Project 1b1 (Group 2)

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Wolfcafe Use Cases - RAG

UC1 through UC10 were provided as context to the LLMs via the query interface.

UC1 Create/Edit/Delete Staff/Customers
UC2 Place Customer Order
UC3 Staff Views & Fulfills Orders
UC4 Customer Pickup Notification
UC5 Set Tax Rate
UC6 Manage Inventory
UC7 Ensure Regulatory Compliance
UC8 Marketing Campaign Setup
UC9 Accessibility Review
UC10 Delivery Flow

UC11 Customer Registration

11.1 Preconditions

The user (potential customer) has launched the WolfCafe application.

11.2 Main Flow

1. The customer selects the "Register" option.
2. The system displays a registration form requesting email, password, name, and phone number.
3. The customer enters the required information and submits the form.
4. The system validates the data (e.g., checks for valid email format, password strength).
5. The system creates a new customer account and a unique customer ID.
6. The system sends a confirmation email to the provided address.
7. The system displays a success message and automatically logs the customer in.

11.3 Subflows / Extensions

11.3.1 Validate Data:

The system checks that the email is not already registered and that the password meets security requirements.

11.4 Alternative / Error Flows

11.4.1 Duplicate Email:
If the email is already registered, the system displays an error message prompting the user to log in or use a different email.
11.4.2 Invalid Data:
If any field fails validation (e.g., invalid phone number), the system highlights the erroneous field and displays a specific error message.

UC12 Customer Login

12.1 Preconditions

The customer has an existing account (UC11).

12.2 Main Flow

1. The customer navigates to the login screen.
2. The customer enters their registered email and password.
3. The customer submits the login credentials.
4. The system verifies the credentials against the stored database.
5. Upon successful verification, the system creates an authenticated session.
6. The system redirects the customer to the main menu browsing screen.

12.3 Subflows / Extensions

None.

12.4 Alternative / Error Flows

12.4.1 Invalid Credentials: If the email or password is incorrect, the system displays a generic error message: "Invalid email or password."
12.4.2 Forgot Password:** The customer selects "Forgot Password," initiating UC13.

UC13 Reset Forgotten Password

13.1 Preconditions

The customer is on the login screen and has selected "Forgot Password."

13.2 Main Flow

1. The system prompts the customer to enter their registered email address.
2. The customer enters their email and submits.
3. The system verifies the email exists in the customer database.
4. The system generates a unique, time-limited password reset token.
5. The system sends an email to the customer containing a link with the reset token.
6. The customer clicks the link, which opens the app to a password reset screen.
7. The customer enters a new password twice for confirmation.
8. The system validates the token and the new password.
9. The system updates the customer's password in the database.
10. The system displays a confirmation message and redirects the customer to the login screen.

13.3 Subflows / Extensions

None.

13.4 Alternative / Error Flows

13.4.1 Email Not Found: If the email is not registered, the system displays a message: "If this email is registered, a reset link has been sent." (This is for security).

13.4.2 Expired Token: If the reset token has expired, the system informs the customer and prompts them to request a new link.

UC14 Browse Restaurant Menu

14.1 Preconditions

The customer is logged in (UC12).

14.2 Main Flow

1. The customer selects a restaurant from a list or map view.
2. The system retrieves and displays the restaurant's active menu, categorized by item type (e.g., Appetizers, Mains, Desserts).
3. The customer scrolls through the menu to view items.
4. For each item, the system displays its name, image, description, price, and availability status.

14.3 Subflows / Extensions

None.

14.4 Alternative / Error Flows

14.4.1 Menu Unavailable: If the restaurant is closed or the menu cannot be loaded, the system displays an appropriate error message.

UC15 Search Menu Items

15.1 Preconditions

The customer is browsing a restaurant's menu (UC14).

15.2 Main Flow

1. The customer enters a search term (e.g., "spicy," "chicken") into the search bar within the menu.
2. The system queries the menu items for the current restaurant, matching the term against item names and descriptions.
3. The system displays a filtered list of items that match the search criteria.

15.3 Subflows / Extensions

None.

15.4 Alternative / Error Flows

15.4.1 No Results: If no items match the search term, the system displays a "No items found" message.

UC16 Add Item to Cart

16.1 Preconditions

The customer is viewing a menu item (from UC14 or UC15).

16.2 Main Flow

1. The customer selects a menu item.
2. The system displays a detailed item view, including customization options (if any).
3. The customer selects the desired quantity.
4. The customer presses the "Add to Cart" button.
5. The system adds the item(s) with the selected options to the customer's active cart.
6. The system updates the cart total and item count indicator.

7. The system displays a confirmation message.

16.3 Subflows / Extensions

16.3.1 Handle Customization: The system presents available customizations (e.g., "Add extra cheese," "Select spice level") and records the customer's choices.

16.4 Alternative / Error Flows

16.4.1 Item Becomes Unavailable: If the item's availability changes between viewing and adding, the system displays an error: "This item is no longer available."

16.4.2 Minimum Order Not Met: If adding this item does not meet a restaurant's minimum order requirement, the system warns the customer but still adds the item.

UC17 View Cart

17.1 Preconditions

The customer has at least one item in their cart (UC16).

17.2 Main Flow

1. The customer navigates to their cart.
2. The system displays a list of all items in the cart, their individual prices, customizations, and the total price.
3. The customer can review the items and the total cost.

17.3 Subflows / Extensions

None.

17.4 Alternative / Error Flow:

17.4.1 Empty Cart: If the cart is empty, the system displays a message encouraging the customer to browse menus and does not allow proceeding to checkout.

UC18 Remove Item from Cart

18.1 Preconditions

The customer is viewing their cart (UC17).

18.2 Main Flow

1. The customer selects the option to remove an item next to any item in the cart list.
2. The system removes the item from the cart.
3. The system recalculates and updates the cart total.
4. The system displays a confirmation message that the item was removed.

18.3 Subflows / Extensions

None.

18.4 Alternative / Error Flows

None.

UC19 Apply Discount/Promo Code

19.1 Preconditions

The customer is viewing their cart (UC17) before checkout.

19.2 Main Flow

1. The customer selects the option to "Apply Promo Code."
2. The system displays a text input field.
3. The customer enters a promotional code and confirms.

4. The system validates the code (checks expiration, eligibility, etc.).
5. If valid, the system applies the discount to the cart total.
6. The system displays the discount line item and the new updated total.

19.3 Subflows / Extensions

19.3.1 Validate Promo Code: The system checks the code against a database of active promotions.

19.4 Alternative / Error Flows

19.4.1 Invalid Code: If the code is invalid or expired, the system displays an error message.

19.4.2 Ineligible Code: If the code is valid but the cart does not meet its criteria (e.g., minimum order value), the system displays a specific error message explaining the criteria.

UC20 Select Pickup Time Slot

20.1 Preconditions

The customer is proceeding through the checkout flow after viewing the cart (UC17).

20.2 Main Flow

1. The system displays available future time slots for order pickup based on the restaurant's hours and current order queue.
2. The customer selects their desired pickup time slot.
3. The system reserves this time slot temporarily and proceeds to the payment step.

20.3 Subflows / Extensions

None.

20.4 Alternative / Error Flows

20.4.1 Slot No Longer Available: If the selected slot becomes filled by another order between display and selection, the system prompts the customer to choose a new slot.

UC21 Process Payment

21.1 Preconditions

The customer has selected a pickup time (UC20) and has a cart total greater than zero.

21.2 Main Flow

1. The system displays the order summary and final total.
2. The customer selects a saved payment method or chooses to enter a new one.
3. The system redirects to a secure payment gateway (e.g., Stripe, Braintree) API.
4. The customer authorizes the payment via the gateway.
5. The payment gateway returns a success status to WolfCafe.
6. The system records the successful transaction ID.
7. The system moves to order placement confirmation (UC22).

21.3 Subflows / Extensions

21.3.1 Add New Payment Method: The customer enters new card details, which are tokenized and sent directly to the payment gateway for storage; WolfCafe only stores the token.

21.4 Alternative / Error Flows

21.4.1 Payment Declined: The payment gateway returns a declined status. The system informs the customer and prompts them to try a different payment method.

21.4.2 Payment Processing Error: A network error occurs. The system prompts the customer to try again.

UC22 Confirm Order Placement

22.1 Preconditions

Payment has been processed successfully (UC21).

22.2 Main Flow

1. The system creates a new order record in the database with status "Received."
2. The system assigns a unique order confirmation number to the order.
3. The system clears the customer's cart.
4. The system displays an order confirmation screen to the customer, showing the summary, confirmation number, and estimated pickup time.
5. The system sends a confirmation email and push notification to the customer with the same details.

22.3 Subflows / Extensions

None.

22.4 Alternative / Error Flows

22.4.1 Order Creation Failure: If the order cannot be created in the database after payment, the system triggers a refund via the payment gateway and displays a critical error message to the customer, instructing them to contact support.

UC23 Track Order Status (Customer)

23.1 Preconditions

The customer has at least one order placed (UC22) that is not yet completed.

23.2 Main Flow

1. The customer navigates to their "Order History" or "Current Orders" screen.
2. The system displays a list of the customer's recent orders.
3. The customer selects an active order to track.
4. The system displays the current status of the order (e.g., Received, Preparing, Ready for Pickup, Completed).
5. The system may provide an estimated time update based on the status.

23.3 Subflows / Extensions

None.

23.4 Alternative / Error Flows

None.

UC24 Cancel Order (Customer)

24.1 Preconditions

The customer is viewing an active order (UC23) whose status is "Received" or "Preparing" (i.e., not yet "Ready for Pickup").

24.2 Main Flow

1. The customer selects the "Cancel Order" option.
2. The system prompts the customer to confirm the cancellation.
3. The customer confirms.

4. The system updates the order status to "Cancelled by Customer."
5. The system initiates a refund process through the payment gateway.
6. The system notifies the restaurant staff of the cancellation.
7. The system confirms the cancellation to the customer and indicates a refund is processing.

24.3 Subflows / Extensions

None.

24.4 Alternative / Error Flows

24.4.1 Cancellation Not Allowed: If the order status is already "Ready for Pickup" or later, the "Cancel Order" option is hidden or disabled, and the customer is instructed to contact the restaurant directly.

UC25 Restaurant Staff Login

25.1 Preconditions

The staff member has valid credentials provided by a manager (via UC1).

25.2 Main Flow

1. The staff member launches the staff-facing application or portal.
2. The staff member enters their username and password.
3. The system verifies the credentials and the user's role (e.g., Chef, Cashier).
4. Upon successful verification, the system creates an authenticated session tailored to the user's permissions.
5. The system redirects the staff member to the order management dashboard.

25.3 Subflows / Extensions

None.

25.4 Alternative / Error Flows

25.4.1 Invalid Credentials: Analogous to UC12.4.1.

UC26 View New Orders (Staff)

26.1 Preconditions

The restaurant staff member is logged in (UC25).

26.2 Main Flow

1. The system dashboard displays a list of orders filtered by status.
2. The staff member selects to view orders with status "Received."
3. The system displays a chronological list of new orders that have not yet been acknowledged, each showing details like order ID, items, customizations, and pickup time.
4. The staff member can select an order to view its full details.

26.3 Subflows / Extensions

None.

26.4 Alternative / Error Flows

None.

UC27 Update Order Status (Staff)

27.1 Preconditions

The staff member is viewing a specific order (from UC26 or a similar list).

27.2 Main Flow

1. The staff member completes the required action for the current status (e.g., finishes preparing the order).
2. The staff member selects the option to update the status (e.g., a "Mark as Preparing" or "Mark as Ready" button).
3. The system updates the order's status in the database to the next logical step.
4. The system logs the status change and the staff member who made it.
5. If the new status is "Ready for Pickup," the system triggers UC4 (Customer Pickup Notification).

27.3 Subflows / Extensions

None.

27.4 Alternative / Error Flows

None.

UC28 Add Menu Item (Staff)

28.1 Preconditions

A restaurant manager is logged in (UC25) with appropriate administrative privileges.

28.2 Main Flow

1. The manager navigates to the "Menu Management" section.
2. The manager selects "Add New Item."
3. The system displays a form for entering the new item's details: name, description, price, category, image, and availability flag.
4. The manager fills out the form and submits it.
5. The system validates the data (e.g., price must be a positive number).
6. The system creates the new menu item in the database and makes it active.
7. The system confirms the successful creation.

28.3 Subflows / Extensions

None.

28.4 Alternative / Error Flows

28.4.1 Invalid Data: Analogous to UC11.4.2.

UC29 Mark Menu Item as Out of Stock

29.1 Preconditions

The restaurant staff or manager is logged in (UC25) and viewing the menu or an active order.

29.2 Main Flow

1. The staff member realizes a menu item is unavailable (e.g., ingredients are out).
2. The staff member navigates to the item in the menu management system or selects a quick option from an order screen.
3. The staff member selects "Mark as Out of Stock."
4. The system updates the item's availability status in the database to "Unavailable."
5. The system immediately removes the item from customer-facing menus.
6. The system confirms the status change.

29.3 Subflows / Extensions
None.
29.4 Alternative / Error Flows
None.

UC30 View Order History (Customer)

30.1 Preconditions
The customer is logged in (UC12).
30.2 Main Flow
1. The customer navigates to their "Order History" screen.
2. The system retrieves and displays a paginated list of the customer's past completed and cancelled orders, sorted by date (newest first).
3. For each order, the system displays the date, restaurant, total cost, status, and a button to "View Details."
4. The customer can select an order to view its full details, including items and payment method used.

30.3 Subflows / Extensions
None.
30.4 Alternative / Error Flows
None.

UC31 Submit Customer Review

31.1 Preconditions
The customer has a completed order (visible in UC30) that they have not yet reviewed.
31.2 Main Flow**
1. From the order history (UC30), the customer selects a completed order and chooses "Leave a Review."
2. The system displays a form for submitting a star rating (e.g., 1-5 stars) and optional written comments.
3. The customer provides a rating and/or comments and submits the review.
4. The system attaches the review to the order and restaurant in the database.
5. The system displays a "Thank you for your feedback" message.

31.3 Subflows / Extensions
None.
31.4 Alternative / Error Flows
31.4.1 Already Reviewed: If the customer has already submitted a review for this order, the form is replaced with a view of their existing review.

UC32 Manage User Profile

32.1 Preconditions
The customer is logged in (UC12).
32.2 Main Flow
1. The customer navigates to their "Profile" or "Account Settings."

2. The system displays the customer's current information (name, email, phone, saved addresses).
3. The customer edits any of the fields (except email, which may require a separate process).
4. The customer saves the changes.
5. The system validates the new data and updates the customer record in the database.
6. The system confirms the update was successful.

32.3 Subflows / Extensions

None.

32.4 Alternative / Error Flows

32.4.1 Invalid Data: Analogous to UC11.4.2.

UC33 View Restaurant Analytics (Staff)

33.1 Preconditions

A restaurant manager is logged in (UC25) with analytics viewing permissions.

33.2 Main Flow

1. The manager navigates to the "Analytics" or "Reports" dashboard.
2. The system displays key metrics (e.g., orders per day, popular items, average order value) for a selectable date range.
3. The manager selects a desired date range and report type.
4. The system generates and displays the requested data in graphical and tabular form.

33.3 Subflows / Extensions

None.

33.4 Alternative / Error Flows

33.4.1 No Data: If no data exists for the selected range, the system displays a message indicating so.

UC34 Handle System Notification

34.1 Preconditions

The user (customer or staff) has the app installed with notifications enabled.

34.2 Main Flow

1. The WolfCafe system determines a notification needs to be sent (e.g., order ready, new order received).
2. The system pushes a notification payload to a cloud messaging service (e.g., Firebase Cloud Messaging).
3. The cloud service delivers the notification to the user's device.
4. The user's device displays the notification.
5. The user taps on the notification.
6. The app opens and deep-links directly to the relevant context (e.g., the order tracking screen for an order-ready notification).

34.3 Subflows / Extensions

None.

34.4 Alternative / Error Flows

34.4.1 Notifications Disabled: The system still records the event internally but does not send a push notification.

UC35 Customer Manages Payment Methods

35.1 Preconditions

Customer is logged in.

35.2 Main Flow

Customer adds a new credit card/payment option, saves it.

35.3 Subflows / Extensions

Edit Payment Method, Remove Payment Method.

35.4 Alternative / Error Flows

None.

UC36 Customer Reorders from Past Orders

36.1 Preconditions

Customer is logged in and viewing order history.

36.2 Main Flow

Customer selects a past order, system pre-populates cart with items from that order.

36.3 Subflows / Extensions

None.

36.4 Alternative / Error Flows

None.

UC37 Customer Manages Favorite Restaurants/Items

37.1 Preconditions

Customer is logged in.

37.2 Main Flow

Customer marks a restaurant or specific menu item as a favorite for quick access.

37.3 Subflows / Extensions

None.

37.4 Alternative / Error Flows

None.

UC38 Customer Contacts Support

38.1 Preconditions

Customer has an issue or question.

38.2 Main Flow

Customer uses an in-app feature (e.g., chat, call, email form) to reach customer support.

38.3 Subflows / Extensions

None.

38.4 Alternative / Error Flows

None.

UC39 Restaurant Manager Manages Menu Item Details

39.1 Preconditions

Restaurant Manager is logged in.

39.2 Main Flow

1. Manager selects a menu item
2. Manager updates its name, description, price, images, category, and available modifiers/options.

39.3 Subflows / Extensions

None.

39.4 Alternative / Error Flows

None.

UC40 Restaurant Manager Manages Restaurant Operating Hours

40.1 Preconditions

Restaurant Manager is logged in.

40.2 Main Flow

Manager sets daily opening and closing times for their restaurant.

40.3 Subflows / Extensions

None.

40.4 Alternative / Error Flows

None.

UC41 Restaurant Manager Updates Restaurant Availability

41.1 Preconditions

Restaurant Manager is logged in.

41.2 Main Flow

Manager temporarily sets restaurant status to "closed" or "busy" for a specified period.

41.3 Subflows / Extensions

None.

41.4 Alternative / Error Flows

None.

UC42 Restaurant Staff Accepts/Rejects Incoming Orders

42.1 Preconditions

An order has been placed by a customer and is pending restaurant confirmation.

42.2 Main Flow

Staff reviews order details, accepts or rejects the order, and optionally provides a reason for rejection.

42.3 Subflows / Extensions

None.

42.4 Alternative / Error Flows

None.

UC43 Restaurant Staff Prints Order Ticket

43.1 Preconditions

An order has been accepted.

43.2 Main Flow

Staff triggers printing of the order details to a kitchen printer.

43.3 Subflows / Extensions

None.

43.4 Alternative / Error Flows

None.

UC44 Restaurant Manager Creates & Manages Restaurant-Specific Promotions

44.1 Preconditions

Restaurant Manager is logged in.

44.2 Main Flow

Manager defines and activates promotions unique to their restaurant (e.g., "10% off all pizzas").

44.3 Subflows / Extensions

None.

44.4 Alternative / Error Flows

None.

UC45 Restaurant Manager Responds to Customer Feedback/Reviews

45.1 Preconditions

Restaurant has received customer feedback/reviews.

45.2 Main Flow

Manager views customer reviews and posts public or private responses.

45.3 Subflows / Extensions

None.

45.4 Alternative / Error Flows

None.

UC46 Driver Registers Account

46.1 Preconditions

Potential driver wants to join the platform.

46.2 Main Flow

Driver submits personal and vehicle information, system reviews and approves.

46.3 Subflows / Extensions

None.

46.4 Alternative / Error Flows

None.

UC47 Driver Logs In

47.1 Preconditions

Driver has a registered and approved account.

47.2 Main Flow

Driver enters credentials, system verifies, grants access to driver features.

47.3 Subflows / Extensions

None.

47.4 Alternative / Error Flows

None.

UC48 Driver Updates Availability Status

48.1 Preconditions

Driver is logged in.

48.2 Main Flow

Driver toggles their status between "online" (available for deliveries) and "offline."

48.3 Subflows / Extensions

None.

48.4 Alternative / Error Flows

None.

UC49 Driver Accepts/Declines Delivery Requests

49.1 Preconditions

System dispatches a delivery request to the driver.

49.2 Main Flow

Driver reviews details (pickup/delivery location, estimated earnings), accepts or declines the request.

49.3 Subflows / Extensions

None.

49.4 Alternative / Error Flows

None.

UC50 Driver Navigates to Pickup/Delivery Locations

50.1 Preconditions

Driver has accepted an order.

50.2 Main Flow

Driver uses in-app navigation to get directions to the restaurant and then to the customer.

50.3 Subflows / Extensions

None.

50.4 Alternative / Error Flows

None.

UC51 Driver Updates Delivery Progress Status

51.1 Preconditions

Driver is handling an active delivery.

51.2 Main Flow

Driver marks milestones such as "Arrived at Restaurant," "Picked Up Order," "En Route to Customer," "Delivered."

51.3 Subflows / Extensions

None.

51.4 Alternative / Error Flows

None.

UC52 Customer Tips Driver

52.1 Preconditions

Customer has received their order or is about to.

52.2 Main Flow

Customer adds a tip amount to their order via the app.

52.3 Subflows / Extensions

None.

52.4 Alternative / Error Flows

None.

UC53 Administrator Manages Platform-Wide Promotions/Coupons

53.1 Preconditions

Administrator is logged in.

53.2 Main Flow

Administrator defines and activates promotions applicable across multiple restaurants or for all customers (e.g., "First order free").

53.3 Subflows / Extensions

None.

53.4 Alternative / Error Flows

None.

Reflection

Gemini vs Deepseek

Gemini 2.5 Flash and Deepseek 3.1 were the two LLMs we used for the generation of the use cases. The prompts were kept the same across both LLMs, with strict instructions on following the format of the use case that was provided in the query.

Overall, both LLMs performed the same, and each had its own nuances. In terms of creativity, Gemini performed much better as compared to Deepseek, where some of the use cases were unique and took inspiration from the resources in the document. However, in terms of formatting and adhering to instructions in the query, Deepseek performed better as the formatting of the use cases was consistent following the formatting that was provided in the prompt.

Both LLMs were superior in cases of careful prompting as compared to zero-shot prompting, where, over the course of prompts, we provided already generated use cases and asked for new use cases different from the ones we already had. Both LLMs followed this instruction and built upon the previous use cases to expand the list by a factor of 3.

Deep Research

To compare against our RAG approach, we decided to take an unconventional approach and use **Deep Research,** which is offered by ChatGPT. For deep research, it is very important to provide a detailed prompt with the exact specifications on what you want to focus on. For our case, we went for a detailed zero-shot prompt in which we provided an overview of the project and the goal, which was to generate 30 new use cases. For reference, we attached our Project 1a1 submission alongside the Excel spreadsheet containing the web-based supplemental materials. Lastly, we provided it with the use case template and an example use case to start the generation.
Overall, it took around **6 minutes** to complete. During the research process, it went through **21 sources** and conducted **38 searches,** therefore expanding our attached material with even more supplementary material. Compared to Gemini and Deepseek, the quality of use cases generated was much superior to Gemini and Deepseek, which makes sense as it is much more advanced than a simple RAG implementation.
Deep Research Chat link: https://chatgpt.com/share/68bc3fec-2b38-800e-b05c-e26bd5725fa9

Since we used the free API provided by OpenRouter to access these models, the total cost of LLM usage was $0.