CSC 510 SOFTWARE ENGINEERING

PROJ 1C1

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10 New MVP Use Cases

UC-MVP-1: Register and Log In (Customer)

- **Preconditions:** Customer has internet access; system is operational.
- **Main Flow:**
  - Customer accesses the application.
  - Customer selects "Register" or "Login."
  - If registering, customer provides essential details (e.g., username, password, email). System validates inputs.
  - If logging in, customer provides existing credentials.
  - System verifies credentials and grants access, creating a user session.
- **Subflows:**
  - **SF-1.1: Password Reset:** User requests password reset; system sends reset link to registered email; user creates new password.
- **Alternative Flows:**
  - **AF-1.1: Invalid Registration Input:** System displays specific error messages (e.g., "Username already exists," "Invalid email format"). Customer corrects input.
  - **AF-1.2: Invalid Login Credentials:** System displays "Invalid username or password." Customer retries or initiates password reset.
  - **AF-1.3: Multiple Failed Login Attempts:** System temporarily locks the account and notifies the customer via email.

UC-MVP-2: Browse Menu (Customer)

- **Preconditions:** Customer is logged in; items exist in the system and are available.
- **Main Flow:**
  - Customer opens the application and views a list of available restaurants.
  - Customer selects a restaurant to browse its menu.
  - System displays menu items, typically grouped by category.
  - Customer views item details (name, price, description).
- **Subflows:**
  - **SF-2.1: Search Menu:** Customer enters keywords to search for specific items within a restaurant's menu.
- **Alternative Flows:**
  - **AF-2.1: No Restaurants Available:** System displays "No restaurants delivering to your area currently."

- **AF-2.2: No Menu Items Available:** If a selected restaurant has no active menu items, the system displays "Menu unavailable".

UC-MVP-3: Place Order (Customer)

- **Preconditions:** Customer is logged in; desired items are available from an active restaurant; customer has a valid payment method configured.
- **Main Flow:**
  - Customer, after browsing, selects desired items and adds them to a cart.
  - Customer proceeds to checkout, confirming delivery address and selected payment method.
  - Customer submits payment (referring to UC-MVP-9).
  - System processes the order and sends a confirmation notification (referring to UC-MVP-10).
- **Subflows:**
  - **SF-3.1: Adjust Item Quantity:** Customer can increase or decrease the quantity of an item in the cart.
- **Alternative Flows:**
  - **AF-3.1: Item Out of Stock:** System notifies customer that an item is unavailable at checkout. Customer can remove or replace the item.
  - **AF-3.2: Payment Fails:** System displays an error message ("Payment Failed"). Customer is prompted to retry payment or select another method.
  - **AF-3.3: Restaurant Closes During Order:** System notifies customer that the restaurant is no longer accepting orders.

UC-MVP-4: Manage Menu Items (Staff)

- **Preconditions:** Staff is logged into the restaurant portal with appropriate permissions.
- **Main Flow:**
  - Staff logs into the restaurant portal.
  - Staff selects "Menu Management."
  - Staff can choose to create a new item, edit an existing item, or update an item's availability.
  - If creating, staff enters item details (name, price, description).
  - If editing, staff modifies selected item details.
  - If updating availability, staff marks an item as "In Stock" or "Sold Out".
  - System saves changes and immediately updates the customer-facing menu.
- **Subflows:**
  - **SF-4.1: Validate Item Details:** System validates that required fields (e.g., item name, price) are not empty and price is a positive number.
- **Alternative Flows:**
  - **AF-4.1: Invalid Input:** System displays a specific error message (e.g., "Item name cannot be empty," "Price must be greater than zero"). Staff corrects input.
  - **AF-4.2: Error Updating Menu:** System logs the error and retries updating the menu, or alerts an administrator if persistent.

UC-MVP-5: Fulfill Order (Staff)

- **Preconditions:** An order has been placed by a customer and received by the restaurant.
- **Main Flow:**
  - Staff views pending orders on the kitchen display or tablet.
  - Staff selects an order and marks it as "In Preparation."
  - Staff prepares the food items for the order.
  - Once all items are prepared, Staff marks the order as "Ready for Pickup/Delivery".
  - System updates the order status and queues it for driver assignment, notifying the customer and relevant driver (referring to UC-MVP-10).
- **Subflows:**
  - **SF-5.1: Review Order Details:** Staff can view specific item quantities, special instructions, and customer notes for an order.
- **Alternative Flows:**
  - **AF-5.1: Ingredient Shortage:** Staff marks individual items or the entire order as canceled due to unavailability. System notifies customer and processes a partial/full refund/credit.
  - **AF-5.2: Display Failure:** If the digital kitchen display fails, staff can switch to a manual backup (e.g., printed tickets).

UC-MVP-6: Accept and Deliver Order (Driver)

- **Preconditions:** Driver is logged in and marked as "Available"; an order is "Ready for Pickup".
- **Main Flow:**
  - System sends a new order request to an available driver.
  - Driver reviews order details (pickup/delivery locations, estimated earnings).
  - Driver selects "Accept" for the order.
  - System updates order status to "Driver Assigned" and provides pickup instructions to the driver.
  - Driver navigates to the restaurant, picks up the order, and confirms pickup in the app.
  - Driver navigates to the customer's location and delivers the order.
  - Driver marks the order as "Delivered." System updates status and triggers notification (referring to UC-MVP-10).
- **Subflows:**
  - **SF-6.1: Basic Navigation:** System provides a link to an external mapping service for directions.
- **Alternative Flows:**
  - **AF-6.1: Driver Rejects Order:** System sends the order to the next available driver.
  - **AF-6.2: Customer Unavailable:** Driver attempts to contact the customer (referring to UC-MVP-10). If unsuccessful, driver follows a pre-defined protocol (e.g., wait period, return to restaurant).
  - **AF-6.3: Traffic/Delay:** Driver can manually update their estimated arrival time if experiencing a significant delay, and the system notifies the customer.

UC-MVP-7: Track Order Status (Customer)

- **Preconditions:** Customer is logged in; customer has one or more active orders.

- **Main Flow:**
    - Customer logs in and navigates to the "My Orders" section.
    - System displays a list of current and recent orders with their current status (e.g., "Pending," "In Preparation," "On the Way," "Delivered").
    - Customer selects a specific order to view more detailed status updates (e.g., "Restaurant preparing," "Driver picking up," "Driver 5 mins away").
- **Subflows:**
    - **SF-7.1: View Order Summary:** Customer can view the items ordered and total cost for any past or current order.
- **Alternative Flows:**
    - **AF-7.1: Order Not Found:** If a specific order cannot be retrieved, the system displays "Order not found".
    - **AF-7.2: No Active Orders:** If no current orders, the system displays "You have no active orders."

UC-MVP-8: Report an Issue with an Order (Customer)

- **Preconditions:** Customer is logged in; customer has received an order or has an issue with an ongoing order.
- **Main Flow:**
    - Customer navigates to their "My Orders" and selects the order with an issue.
    - Customer selects "Report an Issue."
    - Customer chooses a reason from a predefined list (e.g., "Missing item," "Incorrect item," "Cold food," "Late delivery") and provides a brief description.
    - Customer submits the report.
    - System logs the report and notifies the restaurant and/or a support administrator.
- **Subflows:**
    - **SF-8.1: Attach Photo (Optional):** Customer can optionally attach a photo to the report for visual evidence.
- **Alternative Flows:**
    - **AF-8.1: Issue Not Valid for Immediate Refund:** System explains the policy regarding the chosen issue and may offer a credit for future orders, if applicable, based on basic rules.
    - **AF-8.2: Report Submission Failure:** System displays an error if the report cannot be submitted (e.g., no internet connection) and prompts the customer to retry.

UC-MVP-9: Process a Payment (System)

- **Preconditions:** Customer has submitted valid payment details during checkout; system is connected to an external payment processor.
- **Main Flow:**
    - System receives a payment request from a customer's order.
    - System sends the payment request, including amount and tokenized payment details, to the external payment processor.
    - The payment processor authorizes the transaction.
    - System receives authorization confirmation from the payment processor and finalizes the order.

- **Subflows:**
    - **SF-9.1: Payment Tokenization:** Payment details are tokenized securely before being sent to the processor to minimize sensitive data handling within the core system.
- **Alternative Flows:**
    - **AF-9.1: Payment Declined:** System receives a decline message from the processor. An error is displayed to the customer, and retry options are provided.
    - **AF-9.2: Payment Processor Unavailable:** System logs the error and attempts to queue the transaction for a retry after a short delay, or alerts an administrator if the issue persists.

UC-MVP-10: Send Basic Notification (System)

- **Preconditions:** A significant event has occurred within the system (e.g., order confirmed, order ready, driver assigned, order delivered, account created).
- **Main Flow:**
    - An event within the system triggers a request to send a notification.
    - System identifies the recipient (customer, staff, driver) and the type of notification (e.g., in-app message, SMS, email).
    - System composes the notification content based on the event.
    - System sends the notification content via the appropriate external notification service.
    - Notification is delivered to the recipient.
- **Subflows:**
    - **SF-10.1: Basic User Preferences:** System respects basic user notification preferences (e.g., enable/disable all notifications).
- **Alternative Flows:**
    - **AF-10.1: Notification Service Unavailable:** System queues the notification for later delivery once the service is available, or attempts a retry after a delay.
    - **AF-10.2: Recipient Opt-Out:** System checks for user opt-out status and does not send notifications to those who have opted out.

MVP Success Metric: Can 100 orders flow through this system in one day without any manual intervention or major customer complaints?

Everything else is a luxury until you hit this baseline reliability

REFLECTION DOCUMENT

USECASES THAT WERE DISCARDED

Common Properties among the Use Cases that were decided to NOT be used in the MVP

- **Advanced Customer Experience & Personalization**: Features that offer highly tailored, social, or specialized user interactions, such as dynamic promotions, group ordering, or detailed health-conscious filtering [UC-1, UC-2, UC-3]. These add complexity not critical for initial user validation.
- **Sophisticated Operational & Logistics Optimization**: Complex systems designed for high efficiency, flexibility, or detailed management for restaurants and drivers, including advanced scheduling, route optimization, and granular earnings transparency [UC-7, UC-10, UC-11, UC-12, UC-13]. An MVP streamlines these to core functions.
- **Business Intelligence, Analytics, and Predictive Capabilities**: Features requiring significant data collection, deep analysis, and often Machine Learning (ML) for forecasting, proactive monitoring, and performance optimization [UC-7, UC-17, UC-18, UC-21]. These introduce substantial development overhead for initial product launch.
- **Platform Governance & Strategic Growth**: Use cases focused on the long-term strategic direction, scalability, complex stakeholder management, or market expansion [UC-19, UC-22, UC-26, UC-27, UC-28]. These address mature platform concerns, not initial functionality.
- **Extensive Third-Party Integrations**: Beyond essential integrations (like basic payment), these involve deep or broad efforts to connect with diverse external systems, adding considerable technical complexity [UC-29, UC-30]. An MVP would minimize external dependencies to essential ones.
- **Proactive System Management & Crisis Response**: Features for handling system disruptions or preventing them through automated detection and coordination, indicating a level of system maturity and resilience beyond an MVP's focus [UC-16, UC-17].

How did we decide what NOT to do?

We used two tests to decide what to cut:

1. **Make-or-Break Test** – If this fails, does the platform die?

2. **Core Value Test** – Does this help deliver a single meal?

From 30 use cases, we kept 10 on the critical path: order → prepare → deliver → receive & pay.

Approach: Instead of half-building many weak features, we fully built the essentials. For example, a reliable manual order system was prioritized over a buggy POS integration.

Result: A simple, functional platform that delivers food reliably today, with room to add advanced features tomorrow.

NEGATIVE IMPACTS/DISAPPOINTMENTS TO THE STAKEHOLDERS

The MVP's focused, minimal scope,will result in the omission of advanced features, optimizations, and comprehensive management tools, leading to operational inefficiencies and a less sophisticated experience across various stakeholders.

1. For Customers:

- Limited Personalization & Incentives
- No Social/Group Ordering
- Reduced Convenience Features

2. For Staff (Restaurant Personnel):

- Operational Inefficiencies
- Manual Order Handling

3. For Delivery Drivers:

- Lack of Flexibility & Autonomy
- Inefficient Routes
- Limited Earnings Transparency

4. For Administrators:

- Reduced Strategic Oversight
- Manual Crisis & Growth Management
- Complex Partner & Integration Management

5. For Project Sponsors / Product Owners / Managers:

- Less Feature-Rich Product
- Limited Strategic Insights
- No Cooperative Governance

6. For Accessibility Users:

- Deferred Accessibility Features

ADJUSTMENTS MADE TO MVP USE CASES TO SATISFY STAKEHOLDERS

To make the reduced set of MVP use cases acceptable to different stakeholders, small but meaningful adjustments were introduced:

- Customers
    - *Place Order*: added a simple discount option (e.g., first-order promotion) to partially replace advanced personalization and loyalty features.
    - *Track Order Status*: expanded to include past order details, making it easier for customers to manually reorder.
- Restaurant Staff
    - *Manage Menu Items*: allowed staff to instantly mark items as “Sold Out,” compensating for the lack of advanced inventory and alerts.

    - *Fulfill Order*: ensured orders appear on a digital kitchen display/tablet, providing a smoother workflow without full POS integration.

- Delivery Drivers
    - *Accept and Deliver Order*: added estimated earnings visibility before acceptance and a basic navigation link to external mapping tools, partially substituting advanced routing and earnings transparency.
    - *Notifications*: included the ability to contact dispatcher/support if issues arise, covering for the absence of automated crisis handling.
- Administrators
    - *Process a Payment*: extended to include basic user roles and settings management, ensuring minimal administrative control in the absence of advanced governance and analytics.
    - *Report an Issue*: ensured that all issues are logged and routed to staff/admins, providing incident visibility in place of proactive monitoring.
- Project Sponsors / Product Owners
    - *Report an Issue*: also serves as a validated learning tool by capturing customer pain points and generating qualitative data to guide future development.

PROMPT HISTORY:

Used Gemini NotebookLM, ChatGPT

https://g.co/gemini/share/7de211fd041f

https://claude.ai/share/21330d7b-a042-4dee-9dae-f9660a8601e6