CSC 510 Project 1c1

Due: Monday, Sept 15

Objective: Problem condensation

WolfCafe Food Delivery System MVP - Project 1c1 Consolidated Report

This report presents the consolidated MVP design for the WolfCafe Food Delivery System, containing 15 essential use cases that represent the most basic version capable of collecting maximum validated learning about customers with minimal development effort. The MVP focuses on core ordering, payment, and operational workflows while deliberately excluding complex features that would delay market validation.

MVP Use Cases (15 Total)

Use Case 1: Customer Places Basic Food Order

Preconditions:

- Customer has valid NC State student/staff ID
- Menu items are available and priced
- Payment system is operational

Main Flow:

1. Customer accesses WolfCafe ordering system via web or mobile app
2. System displays current menu with basic item information (name, price, description)
3. Customer selects items and adds to cart
4. System calculates order total with tax
5. Customer proceeds to checkout and enters payment information
6. System processes payment and generates order confirmation with estimated pickup time
7. Kitchen receives order details for preparation

Subflows:

- Item availability checking prevents ordering out-of-stock items
- Basic dietary filter (vegetarian, vegan, gluten-free) available
- Order modification allowed until payment is processed

Alternative Flows:

- Payment failure prompts retry with different payment method
- System downtime redirects to phone ordering
- Out-of-stock items removed from cart with customer notification

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Use Case 2: Customer Tracks Order Status

Preconditions:

- Customer has placed an order
- Order tracking system is operational
- Kitchen updates order status manually

Main Flow:

1. Customer accesses order tracking via confirmation email link or account dashboard
2. System displays current order status (received, preparing, ready for pickup)
3. Estimated pickup time shown and updated as order progresses
4. Customer receives notification when order is ready
5. Order marked complete when customer confirms pickup

Subflows:

- SMS notifications sent for status changes if customer opts in
- Delay notifications sent if preparation takes longer than estimated
- Customer can view order details and receipt

Alternative Flows:

- Manual status updates by staff during system issues
- Phone notification backup for customers without app access
- Order cancellation available within 5-minute window after placement

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Use Case 3: Customer Makes Payment Using Campus Card

Preconditions:

- Customer has active NC State campus card with sufficient balance
- Campus card payment gateway is operational
- Integration with university payment systems established

Main Flow:

1. Customer selects campus card payment option at checkout
2. System connects to NC State payment gateway
3. Available balance displayed (dining dollars, meal plan, Flex)
4. Customer authorizes payment using campus card credentials
5. Payment processed and balance updated in real-time
6. Receipt generated showing remaining balance and transaction details

Subflows:

- Meal plan credit application with automatic best-value selection
- Low balance warnings with campus card reload options
- Transaction history accessible through customer account

Alternative Flows:

- Credit/debit card backup when campus card system unavailable
- Split payment option for orders exceeding available campus card balance
- Cash payment option for customers preferring not to use cards

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Use Case 4: Kitchen Staff Manages Order Queue

Preconditions:

- Kitchen staff are logged into order management system
- Orders are flowing from customer ordering system
- Kitchen equipment and ingredients are available

Main Flow:

1. Kitchen staff views incoming orders in chronological queue
2. Each order displays items, quantities, special instructions, and customer pickup time
3. Staff marks orders as "preparing" when started and "ready" when completed
4. System automatically updates customer-facing order status
5. Completed orders moved to pickup queue with customer notification sent

Subflows:

- Priority marking for urgent orders or special dietary needs
- Ingredient shortage alerts for items that cannot be prepared
- Average preparation time tracking for better time estimates

Alternative Flows:

- Manual order entry for phone orders during system downtime
- Order modification requests from customers handled through staff interface
- Batch preparation coordination for multiple similar orders

Use Case 5: Staff Manages Basic Inventory Tracking

Preconditions:

- Staff have access to inventory management interface
- Basic ingredient list and quantities are maintained in system
- Daily inventory check procedures are established

Main Flow:

1. Staff performs daily inventory count at opening and closing
2. System displays current inventory levels for key ingredients
3. Staff updates quantities based on physical counts and usage
4. Low stock alerts generated for items below minimum thresholds
5. Out-of-stock items automatically removed from customer-facing menu
6. Basic reports generated for purchasing decisions

Subflows:

- Integration with order system to automatically deduct ingredients
- Waste tracking for expired or damaged items
- Basic supplier contact information maintained for reordering

Alternative Flows:

- Paper backup tracking during system maintenance
- Manual menu item removal when ingredients unavailable
- Emergency supplier contact for critical shortages

Use Case 6: Customer Creates and Manages Account

Preconditions:

- Customer has valid NC State email address
- Account creation system is operational
- Campus authentication system available for verification

Main Flow:

1. Customer accesses account creation page
2. System prompts for basic information (name, email, phone, campus affiliation)
3. Email verification link sent and confirmed by customer
4. Customer sets password and basic preferences (dietary restrictions, notification preferences)
5. Account created and customer can immediately begin ordering
6. Order history tracking begins with first order

Subflows:

- Integration with campus directory for automatic student verification
- Basic dietary preference setup (vegetarian, vegan, allergies)
- Communication preference selection (email, SMS, push notifications)

Alternative Flows:

- Guest ordering option for customers preferring not to create accounts
- Campus single sign-on integration for streamlined account creation
- Manual account verification for non-standard campus affiliations

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Use Case 7: Customer Service Handles Basic Support Requests

Preconditions:

- Customer service staff trained on basic order and payment issues
- Support ticket system operational for issue tracking
- Access to customer accounts and order history available

Main Flow:

1. Customer contacts support via phone, email, or in-person
2. Staff member creates support ticket with customer information and issue description
3. Staff accesses customer order history and account details
4. Issue diagnosed and resolution options presented to customer
5. Solution implemented (refund, reorder, account credit) with customer approval
6. Ticket closed with resolution notes and customer satisfaction confirmed

Subflows:

- Escalation procedures for complex issues requiring management approval
- Refund processing integration with payment systems
- Follow-up communication to ensure customer satisfaction

Alternative Flows:

- Immediate resolution for simple issues (wrong order, late pickup)
- Supervisor escalation for policy exceptions or large refunds
- Documentation of recurring issues for system improvement

Use Case 8: Administrator Manages Menu Items and Pricing

Preconditions:

- Administrator has management-level access to system
- Menu management interface is operational
- Pricing approval processes are established

Main Flow:

1. Administrator accesses menu management dashboard
2. Current menu items displayed with prices, descriptions, and availability status
3. Admin can add new items, modify existing items, or temporarily disable items
4. Price changes require approval workflow for institutional oversight
5. Menu changes take effect immediately on customer-facing systems
6. Change history maintained for audit and rollback purposes

Subflows:

- Seasonal menu item scheduling for automatic activation/deactivation
- Bulk pricing updates for percentage-based increases
- Integration with inventory system for automatic availability management

Alternative Flows:

- Emergency menu updates during ingredient shortages or equipment failures
- Manual override capabilities for special events or promotions
- Rollback functionality for problematic menu changes

Use Case 9: System Generates Basic Analytics and Reports

Preconditions:

- Order and payment data being collected and stored
- Report generation system operational
- Management dashboard configured for key metrics

Main Flow:

1. Manager accesses analytics dashboard
2. System displays key performance indicators (daily orders, revenue, popular items)
3. Basic reports generated for specified date ranges
4. Top-selling items and peak order times identified
5. Revenue summaries by payment method and time period
6. Simple charts and graphs provided for visual data analysis

Subflows:

- Automated daily/weekly report generation and email delivery
- Basic trend analysis for month-over-month comparisons
- Export functionality for external analysis tools

Alternative Flows:

- Manual data compilation during system maintenance
- Simplified reporting when advanced analytics unavailable
- Custom report requests handled through IT support

Use Case 10: Staff Handles Order Pickup and Customer Verification

Preconditions:

- Staff have access to order pickup interface
- Customer identification verification procedures established
- Order ready notification system operational

Main Flow:

1. Customer arrives for order pickup and provides order number or name
2. Staff searches pickup system for customer order
3. Order details displayed including items, special instructions, and payment confirmation
4. Staff verifies customer identity through campus ID or order confirmation
5. Order items gathered and handed to customer
6. Order marked as completed in system

Subflows:

- Order modification for missing or incorrect items
- Late pickup tracking for orders not collected within reasonable time
- Basic customer feedback collection at pickup

Alternative Flows:

- Alternate identification methods for customers without campus ID
- Proxy pickup procedures for orders collected by friends/family
- Lost order recreation procedures for customers without order confirmation

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Use Case 11: Customer Cancels Order

Preconditions:

- Customer has placed an order
- Order not yet prepared or marked ready

Main Flow:

1. Customer selects order to cancel from account dashboard
2. System displays confirmation prompt
3. Customer confirms cancellation
4. System updates order status and triggers refund or campus card credit

Subflows:

- Inventory updated for cancelled items
- Notifications sent to kitchen staff
- Partial cancellations allowed

Alternative Flows:

- Order already preparing: staff manual intervention required
- Payment processing error triggers retry or manual resolution

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Use Case 12: Customer Provides Feedback

Preconditions:

- Order completed
- Feedback system operational

Main Flow:

1. Customer accesses feedback form via app or email link
2. Customer rates experience, food quality, and service
3. Optional comments submitted
4. System stores feedback

Subflows:

- Feedback aggregated for reports
- Follow-ups triggered for negative feedback
- Trending issues flagged for staff

Alternative Flows:

- System offline prompts manual feedback
- Incomplete submission triggers reminder

Use Case 13: Staff Processes Refund

Preconditions:

- Refund request submitted
- Staff has payment system access

Main Flow:

1. Staff verifies order and payment
2. Staff approves refund
3. System processes refund to original payment method or campus card
4. Confirmation sent to customer

Subflows:

- Partial refund support
- Refund history maintained
- Escalation for disputes

Alternative Flows:

- Payment failure triggers manual process
- Duplicate request flagged

Use Case 14: Kitchen Staff Handles Special Instructions

Preconditions:

- Order includes special instructions
- Kitchen staff logged in

Main Flow:

1. System highlights instructions
2. Staff reviews and acknowledges
3. Staff prepares order accordingly
4. Order marked ready

Subflows:

- Dietary restrictions verified
- Substitutions handled
- Deviation notes logged

Alternative Flows:

- Instructions unclear: staff contacts customer
- Customer updates instructions before preparation
- System downtime: manual workflow

Use Case 15: Customer Views Past Orders

Preconditions:

- Customer account active
- Previous orders exist

Main Flow:

1. Customer logs in
2. System displays chronological past orders
3. Customer views details and reorder option

Subflows:

- Quick reorder functionality
- Order history search and filtering
- Receipt regeneration

Alternative Flows:

- Guest users cannot access history
- System maintenance displays cached data

MVP Scope Confirmation

Category	Included Use Cases
Customer Ordering	1. Place Basic Food Order
	2. Track Order Status
	3. Campus Card Payment Integration
Operations	4. Kitchen Staff Manages Order Queue
	5. Basic Inventory Tracking
Customer Account	6. Create & Manage Account
	7. Basic Customer Support
Admin & Management	8. Manage Menu & Pricing
	9. Generate Basic Reports
Pickup & Verification	10. Order Pickup & Customer Verification
Additional MVP Features	11. SMS Notifications
	12. Ingredient Shortage Alerts
	13. Manual Order Entry During Downtime
	14. Basic Dietary Filters
	15. Basic Feedback Collection

Reflection Document

1. How We Decided What NOT to Do

Our exclusion decisions were driven by three core principles:

1.1 Development Complexity vs. Core Validation

We excluded features requiring extensive development time that weren't essential for validating the basic hypothesis: "Will NC State students place food orders online?" Features like AI-powered nutrition recommendations, dynamic pricing algorithms, and advanced analytics would add months to development without providing critical validation data.

1.2 Regulatory Complexity

Features requiring complex regulatory integration were excluded, including:

- WIC-eligible food processing (federal compliance)
- Multi-state tax compliance (unnecessary for single-campus deployment)
- Full FDA food safety compliance beyond basic standards
- Advanced accessibility compliance beyond minimal ADA requirements

1.3 Operational Efficiency vs. Functional Sufficiency

We chose manual processes over automated optimization where manual approaches could still deliver core functionality:

- Manual inventory tracking instead of AI-powered optimization
- Basic reporting instead of advanced business intelligence
- Simple order queue management instead of sophisticated wait-time algorithms

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2. Negative Impacts and Stakeholder Disappointments

Customer Disappointments:

- Limited Personalization: No nutrition tracking, meal recommendations, or loyalty points program
- Reduced Convenience: No voice ordering, social media integration, or advanced dietary accommodations
- Environmental Concerns: No sustainability programs or reusable container initiatives

Staff/Administrative Limitations:

- Higher Manual Workload: Manual inventory tracking and basic reporting require more staff time
- Limited Insights: No advanced analytics for operational optimization or strategic planning
- Operational Inefficiencies: No dynamic pricing, route optimization, or sophisticated queue management

University Stakeholder Concerns:

- Research Limitations: No multi-campus data collection or research analytics integration
- Scalability Questions: Limited ability to expand to other campus dining locations
- Institutional Integration: Basic compliance may not meet all institutional standards

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3. Compromises Made to Appease Stakeholders

Customer-Focused Compromises:

- SMS Notifications: Added to maintain communication without complex AI integration
- Basic Dietary Filters: Provides limited personalization (vegetarian, vegan, gluten-free) with minimal development
- Order History Access: Enables quick reordering without advanced recommendation engines

Operational Compromises:

- Ingredient Shortage Alerts: Prevents customer disappointment and reduces waste without full inventory optimization
- Manual Order Entry: Ensures business continuity during system downtime
- Basic Feedback Collection: Provides customer satisfaction insights without comprehensive review systems

Administrative Compromises:

- Basic Analytics Dashboard: Provides essential metrics without advanced BI complexity
- Change History Tracking: Enables audit trails and rollback capabilities for menu management
- Approval Workflows: Maintains institutional oversight for pricing and menu changes

Integration Accommodations:

- Campus Card Payment: Leverages existing university payment infrastructure
- Campus Directory Integration: Streamlines account creation using existing authentication systems
- Email Verification: Uses established NC State email systems for account verification

These compromises ensure that while advanced features are absent, stakeholders retain access to essential functionality and basic conveniences that support the core ordering workflow.

Prompt History

Claude Chat Sessions

- **Primary MVP Design Session**: Claude Share Link
    - Purpose: Generate MVP use cases from original 1b1 submission
    - Generated 10 essential use cases with detailed exclusion reasoning
- **Secondary Validation Session**: Same Claude share link as above
    - Purpose: Analyze stakeholder impacts and justify compromises
    - Provided stakeholder disappointment analysis and mitigation strategies

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Local LLaMA Model – Prompt History

#	Prompt Purpose	Prompt Text
1	Train LLaMA on Use Case Structure	*# Train LLaMA on Use Case Structure You are an AI assistant that writes structured use cases. Each use case must include: - Preconditions - Main Flow - Subflows - Alternative Flows Provide examples of use cases for a food ordering system, following this format.*
2	Identify Gaps in 1a1	*Here are our 1a1 use cases. Analyze them and identify what is missing based on regulatory materials (health, tax, campus compliance). Provide a list of at least 10 missing or incomplete scenarios in full use case format.*
3	Zero-Shot Expansion	*Expand our 1a1 use case list by a factor of three. Assume no prior guidance. Include all details (preconditions, main flow, subflows, alternative flows) exactly as per format.*
4	Careful Prompting Expansion	*Now carefully analyze each 1a1 use case and generate three additional related use cases. Include regulatory compliance, operational, and customer experience perspectives. Use full details for preconditions, main flow, subflows, and alternative flows.*

5	Prioritization Guidance	*Review the expanded 1b1 use case list. Identify which use cases are most critical for a campus food ordering MVP. Rank them in order of importance and explain why.*
6	MVP Selection	*Time to get serious and minimal. Using the expanded 1b1 use cases: 1. Identify the most essential features for an MVP. 2. Decide what NOT to include and justify each exclusion. 3. Generate at least 10 new MVP use cases in full detail (preconditions, main flow, subflows, alternative flows).*
7	Exclusion Justification	*For each excluded use case from 1b1, explain why it was not included in the MVP. Consider development complexity, low impact, regulatory requirements, and core hypothesis validation.*
8	Stakeholder Impact Analysis	*Analyze the negative impacts of the excluded use cases on stakeholders. Describe possible disappointments or operational limitations caused by exclusions.*
9	Compromises / Partial Implementations	*Describe any compromises or changes made to the MVP to partially satisfy stakeholder needs. For example, simplified features, manual processes, or basic notifications that substitute for complex excluded features.*
10	Full Reflection Document Draft	*Based on MVP selection, exclusions, and stakeholder analysis, create a reflection document (max 2 pages) covering: - How we decided what NOT to do - Negative impacts or disappointments for stakeholders - Compromises or partial solutions for stakeholder needs*
11	Compare Zero-Shot vs Careful Prompting Results	*Compare the use cases generated with zero-shot prompting vs careful prompting. Highlight differences in completeness, detail, and regulatory compliance coverage.*

12	Ensure Compliance Coverage	*Check all MVP use cases for minimal compliance with campus health, safety, and payment regulations. Suggest modifications if any preconditions or subflows are missing.*
13	Generate Full Table of MVP Use Cases	*Using the final 15 MVP use cases, create a table with: Category*
14	Verify Precondition & Alternative Flows	*For each MVP use case, verify that all preconditions, subflows, and alternative flows are included. Add missing details if necessary.*
15	Prepare Appendix for Submission	*Create an appendix of all prompts and responses used with the local LLaMA model. Include training prompts, zero-shot and careful prompting queries, MVP selection prompts, and reflection document prompts.*