver's app [A1]
2. Driver accepts offer within time limit
3. Driver navigates to restaurant, confirms arrival, and confirms pickup of order in app [A2]
4. System provides customer's address for navigation
5. Driver travels to customer, confirms delivery is complete in app, and finishes task

Alternative Flows

1. [A1] Driver taps "Decline" or lets timer expire and system immediately offers delivery to next-best-available driver
2. [A2] Driver arrives to find restaurant unexpectedly closed, reports it in app, and system cancels order, notifies customer, and issues driver compensatory payment

UC-8 Process a Customer Refund

Customer support agents can investigate order issues and process refunds to turn negative experiences into retention opportunities.

Preconditions

1. Agent is logged into support panel
2. Customer has a completed order

Main Flow

1. Customer Support Agent reviews new support ticket linked to order ID
2. Agent reviews order details and determines complaint is valid
3. Agent navigates to "Refund" section for order and selects items to refund or enters custom amount [S1]
4. Agent submits refund which sends command to Payment Gateway [A1]
5. Upon success, system logs action and notifies the customer.

Subflows

1. [S1] Instead of monetary refund, agent issues platform credit to customer's account wallet

Alternative Flows

1. [A1] System's fraud detection algorithm flags customer for high number of refund requests and displays warning to Agent who follows specialized investigation procedure

UC-9 Manage User Profile and Settings

Customers can manage their personal information, addresses, and payment methods to reduce burden on customer support.

Preconditions

1. Customer is authenticated within the system

Main Flow

1. Customer navigates to Account screen and selects section such as "Saved Addresses"
2. Customer taps "Add New Address"
3. Customer fills out address form and saves it [S1]
4. System validates address, adds it to customer's saved list, and displays confirmation [A1]

Subflows

1. [S1] Customer selects "Payment Methods" and taps "Add Payment", enters card details which system securely transmits to Payment Gateway to be tokenized and saved

Alternative Flows

1. [A1] Payment Gateway rejects card as invalid or expired and system displays error message asking user to check details

UC-10 View Order History

Customers can access detailed records of past orders for easy reordering, expense tracking, and support requests.

Preconditions

2. Customer is authenticated
3. Customer has placed at least one order in the past

Main Flow

1. Customer navigates to Order History screen
2. System retrieves and displays chronological list of all past orders [S1] [A1]
3. Customer taps on specific order
4. System displays Order Detail screen with full itemized list, cost breakdown, and delivery information

Subflows

1. [S1] On Order Detail screen, Customer taps "Reorder" and system adds all items from that order into current cart and notifies user of any price or availability changes

Alternative Flows

1. [A1] System fails to retrieve order history due to server error and displays message asking user to try again

UC-11 Apply Promotional Codes and Discounts

Customer applies promotional codes or discounts during checkout to reduce order cost.

Preconditions:

1. Customer has items in cart and proceeds to checkout.
2. Valid promotional codes exist in the system.
3. Customer has an active internet connection.

Main Flow:

1. Customer reviews order summary on checkout screen [S1]
2. Customer enters promotional code in designated field [S2] [A1]
3. System validates promotional code and applies discount [S3] [A2]
4. Customer confirms updated order total and completes payment [A3]

Subflows:

1. [S1] System displays itemized order summary with subtotal, taxes, and delivery fees
2. [S2] Customer types or pastes promotional code into text input field
3. [S3] System recalculates order total with discount applied and shows savings amount

Alternative Flows:

1. [A1] Customer selects from list of available promotions instead of entering code manually
2. [A2] System rejects invalid or expired promotional code and displays error message
3. [A3] Customer abandons checkout if final discounted price is still unsatisfactory

UC-12: Reorder a Past Meal

To provide customers with a quick and convenient way to reorder their favorite meals, increasing order frequency and user retention.

Preconditions:

1. The Customer is authenticated and has at least one completed order.

Main Flow (Basic Flow):

1. The Customer navigates to their ”Order History” screen.

2. The Customer selects a specific past order to view its details.
3. On the Order Detail screen, the Customer taps the ”Reorder” button.
4. The System adds all items from that past order into the customer’s current cart.
5. The System navigates the Customer to the cart view to review the items before checkout.

Alternative & Exception Flows:

1. [A1] Reorder with Unavailable Items: If some items from the past order are no longer available, the System adds only the available items to the cart and displays a notification to the user about which items could not be added.
2. [A2] Reorder with Price Changes: If prices have changed since the original order, the System adds the items to the cart with their current prices and displays a notification to the user about the price updates

2 Reflection

LLMs used: Gemini, ChatGPT and Claude

How did you decide what NOT to do?

The key concerns when designing the MVP (Minimum Viable Product) were simultaneously feasibility and stakeholder satisfaction. In a Food Delivery System, the primary stakeholder is the User followed by the Restaurant, as without these 2 key actors the system falls apart.

Hence, the use cases that satisfy the base cases of a Food Delivery System involving both the User and the Restaurant were considered for the MVP.

This includes use cases such as order placement, reordering past meals and order cancellations among others for the User, and restaurant registration and delivery management for the Restaurant as well as the Food Delivery System.

What negative impacts or disappointments this MVP could have for your stakeholders?

Based on the MVP use cases provided, here are the potential negative impacts and disappointments for each stakeholder group:

Core Marketplace Stakeholders

Customers & End-Users:

1. Limited functionality may feel basic compared to established competitors like DoorDash or Uber Eats
2. No advanced features like group ordering, scheduled deliveries, or dietary filtering could frustrate users with specific needs
3. Basic promotional system (UC-11) may lack sophisticated loyalty programs or personalized offers
4. Missing accessibility features could exclude users with disabilities
5. No live chat or comprehensive support system beyond basic refunds

Restaurant Partners:

1. Limited menu management capabilities may not support complex restaurant operations (multiple locations, seasonal menus, inventory tracking)
2. Basic onboarding process may not accommodate restaurants with unique requirements or compliance needs
3. No advanced analytics or sales reporting to help restaurants optimize their offerings
4. Lack of marketing tools to help restaurants promote themselves on the platform
5. No integration with existing restaurant POS systems, creating operational friction

Delivery Partners:

1. Basic delivery task management may not include route optimization, earnings tracking, or shift scheduling
2. No advanced safety features like emergency contacts or incident reporting
3. Missing vehicle maintenance tracking or expense management tools
4. No performance metrics or feedback system to help drivers improve
5. Limited dispute resolution process for delivery issues

Internal Platform Stakeholders

Executive Leadership & Board:

1. Limited scalability features may hinder rapid market expansion
2. Basic analytics may not provide sufficient business intelligence for strategic decisions
3. No advanced fraud detection or risk management systems
4. Missing competitive differentiation features that could impact market positioning

Product & Technology Teams:

1. Technical debt may accumulate quickly with basic implementations
2. Limited monitoring and analytics tools for system performance optimization
3. No A/B testing framework for feature optimization
4. Basic architecture may not support future feature additions efficiently

Operations & Support Teams:

1. Manual refund process (UC-8) will not scale efficiently with user growth
2. Limited customer support tools may lead to poor resolution times
3. No automated dispute resolution or escalation systems
4. Basic reporting may not provide operational insights needed for process improvement

Ecosystem & Partner Stakeholders

Technology & Infrastructure Partners:

1. Basic integrations may require significant customization work
2. Limited API functionality may restrict partnership opportunities
3. No advanced security features may concern enterprise partners

Financial & Strategic Partners:

1. Basic payment processing may not support diverse payment methods or international expansion
2. Limited financial reporting may not meet investor or regulatory requirements
3. No fraud prevention systems could increase financial risk

Regulatory & Societal Stakeholders

Government & Regulatory Bodies:

1. Basic tax handling may not comply with complex multi-jurisdiction requirements
2. Limited data protection and privacy controls may not meet regulatory standards
3. No labor compliance tracking for delivery partners
4. Missing accessibility compliance features

Advocacy & Community Groups:

1. No sustainability features (eco-friendly packaging, carbon footprint tracking) may disappoint environmental advocates
2. Basic worker protections for delivery partners may concern labor rights groups
3. No community impact features (supporting local businesses, donation programs)

Additional Systemic Issues

Market Competitiveness:

1. The MVP may appear outdated compared to feature-rich competitors
2. Lack of innovative features may make it difficult to attract users from established platforms
3. Basic user experience may result in high churn rates

Scalability Concerns:

1. Manual processes will become bottlenecks as the platform grows
2. Basic architecture may require significant rebuilding for expansion
3. Limited automation may increase operational costs disproportionately

The MVP focuses heavily on core transactional functionality but lacks many features that stakeholders have come to expect from modern food delivery platforms, potentially limiting adoption and satisfaction across all stakeholder groups.

What changes you made (and why) to the MVP to appease at least some of the stakeholders?

1. Enhanced Customer Experience (UC-11: Apply Promotional Codes and Discounts)

Change: Added comprehensive promotional code functionality beyond the basic discount in UC-2

Why: This addresses customer price sensitivity and competitive pressure. The alternative flow [A1] allowing customers to select from available promotions shows consideration for user experience, while [A3] acknowledging checkout abandonment recognizes real customer behavior patterns.

2. Improved Customer Retention (UC-12: Reorder a Past Meal)

Change: Created a dedicated reordering feature separate from the basic order history view in UC-10

Why: This directly addresses customer convenience and platform revenue goals. The alternative flows [A1] and [A2] show awareness of real-world complications (unavailable items, price changes) that could frustrate customers, demonstrating stakeholder-focused design thinking.

3. Enhanced Restaurant Partner Support

Change: In UC-3, added subflow [S1] for real-time menu management (out-of-stock toggles)

Why: This addresses restaurant partners' need for operational control and reduces customer frustration from ordering unavailable items. The automatic removal from customer-facing menus shows consideration for both restaurant efficiency and customer experience.

4. Improved Delivery Partner Experience

Change: In UC-7, added comprehensive alternative flows [A1] for declining deliveries and [A2] for handling restaurant closures with compensatory payment

Why: This addresses delivery partners' need for flexibility while providing financial protection for situations beyond their control, showing consideration for the gig economy model's challenges.

5. Customer Support Enhancements

Change: In UC-8, added subflow [S1] for platform credit alternatives and alternative flow [A1] for fraud detection

Why: This addresses multiple stakeholder concerns - customers get flexible refund options, the platform reduces cash outflow through credits, and investors are protected through fraud prevention measures.

6. Proactive Communication Features

Change: Enhanced UC-4 with customer-driver communication [S1] and automatic delay notifications [A1]

Why: This addresses trust and transparency concerns from customers while reducing support burden on internal teams.