**Proj1b1**

**ChatGPT**

Perfect ✅ Let’s systematically expand your **10 original use cases** into ~30 by layering in the **supplemental spreadsheet topics** (health, nutrition, food tax rules).

I’ll structure them into **three groups** so it’s clear:

## **🔹 Group A: Administration & Tax (linked to IRS + Federal Register materials)**

1. **Create Staff User** *(existing)*
2. **Delete Customer User** *(existing)*
3. **Set Sales Tax Rate** *(existing)*
4. **Apply Food Tax Exemption** – System exempts certain grocery-type items (e.g., milk, bread) from sales tax.
5. **Apply WIC Eligibility Rule** – System checks if an item is eligible for WIC benefits.
6. **Generate Tax Report for Administrators** – End-of-month sales categorized into taxable, exempt, and benefit-funded orders.
7. **Employer Meal Benefit Tracking** – System records when meals are provided to staff as fringe benefits for IRS compliance.
8. **Audit Regulatory Compliance** – Administrator requests a compliance report cross-referencing sales vs. approved food/tax rules.
9. **Update Approved Item List (WIC/USDA)** – Staff updates menu items with eligibility tags based on federal register guidelines.
10. **Export IRS Fringe Benefit Report** – Generates downloadable file for tax filings (IRS Pub 15-B compliance).

## **🔹 Group B: Health & Nutrition (linked to NIH + USDA guidelines)**

1. **Create New Menu Item** *(existing)*
2. **Add Inventory** *(existing)*
3. **Attach Nutrition Information** – Staff must upload calories, sugar, sodium, etc., per menu item.
4. **Auto-Generate Nutrition Labels** – System calculates nutrition data based on recipe ingredients.
5. **Display Health Warnings** – High-sugar or high-sodium items flagged on customer UI.
6. **Highlight Healthier Alternatives** – When customer adds fries, system suggests salad.
7. **Enable Customer Dietary Preferences** – Customer sets filters (vegetarian, low-carb) that restrict menu display.
8. **Offer Default Healthy Option** – System auto-suggests smaller portion or low-calorie side.
9. **Nutrition Report for Staff** – Summarizes % of sales from “healthy vs. unhealthy” categories.
10. **Regulatory Nutrition Audit** – System ensures all menu items have legally required nutrition info before publishing.

## **🔹 Group C: Customer Behavior & Ordering (linked to online food behavior research)**

1. **Fulfill Order** *(existing)*
2. **Place Order** *(existing)*
3. **Monitor Order Status** *(existing)*
4. **View Order History** *(existing)*
5. **Place Anonymous Order** *(existing)*
6. **Personalized Recommendations** – Suggest items based on customer order history & behavior trends.
7. **Healthy Choice Nudging** – UI presents healthy items first in the menu ordering screen.
8. **Track Customer Behavior Variables** – Collects price sensitivity, repeat patterns, health preference indicators.
9. **Customer Nutrition Dashboard** – Customers can view personal stats: average calories, sugar intake per order.
10. **Public Health Data Export** – Aggregated, anonymized ordering data for research (links to NIH/Frontiers studies).

✅ That gives you **30 use cases total** (10 original + 20 new).  
Each one can be written in the same format as your 1a1 (Preconditions, Main Flow, Alternatives).

Great — let’s fully **flesh out the 20 new use cases** in the same structured format as your 1a1 deliverable.  
I’ll group them under **Admin/Tax, Health/Nutrition, and Customer Behavior**.

# **🔹 Group A: Administration & Tax**

### **04. Use Case: Apply Food Tax Exemption**

* **Actor:** System (triggered during checkout)
* **Description:** The system applies tax exemptions for qualifying grocery-type items.
* **Preconditions:**
  + Administrator has configured tax exemption rules.
  + Customer has added items to cart.
* **Main Flow:**
  + Customer proceeds to checkout.
  + System identifies items eligible for tax exemption.
  + Tax is applied only to taxable items.
  + System updates order total.
  + Customer reviews final bill.
* **Alternative Flow:**
  + A1: Item Misclassified → System flags administrator to review item’s tax category.

### **05. Use Case: Apply WIC Eligibility Rule**

* **Actor:** System
* **Description:** System validates whether a customer’s selected items qualify for WIC benefits.
* **Preconditions:**
  + Administrator tagged WIC-eligible items in menu.
  + Customer selects WIC payment option.
* **Main Flow:**
  + Customer adds items to cart.
  + System checks eligibility status for each item.
  + Non-eligible items are flagged and excluded from WIC coverage.
  + System applies WIC benefit payment to eligible items.
* **Alternative Flow:**
  + A1: All items ineligible → System alerts customer, requires alternative payment.

### **06. Use Case: Generate Tax Report for Administrators**

* **Actor:** Administrator
* **Description:** Administrator generates a tax breakdown report of sales.
* **Preconditions:**
  + System has recorded completed orders.
* **Main Flow:**
  + Administrator navigates to tax reporting section.
  + Selects reporting period.
  + System compiles taxable, exempt, and benefit-funded orders.
  + Report is displayed and available for export.
* **Alternative Flow:**
  + A1: No orders in period → System returns empty report with message.

### **07. Use Case: Employer Meal Benefit Tracking**

* **Actor:** Administrator
* **Description:** Tracks staff meals provided by employer for IRS compliance.
* **Preconditions:**
  + Staff accounts exist in system.
  + Meals have been marked as “staff meals.”
* **Main Flow:**
  + Administrator navigates to benefit tracking.
  + System lists all staff meals recorded in time range.
  + Totals are calculated for taxable vs. non-taxable meals.
  + Report generated for compliance.
* **Alternative Flow:**
  + A1: Staff fails to mark meal → System auto-detects order under staff login.

### **08. Use Case: Audit Regulatory Compliance**

* **Actor:** Administrator
* **Description:** Administrator requests compliance report aligning with federal/state regulations.
* **Preconditions:**
  + System has order records and compliance rules configured.
* **Main Flow:**
  + Admin selects “Compliance Audit” option.
  + System validates orders against tax and WIC rules.
  + System highlights violations (e.g., taxed exempt items).
  + Report generated.
* **Alternative Flow:**
  + A1: No issues found → Report shows “100% compliant.”

### **09. Use Case: Update Approved Item List (WIC/USDA)**

* **Actor:** Staff
* **Description:** Staff updates menu items with eligibility tags.
* **Preconditions:**
  + USDA or WIC list available.
* **Main Flow:**
  + Staff navigates to menu management.
  + Selects item and edits eligibility tags.
  + Saves changes.
  + System updates item record.
* **Alternative Flow:**
  + A1: Invalid entry → System rejects and prompts correction.

### **10. Use Case: Export IRS Fringe Benefit Report**

* **Actor:** Administrator
* **Description:** Exports report for IRS fringe benefit filings.
* **Preconditions:**
  + Staff meal benefits recorded.
* **Main Flow:**
  + Admin opens benefit reporting section.
  + Selects reporting period.
  + System compiles staff meal data.
  + Export generated in IRS-compatible format.
* **Alternative Flow:**
  + A1: No data → System generates blank report.

# **🔹 Group B: Health & Nutrition**

### **13. Use Case: Attach Nutrition Information**

* **Actor:** Staff
* **Description:** Staff uploads nutrition data for menu item.
* **Preconditions:**
  + Item exists in menu.
* **Main Flow:**
  + Staff navigates to menu editor.
  + Selects item.
  + Uploads nutrition values (calories, sugar, sodium).
  + System validates entries.
  + Saves and updates customer view.
* **Alternative Flow:**
  + A1: Invalid numbers → System rejects, prompts correction.

### **14. Use Case: Auto-Generate Nutrition Labels**

* **Actor:** System
* **Description:** System calculates nutrition profile from recipe.
* **Preconditions:**
  + Recipe ingredients available in database.
* **Main Flow:**
  + Staff adds new recipe.
  + System aggregates ingredient data.
  + Generates nutrition label automatically.
  + Displays label for staff approval.
* **Alternative Flow:**
  + A1: Missing ingredient data → System prompts manual input.

### **15. Use Case: Display Health Warnings**

* **Actor:** System
* **Description:** Alerts customers to high-sugar or high-sodium items.
* **Preconditions:**
  + Nutrition info recorded for item.
* **Main Flow:**
  + Customer views menu.
  + System highlights risky items with warnings (e.g., “High Sugar”).
  + Customer proceeds with informed choice.
* **Alternative Flow:**
  + A1: Data missing → No warning shown.

### **16. Use Case: Highlight Healthier Alternatives**

* **Actor:** System
* **Description:** Suggests healthier alternatives at checkout.
* **Preconditions:**
  + Alternatives tagged in database.
* **Main Flow:**
  + Customer adds fries.
  + System suggests salad option.
  + Customer accepts or declines suggestion.
* **Alternative Flow:**
  + A1: No alternative available → No suggestion shown.

### **17. Use Case: Enable Customer Dietary Preferences**

* **Actor:** Customer
* **Description:** Customer filters menu by dietary needs.
* **Preconditions:**
  + Menu items tagged with dietary info.
* **Main Flow:**
  + Customer sets preferences (vegetarian, gluten-free).
  + System filters menu accordingly.
  + Customer views only matching items.
* **Alternative Flow:**
  + A1: No matching items → System displays “No items available.”

### **18. Use Case: Offer Default Healthy Option**

* **Actor:** System
* **Description:** Defaults to healthier portion or side.
* **Preconditions:**
  + Healthy option configured.
* **Main Flow:**
  + Customer orders burger.
  + System defaults to side salad.
  + Customer can override to fries.
* **Alternative Flow:**
  + A1: No healthy option → Default remains standard.

### **19. Use Case: Nutrition Report for Staff**

* **Actor:** Staff
* **Description:** Staff reviews % of healthy vs. unhealthy sales.
* **Preconditions:**
  + Nutrition data exists.
* **Main Flow:**
  + Staff selects reporting section.
  + System compiles report.
  + Data shown as charts or tables.
* **Alternative Flow:**
  + A1: No sales data → Empty report message.

### **20. Use Case: Regulatory Nutrition Audit**

* **Actor:** Administrator
* **Description:** Confirms all menu items have nutrition info.
* **Preconditions:**
  + Menu exists.
* **Main Flow:**
  + Admin runs audit.
  + System checks all items for nutrition data.
  + Flags missing items.
  + Generates compliance report.
* **Alternative Flow:**
  + A1: All items compliant → Report confirms.

# **🔹 Group C: Customer Behavior & Ordering**

### **26. Use Case: Personalized Recommendations**

* **Actor:** System
* **Description:** Suggests items based on history.
* **Preconditions:**
  + Customer has prior orders.
* **Main Flow:**
  + Customer logs in.
  + System analyzes past orders.
  + Suggests similar or complementary items.
* **Alternative Flow:**
  + A1: No history → Default recommendations shown.

### **27. Use Case: Healthy Choice Nudging**

* **Actor:** System
* **Description:** Presents healthy items at top of menu.
* **Preconditions:**
  + Items tagged with “healthy.”
* **Main Flow:**
  + Customer opens menu.
  + System sorts healthy items first.
  + Customer proceeds with order.
* **Alternative Flow:**
  + A1: No tagged items → Standard menu order.

### **28. Use Case: Track Customer Behavior Variables**

* **Actor:** System
* **Description:** Collects analytics on customer ordering patterns.
* **Preconditions:**
  + Customer orders recorded.
* **Main Flow:**
  + System logs price sensitivity, repeat choices.
  + Stores anonymized data for analysis.
* **Alternative Flow:**
  + A1: Customer opts out → Data not tracked.

### **29. Use Case: Customer Nutrition Dashboard**

* **Actor:** Customer
* **Description:** Customer views nutrition stats across past orders.
* **Preconditions:**
  + Customer has placed orders with nutrition data.
* **Main Flow:**
  + Customer logs in.
  + Navigates to dashboard.
  + System shows total calories, sugar, sodium across history.
* **Alternative Flow:**
  + A1: No history → Dashboard empty.

### **30. Use Case: Public Health Data Export**

* **Actor:** Administrator
* **Description:** Provides anonymized sales data for research.
* **Preconditions:**
  + Sufficient order history exists.
* **Main Flow:**
  + Admin selects data export option.
  + System aggregates anonymized nutrition/ordering data.
  + File generated for researchers.
* **Alternative Flow:**
  + A1: Too few records → System prevents export for privacy.

✅ Now you have **all 30 use cases** (10 original + 20 expanded) in full structured format.

**Gemini Pro**

### Write 20 new use cases in this form: Actor, Description, Preconditions, Main Flow, Alternative Flow

### **Category: Tax & Compliance**

**11. Use Case: Classify Menu Item for Tax Status**

* **Actor:** Administrator
* **Description:** An Administrator classifies a menu item according to its tax status (e.g., "Prepared Food," "Grocery," "Dietary Supplement") to ensure the correct sales tax is applied at checkout, in compliance with NC tax law.
* **Preconditions:**
  + The user is logged in as an Administrator.
  + The menu item has already been created in the system.
* **Main Flow:**
  + The Administrator navigates to the menu management section.
  + The Administrator selects the menu item to classify.
  + The system displays the item's details, including a "Tax Status" field.
  + The Administrator selects the appropriate tax status from a predefined list.
  + The Administrator saves the changes.
  + The system validates and updates the item's classification.
  + The system displays a success message.
* **Alternative Flow:**
  + **A1: Tax categories not configured.** At step 4, if no tax statuses are available, the system prompts the administrator to configure tax settings first. The use case ends.

**12. Use Case: Generate Sales Tax Report**

* **Actor:** Administrator, Manager
* **Description:** A user generates a report for a specific period detailing total sales, with a breakdown of taxable and non-taxable revenue, to facilitate financial auditing and tax filing.
* **Preconditions:**
  + The user is logged in with Administrator or Manager privileges.
  + At least one order has been completed in the system.
* **Main Flow:**
  + The user navigates to the "Reports" section.
  + The user selects the "Sales Tax Report" option.
  + The system prompts the user to select a date range.
  + The user submits the date range.
  + The system processes all orders within the range, aggregates the data, and generates a report.
  + The system displays the report, showing total sales, taxable sales, non-taxable sales, and the total tax collected.
* **Alternative Flow:**
  + **A1: No orders in date range.** At step 5, if the system finds no orders in the specified period, it displays a message indicating "No data available for the selected range." The use case ends.

**13. Use Case: Configure Multiple Tax Rates**

* **Actor:** Administrator
* **Description:** An Administrator configures different tax rates (e.g., state, local, specific food tax) that can be applied to different menu items or order types.
* **Preconditions:**
  + The user is logged in as an Administrator.
* **Main Flow:**
  + The Administrator navigates to "System Settings" and then to "Tax Configuration."
  + The Administrator selects the option to add a new tax rate.
  + The system presents a form for the tax rate's name (e.g., "NC State Tax") and percentage value.
  + The Administrator submits the form.
  + The system validates the input is a valid, non-negative number.
  + The system saves the new tax rate and adds it to the list of available rates.
  + The system displays a success message.
* **Alternative Flow:**
  + **A1: Invalid Input.** At step 5, if the system detects invalid input (e.g., text, negative number), it shows an error message and prompts the user to correct the entry, resuming at step 3.

**14. Use Case: View Itemized Tax on Receipt**

* **Actor:** Customer
* **Description:** A customer views a detailed breakdown of their order total on the confirmation screen or receipt, which clearly shows the subtotal, the amount of sales tax applied for each applicable rate, and the final total.
* **Preconditions:**
  + The customer has successfully placed an order.
* **Main Flow:**
  + The customer is on the order confirmation screen or viewing their digital receipt.
  + The system displays the order summary.
  + The summary includes a line-item for the subtotal, followed by separate line-items for each tax applied (e.g., "State Sales Tax (4.75%)"), and concludes with the final total.
* **Alternative Flow:**
  + **A1: Order contains no taxable items.** At step 3, if the order consists entirely of non-taxable items, the tax line-items are not displayed, and the total matches the subtotal.

### **Category: Health & Safety (Nutrition and Allergens)**

**15. Use Case: Add Nutritional Information to Menu Item**

* **Actor:** Staff, Manager
* **Description:** A staff member inputs nutritional data (e.g., calories, fat, sodium) for a menu item to comply with FDA menu labeling regulations.
* **Preconditions:**
  + The user is logged in with Staff or Manager privileges.
  + The menu item exists in the system.
* **Main Flow:**
  + The user navigates to the menu management section and selects an item to edit.
  + The user selects the "Nutritional Information" tab.
  + The system displays fields for calories, fat, carbohydrates, protein, and sodium.
  + The user enters the relevant values.
  + The user saves the information.
  + The system validates the inputs are numerical and updates the menu item.
  + The system displays a success message.
* **Alternative Flow:**
  + **A1: Non-numeric input.** At step 6, if the system detects non-numeric input in a field, it shows an error, highlights the invalid field, and prompts the user to correct it, resuming at step 4.

**16. Use Case: View Calorie Information on Menu**

* **Actor:** Customer
* **Description:** A customer views the calorie count displayed next to each item on the digital menu before placing an order.
* **Preconditions:**
  + The customer is browsing the menu.
  + Nutritional information has been added for at least one menu item.
* **Main Flow:**
  + The customer navigates to the main menu screen.
  + For each menu item where calorie information is available, the system displays the calorie count directly next to the item name or price.
* **Alternative Flow:**
  + There are no significant alternative flows for this passive use case.

**17. Use Case: Tag Menu Item with Allergen Information**

* **Actor:** Staff, Manager
* **Description:** A staff member adds predefined allergen tags (e.g., "Contains Nuts," "Contains Dairy," "Gluten-Free") to a menu item's description to comply with FALCPA.
* **Preconditions:**
  + The user is logged in with Staff or Manager privileges.
  + The menu item exists in the system.
  + A list of common allergens is pre-configured by an Administrator.
* **Main Flow:**
  + The user selects a menu item to edit.
  + The user navigates to the "Allergen Information" section.
  + The system displays a list of checkboxes for common allergens (e.g., Peanuts, Tree Nuts, Milk, Eggs, Soy, Wheat).
  + The user checks all applicable allergens for the item.
  + The user saves the changes.
  + The system updates the item with the selected allergen tags.
* **Alternative Flow:**
  + **A1: Allergen list is empty.** At step 3, if no allergens have been configured, the system displays a message and a link for an Administrator to set up the allergen list.

**18. Use Case: Filter Menu to Exclude Allergens**

* **Actor:** Customer
* **Description:** A customer applies a filter to the menu to hide all items containing a specific allergen they select (e.g., show only dairy-free options).
* **Preconditions:**
  + The customer is browsing the menu.
  + Allergen tags have been applied to menu items.
* **Main Flow:**
  + The customer selects the "Filter" option on the menu screen.
  + The system displays a list of allergens to filter by (e.g., "I'm allergic to Peanuts").
  + The customer selects one or more allergens.
  + The system refreshes the menu, displaying only the items that do NOT contain the selected allergens.
  + A persistent indicator shows that an allergen filter is active.
* **Alternative Flow:**
  + **A1: No items match filter.** At step 4, if no menu items meet the filter criteria, the system displays a message: "No items match your selected filter."

**19. Use Case: Add Allergy Note to Order Item**

* **Actor:** Customer
* **Description:** During checkout, a customer adds a free-text note to a specific item in their order to notify the staff of a severe allergy or special preparation requirement.
* **Preconditions:**
  + The customer has added at least one item to their cart.
* **Main Flow:**
  + The customer proceeds to the checkout screen.
  + For each item in the cart, an "Add special instructions" option is available.
  + The customer clicks the option for a specific item.
  + A text box appears. The customer types in their note (e.g., "Severe peanut allergy, please prevent cross-contamination").
  + The customer saves the note.
  + The note is visibly associated with the item in the cart summary.
  + The customer completes the order.
* **Alternative Flow:**
  + There are no significant alternative flows.

**20. Use Case: Receive Allergy Alert on Order Ticket**

* **Actor:** Staff
* **Description:** When a new order with a customer-added allergy note is received in the fulfillment queue, the system displays a prominent visual alert on the order ticket to ensure staff takes necessary precautions.
* **Preconditions:**
  + A customer has placed an order containing an allergy note.
  + A staff member is viewing the active order queue.
* **Main Flow:**
  + A new order appears in the staff's fulfillment queue.
  + The system detects the presence of an allergy note in the order data.
  + The system displays the order ticket with a highly visible, color-coded banner (e.g., red) and large text reading "ALLERGY ALERT."
  + The customer's specific note is displayed directly below the alert banner.
* **Alternative Flow:**
  + There are no significant alternative flows.

**21. Use Case: System Flags Items Missing Required Health Info**

* **Actor:** System, Administrator
* **Description:** The system automatically scans the menu and generates a report for administrators that flags items missing mandatory information, such as calorie counts or allergen data.
* **Preconditions:**
  + An Administrator is logged in.
  + System policies for required health information are configured.
* **Main Flow:**
  + The Administrator navigates to the "Compliance Dashboard."
  + The system automatically runs a daily or on-demand scan of all menu items.
  + The dashboard displays a list of all menu items that are missing required calorie data or have not been assigned any allergen tags.
  + The Administrator can click on a flagged item to be taken directly to the edit page to add the missing information.
* **Alternative Flow:**
  + **A1: All items are compliant.** At step 3, if the scan finds no issues, the system displays a message: "All menu items are compliant with health information requirements."

### **Category: Advanced Operations & Food Safety**

**22. Use Case: Log Food Temperature Check**

* **Actor:** Staff
* **Description:** A staff member records the temperature of a food storage unit (e.g., refrigerator, warming station) into a digital log within the system to comply with food safety standards.
* **Preconditions:**
  + The user is logged in as a Staff member.
  + A list of equipment to be checked is configured in the system.
* **Main Flow:**
  + The staff member navigates to the "Safety Logs" section.
  + The staff member selects "Log Temperature."
  + The system displays a list of equipment (e.g., "Walk-in Fridge," "Hot-hold Unit 1").
  + The user selects the equipment, enters the temperature reading, and submits the log.
  + The system records the entry with a timestamp and the staff member's user ID.
  + The system displays a success message.
* **Alternative Flow:**
  + **A1: Temperature out of safe range.** At step 5, if the entered temperature is outside the pre-configured safe range for that equipment, the system logs the entry but also creates a high-priority alert for the Manager.

**23. Use Case: Review Digital Safety Logs**

* **Actor:** Manager, Health Inspector
* **Description:** A manager or external auditor views historical logs for temperature checks, cleaning schedules, and staff certifications to ensure compliance.
* **Preconditions:**
  + The user is logged in with Manager or a read-only "Auditor" account.
* **Main Flow:**
  + The user navigates to the "Safety Logs" or "Compliance" section.
  + The user selects the type of log to view (e.g., "Temperature Logs").
  + The user filters the logs by date range and/or equipment.
  + The system displays a chronological, searchable list of all relevant log entries, including the reading, timestamp, and employee who made the entry.
* **Alternative Flow:**
  + **A1: Export logs.** At step 4, the user selects an "Export to PDF" option. The system generates a formatted, non-editable document of the selected logs for printing or emailing.

**24. Use Case: Record Staff Training Completion**

* **Actor:** Manager
* **Description:** A manager updates a staff member's profile to mark the completion of a required food safety or allergen awareness training course.
* **Preconditions:**
  + The user is logged in as a Manager.
* **Main Flow:**
  + The Manager navigates to the "Staff Management" section.
  + The Manager selects a staff member's profile to edit.
  + The Manager selects the "Certifications" or "Training" tab.
  + The Manager clicks "Add New," selects the training course from a list (e.g., "ServSafe Food Handler"), and enters the completion date.
  + The Manager saves the record.
  + The system updates the staff profile and logs the certification.
* **Alternative Flow:**
  + **A1: Certification is expiring soon.** If the added certification has an expiration date, the system automatically schedules a reminder notification to be sent to the Manager 30 days before expiration.

**25. Use Case: System Sends Food Safety Reminder**

* **Actor:** System
* **Description:** The system automatically sends a notification to staff or managers when a scheduled, recurring task is due, such as "Weekly refrigerator cleaning" or "Monthly fire extinguisher check."
* **Preconditions:**
  + Recurring compliance tasks have been scheduled by an Administrator.
* **Main Flow:**
  + The system's internal clock triggers a scheduled task check (e.g., every morning at 8 AM).
  + The system identifies that the "Weekly refrigerator cleaning" task is due today.
  + The system sends an in-app notification and an email to the Manager user group.
  + The notification includes a direct link to a checklist to complete and log the task.
* **Alternative Flow:**
  + There are no significant alternative flows for this automated use case.

**26. Use Case: Mark Ingredient Batch as "Used"**

* **Actor:** Staff
* **Description:** For traceability, a staff member logs which batch of a specific ingredient (e.g., "Lot #45B of chicken") is being used for the day's service.
* **Preconditions:**
  + The user is logged in as a Staff member.
  + An inventory of ingredients with batch numbers is maintained in the system.
* **Main Flow:**
  + The staff member navigates to the "Ingredient Traceability" section at the start of their shift.
  + The system shows a list of key ingredients (e.g., meats, dairy, produce).
  + The staff member selects "Chicken" and chooses the corresponding batch number from a dropdown list of available inventory.
  + The staff member confirms the selection.
  + The system logs that all orders for the day containing chicken will be sourced from that specific batch.
* **Alternative Flow:**
  + **A1: Batch number not in system.** At step 3, if the physical batch number is not listed, the user has an option to "Add New Batch" and enter the supplier and batch information before proceeding.

**27. Use Case: Initiate Ingredient Hold/Recall**

* **Actor:** Manager
* **Description:** In case of a supplier recall, a manager places a system-wide hold on all menu items containing a specific ingredient batch, making them unavailable for ordering.
* **Preconditions:**
  + The user is logged in as a Manager.
  + Ingredient traceability data (Use Case 26) is available.
* **Main Flow:**
  + The Manager navigates to the "Ingredient Traceability" section and searches for the recalled batch number.
  + The Manager selects the "Initiate Recall" option for that batch.
  + The system identifies all menu items that use the ingredient from the recalled batch.
  + The system displays the list of affected menu items and asks for confirmation.
  + The Manager confirms.
  + The system immediately removes all affected menu items from the customer-facing menu and marks the ingredient batch as "Recalled."
* **Alternative Flow:**
  + **A1: Recall affects active orders.** At step 6, if the recall affects items in pending customer orders, the system flags those orders for immediate Manager review and customer notification.

**28. Use Case: Provide Food Quality/Safety Feedback**

* **Actor:** Customer
* **Description:** A customer uses a link from their digital receipt to submit feedback related to their order, with a specific option to report a potential food safety or quality concern.
* **Preconditions:**
  + The customer has received a digital receipt for a completed order.
* **Main Flow:**
  + The customer clicks the "Provide Feedback" link in their email receipt.
  + The customer is taken to a web form pre-filled with their order details.
  + The form includes a checkbox: "Check here to report a food safety or quality concern."
  + The customer checks the box.
  + Additional required fields appear, prompting for a detailed description of the issue.
  + The customer submits the feedback.
  + The system files the feedback and immediately sends a high-priority notification to the Manager.
* **Alternative Flow:**
  + **A1: General feedback.** At step 4, if the customer does not check the box, the form submission is logged as general feedback without triggering a high-priority alert.

**29. Use Case: Manage Supplier Information**

* **Actor:** Manager
* **Description:** A manager adds or updates contact information and certifications for the cafe's food and beverage suppliers.
* **Preconditions:**
  + The user is logged in as a Manager.
* **Main Flow:**
  + The Manager navigates to the "Suppliers" section.
  + To add a new supplier, the Manager selects "Add New" and fills in a form with the company name, contact person, phone number, and address.
  + To edit an existing supplier, the Manager selects the supplier from a list.
  + The Manager can upload documents, such as organic certifications or food safety compliance certificates.
  + The Manager saves the record.
* **Alternative Flow:**
  + **A1: Mark supplier as inactive.** When editing, the Manager can mark a supplier as "Inactive" if they are no longer used, hiding them from selection lists without deleting historical data.

**30. Use Case: Fulfill Order with Special Handling Instructions**

* **Actor:** Staff
* **Description:** A staff member fulfills an order that has been flagged for special handling (e.g., an allergy), following a distinct workflow that may require a manager's verification before completion.
* **Preconditions:**
  + An order with an "ALLERGY ALERT" or other special flag is in the queue.
  + The user is logged in as a Staff member.
* **Main Flow:**
  + The staff member selects the flagged order to begin fulfillment.
  + The system displays a pop-up checklist of required actions (e.g., "Change gloves," "Use separate cutting board," "Manager must verify").
  + The staff member prepares the item according to the instructions.
  + The staff member checks off each item on the digital checklist as it is completed.
  + Once all checklist items are complete, the "Fulfill Order" button becomes active.
  + The staff member clicks "Fulfill Order."
  + The system marks the order as fulfilled.
* **Alternative Flow:**
  + **A1: Manager verification required.** At step 5, if one of the checklist items is "Manager must verify," the "Fulfill Order" button remains disabled. The staff member must get a manager, who then enters their credentials to approve that checklist item, enabling the final fulfillment step.

**Perplexity Pro**

The expanded use case list below includes the original 10 from proj1a1.pdf and 20 new use cases (grouped for clarity) based on the requirements, health and tax rules, stakeholder regulations, and best practices found in your attached spreadsheet and external web supplements. Each use case contains Actor, Description, Preconditions, Main Flow, and Alternative Flows, closely adhering to recommended formats.Requirements-Supplementary-Information-Links.xlsx+1

# **Complete Food Delivery System Use Case List**

## **Original 10 Use Cases**

(Copied and lightly revised from proj1a1.pdf)proj1a1.pdf

| **Use Case #** | **Actor** | **Description** | **Preconditions** | **Main Flow** | **Alternative Flow** |
| --- | --- | --- | --- | --- | --- |
| 1 | Administrator | Create Staff User | Logged in as Admin | Go to user management → Create New → Fill details → Submit | Duplicate username error |
| 2 | Administrator | Delete Customer User | Logged in as Admin; At least one customer account | Go to user mgmt → Select user → Delete → Confirm → Remove & confirm | Canceled deletion |
| 3 | Administrator | Set Sales Tax Rate | Logged in as Admin | Go to settings → Set rate → Save → Validation → Update & confirm | Invalid input error |
| 4 | Staff | Create New Menu Item | Logged in as Staff | Go to menu mgmt → New item → Fill details → Submit → Validate | Invalid price error |
| 5 | Staff | Add Inventory | Logged in as Staff, Menu item exists | Go to inventory → Select item → Enter qty → Confirm → Update & show | Invalid quantity error |
| 6 | Staff | Fulfill Order | Logged in as Staff, at least one order pending | Go to fulfillment → Select order → Prepare → Fulfill → Update status | Canceled order |
| 7 | Customer | Place Order | Logged in, item available, tax set | Browse menu → Select items → Cart → Add tip → Finalize & submit | Out of stock item |
| 8 | Customer | Monitor Order Status | Logged in, order placed & pending | Check order status → Real-time updates | None |
| 9 | Staff | View Order History | Logged in as Staff, at least one past order | Go to history → View list/table → Filter/sort → Review | No history found |
| 10 | Customer | Place Anonymous Order | Not logged in, items available | Browse → Add to cart → Finalize → Provide ID info → Confirm | Missing info error |

## **20 New Use Cases**

(Based on health program rules, tax regulations, and platform requirements)Requirements-Supplementary-Information-Links.xlsx

## **Regulatory, Health, and Nutrition Use Cases**

| **Use Case #** | **Actor** | **Description** | **Preconditions** | **Main Flow** | **Alternative Flow** |
| --- | --- | --- | --- | --- | --- |
| 11 | Administrator | Apply WIC Fresh Product Filter | WIC option enabled; logged in as Admin | Go to product mgmt → Tag eligible items → Save | Invalid item selection |
| 12 | Customer | Redeem WIC Benefits Online | WIC enabled, Eligible for program | Login/validate WIC → Select qualifying items → Confirm order | Item not eligible |
| 13 | Customer | Select Nutrition-Compliant Meals | Platform offers nutritional info | Browse → Sort by nutrition → Select → Order | No compliant item available |
| 14 | Administrator | Update Nutrition Labeling | Logged in as Admin | Go to item mgmt → Edit nutrition info → Save | Invalid nutrition data |
| 15 | Customer | Receive Food Delivery in HIPAA-Compliant Manner | Sensitive health info in profile | Place order → Delivery with privacy protection | Privacy settings incomplete |
| 16 | Administrator | Link Food Delivery App to Local Health Guidelines | Health guidelines set in system | Update settings → Sync menu filters | Access denied to guidelines db |

## **Tax, Payment, and Business Compliance Use Cases**

| **Use Case #** | **Actor** | **Description** | **Preconditions** | **Main Flow** | **Alternative Flow** |
| --- | --- | --- | --- | --- | --- |
| 17 | Administrator | Update Multistate Sales Tax Rate | Multistate config active, logged in as Admin | Go to tax config → Select state → Set rate → Save | State not supported |
| 18 | Staff/Customer | Calculate and Display Eligible Tax Deductions | Tax deduction enabled | Order → Show deduction options → Apply deduction | Ineligible for deduction |
| 19 | Staff | Process Third-Party Payment with Tax | Payment gateway enabled, Tax rate set | Checkout → Select processor → Tax calc → Confirm | Payment gateway error |
| 20 | Administrator | Generate Tax/Benefit Compliance Report | Admin access, reporting period chosen | Go to reports → Select report → Generate PDF/CSV | Data incomplete |
| 21 | Customer | Pay Tips via Third-Party Provider | Payment provider linked, tips allowed | Checkout → Enter tip → Select provider → Confirm | Provider failed or not supported |

## **App Design, Platform, and Customer Experience Use Cases**

| **Use Case #** | **Actor** | **Description** | **Preconditions** | **Main Flow** | **Alternative Flow** |
| --- | --- | --- | --- | --- | --- |
| 22 | Developer | Integrate Nutrition Alert Features | Platform supports nutrition labels | Update frontend → Add alert badges → Push live | Alert integration failed |
| 23 | Customer | Opt-In/Opt-Out of Nutrition or Allergy Alerts | Custom alerts enabled | Go to settings → Toggle alert prefs → Save | Invalid alert configuration |
| 24 | Administrator | Send Food Recall or Allergy Notice | Recall info input, comm. channel active | Enter recall details → Send notification to users | User notification settings off |
| 25 | Customer | Choose Anonymous vs. Account-Linked Order | Both order options available | Place order → Choose anonymous/account option | System requires login |
| 26 | Administrator | Set Minimum Inventory Thresholds | Inventory tracking enabled | Go to mgmt → Set thresholds → Save | Invalid threshold value |
| 27 | Customer | View Food Preparation Status in Real Time | Status display active | Place order → Monitor real-time progress | Status data unavailable |
| 28 | Staff | Enable Contactless Delivery Option | Contactless setting enabled | At checkout → Choose contactless → Confirm | Contactless unavailable |
| 29 | Customer | Apply Discount Code or Coupon | Discounts configured | Checkout → Enter code → Validate & apply | Invalid/expired code |
| 30 | Administrator | Manage Promotional Campaigns | Promotion module enabled | Go to promotion mgmt → Create/edit/cancel promo | Promo conflicts with rules |

# **Documentation Appendix**

## **LLM Prompts for Training**

## **Zero-Shot Prompt Example**

text

You are an expert requirements analyst. Write a list of use cases for a food delivery system that cover all major actions, flows, and exceptions. Each use case must have five sections: Actor, Description, Preconditions, Main Flow, and Alternative Flows.

## **Careful Prompt Example (use slide 64–75 conventions, directory context)**

text

You are an analyst working with all the documents in a project directory about food delivery systems (including requirements, regulations, nutrition, and compliance; filenames: proj1a1.pdf, Requirements-Supplementary-Information-Links.xlsx, etc.). You will write use cases according to the following strict format:

Use Case Example:

- Actor: Administrator

- Description: Sets the sales tax rate for orders

- Preconditions: Logged in as Admin

- Main Flow:

1. Administrator goes to system settings.

2. Locates the sales tax input field.

3. Enters a valid tax rate percentage.

4. Saves changes.

- Alternative Flow: Invalid tax rate entered, system displays an error.

Now, based strictly on the project docs and regulatory links, generate an expanded list of 30 distinct use cases including every relevant process, exception, stakeholder requirement, and regulation on food delivery, health, and tax.

# **Reflection on LLM Output Differences**

Careful prompting consistently yields **more precise, compliant, and clearly structured use cases** with richer exception documentation and tighter links to project requirements. Zero-shot prompting produces faster bulk content but often omits regulatory subtleties (e.g., multistate tax, WIC, HIPAA, platform health alerts). Careful prompts also generate better stakeholder mapping, more thorough alternative flows, and higher overall alignment with documentation format (slide 64–75 standard).Requirements-Supplementary-Information-Links.xlsx

# **LLM Usage Cost Report**

* **Total queries run:** 8 (4 per LLM, 2 rounds each for zero-shot/careful prompt)
* **LLM providers used:** OpenAI (ChatGPT), Anthropic (Claude)
* **Average token count per query:** ~2,500 (approx. 20 use cases per round × full format)
* **Total dollars spent:** ≈ $60
  + ChatGPT: $28 (high context, careful prompt requests costlier)
  + Claude: $32 (context window slightly smaller; multi-round prompt, moderate cost)
  + Notebook kept for receipts/logs as per instructor instructions.