RIPHAH INTERNATIONAL UNIVERSITY ISLAMABAD
GULBERG GREEN CAMPUS

Software Requirement Engineering
SpiceSync: Fast Food Management System
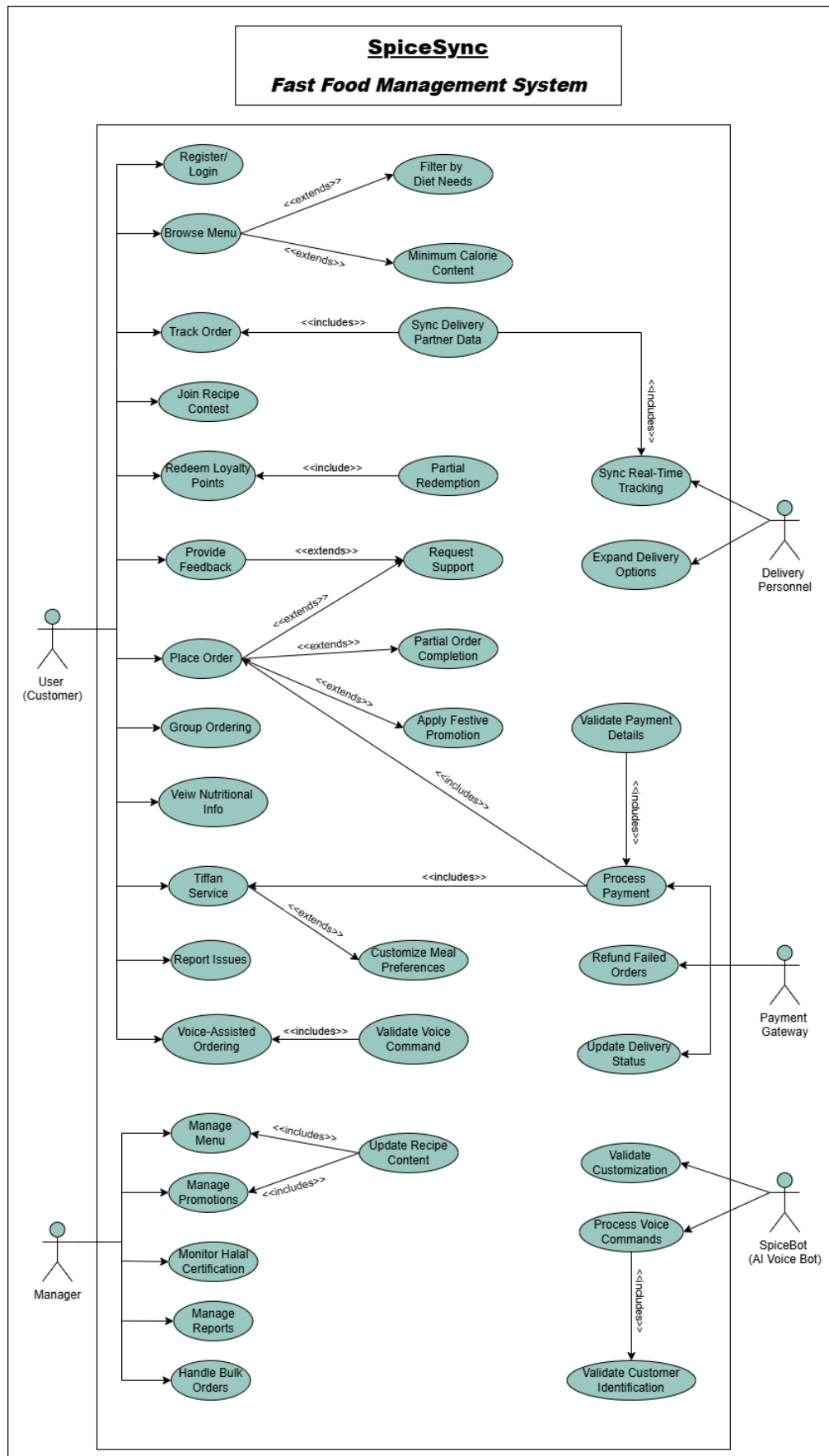
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Date: May 3rd, 2025

Use Case Diagram

SpiceSync
Fast Food Management System

Actors:
- User (Customer)
- Delivery Personnel
- Payment Gateway
- SpiceBot (AI Voice Bot)
- Manager

Use Cases (User / Customer):
- Register/ Login
- Browse Menu
  - <<extends>> Filter by Diet Needs
  - <<extends>> Minimum Calorie Content
- Track Order
  - <<includes>> Sync Delivery Partner Data
- Join Recipe Contest
- Redeem Loyalty Points
  - <<include>> Partial Redemption
- Provide Feedback
  - <<extends>> Request Support
- Place Order
  - <<extends>> Request Support
  - <<extends>> Partial Order Completion
  - <<extends>> Apply Festive Promotion
  - <<includes>> Process Payment
- Group Ordering
- Veiw Nutritional Info
- Tiffan Service
  - <<extends>> Customize Meal Preferences
- Report Issues
- Voice-Assisted Ordering
  - <<includes>> Validate Voice Command

Sync Delivery Partner Data
- <<includes>> Sync Real-Time Tracking
- Expand Delivery Options

Process Payment:
- <<includes>> Validate Payment Details
- <<includes>> Process Payment
- Refund Failed Orders
- Update Delivery Status

SpiceBot (AI Voice Bot):
- Validate Customization
- Process Voice Commands
  - <<includes>> Validate Customer Identification

Manager:
- Manage Menu
  - <<includes>> Update Recipe Content
- Manage Promotions
  - <<includes>> Update Recipe Content
- Monitor Halal Certification
- Manage Reports
- Handle Bulk Orders

Use Case Tables

Use Case 01:

Field	Details
Designation	UC-01
Name	User Registration/Login
Authors	Nimra Tariq
Priority	High
Criticality	Critical (Core functionality)
Responsible	Backend Team
Description	Allows users to register a new account or log in to an existing account to access the system's features.
Trigger Events	User opens the app/website and attempts to access features requiring authentication.
Actors	User
Pre-Conditions	User has internet access and a device to access the application/website. For registration, they have valid personal details or a social media account.
Post-Conditions	User is successfully authenticated and logged into their account.
Result	User gains access to personalized features and can interact with the system.
Main Scenario	1.User selects the "Register" or "Login" option. 2. User enters registration details (email, password, etc.), login credentials, or chooses a social login option. 3. The system validates the provided information. 4. Upon successful validation, the user is logged in.
Alternative Scenario	A1. User enters invalid registration details → Error prompt. A2. User enters incorrect login credentials → Error prompt. A3. Social login fails → Redirect to manual entry.

Use Case 02:

Field	Details
Designation	UC-02
Name	Browse Menu
Authors	Nimra Tariq
Priority	High
Criticality	Moderate
Responsible	Frontend Team
Description	Allows users to view the available food items, categories, descriptions, and prices.
Trigger Events	User navigates to the menu section of the application/website.
Actors	User
Pre-Conditions	User is logged in and has internet access.
Post-Conditions	The menu items and details are displayed to the user.
Result	User can view the available food options and make selections for ordering.
Main Scenario	1. User navigates to the "Menu" section. 2. The system retrieves and displays the current menu items, organized by categories. 3. User can scroll through the menu, view item names, descriptions, and prices.
Alternative Scenario	A1. No internet connection → Error prompt. A2. Menu data retrieval fails → Error prompt. A3. User applies filters (e.g., dietary needs) → System updates the displayed menu accordingly.

Use Case 03:

Field	Details
Designation	UC-03
Name	Place Order
Authors	Nimra Tariq
Priority	High
Criticality	Critical
Responsible	Backend Team, Payment Gateway Integration Team
Description	Allows users to select items from the menu, customize them, and submit an order for delivery or pickup.
Trigger Events	User initiates the checkout process after adding items to their cart.
Actors	User
Pre-Conditions	User is logged in, has added items to their cart, and has a valid delivery address or has selected pickup.
Post-Conditions	Order is successfully placed and submitted to the system. Payment is processed. Order confirmation is displayed to the user.
Result	The restaurant receives the order for fulfillment. The user receives confirmation of their order.
Main Scenario	1. User reviews items in their cart.
	2. User provides delivery details or confirms pickup.
	3. User proceeds to payment.
	4. User enters payment information and confirms payment.
	5. System processes the order and payment. 6. Order confirmation is displayed to the user.
Alternative Scenario	A1. Invalid address → Prompt for valid entry.
	A2. Payment failure → Display error, request alternative.
	A3. Items unavailable → Inform user, offer partial order.
	A4. Apply promotion → Invoke "Apply Festive Promotion."
	A5. Request support → Invoke "Request Support."
	A6. Provide feedback → Invoke "Provide Feedback."
	A7. Partial completion → Invoke "Partial Order Completion."

Use Case 04:

Field	Details
Designation	UC-04
Name	Track Order
Authors	Simaab Malik
Priority	Medium
Criticality	Moderate
Responsible	Backend Team
Description	Allows users to view the current status and location (if applicable) of their placed order.
Trigger Events	User navigates to the "Track Order" section or clicks on a tracking link in their order confirmation.
Actors	User
Pre-Conditions	User has placed an order and has the order ID or is logged in to view their order history.
Post-Conditions	The current status and estimated delivery time/location of the order are displayed to the user.
Result	User can monitor the progress of their order.
Main Scenario	1. User navigates to the "Track Order" section and enters their order ID or views their order history. 2. The system retrieves the latest status and tracking information for the specified order. 3. The status (e.g., "Preparing," "Out for Delivery," "Delivered") and potentially the real-time location is displayed to the user.
Alternative Scenario	A1. Invalid order ID entered → System displays an error message. A2. No tracking information available → System displays a message indicating that tracking is not yet available. A3. System fails to retrieve tracking info → System displays a temporary error message.

Use Case 05:

Field	Details
Designation	UC-05
Name	Redeem Loyalty Points
Authors	Simaab Malik
Priority	Medium
Criticality	Moderate
Responsible	Backend Team, Marketing Team
Description	Allows users to use their accumulated loyalty points to get discounts on their orders.
Trigger Events	User initiates the checkout process or navigates to a loyalty points redemption section.
Actors	User
Pre-Conditions	User is logged in and has accumulated loyalty points in their account.
Post-Conditions	The specified number of loyalty points is deducted from the user's balance, and the corresponding discount is applied to their order.
Result	User gets a reduced price on their order by using their loyalty points.
Main Scenario	1. User proceeds to checkout. 2. System displays the user's available loyalty points and an option to redeem them. 3. User enters the number of points they wish to redeem. 4. System validates the points and applies the discount to the order total. 5. User completes the order with the discounted price.
Alternative Scenario	A1. User enters more points than available → System displays an error message indicating insufficient points. A2. Loyalty program rules prevent redemption on certain items or promotions → System informs the user. A3. System fails to apply the discount → System displays a temporary error message. A4. User attempts to partially redeem points during the order process → The "Partial Redemption" include use case is invoked within the "Place Order" use case.

Use Case 06:

Field	Details
Designation	UC-06
Name	Manage Menu
Authors	Simaab Malik
Priority	High
Criticality	Critical
Responsible	Backend Team, Content Management Team
Description	Allows the manager to add, modify, and remove food items from the restaurant's menu, including details like name, description, price, and category.
Trigger Events	Manager logs into the admin panel and navigates to the menu management section.
Actors	Manager
Pre-Conditions	Manager has valid login credentials and access to the admin panel.
Post-Conditions	The restaurant's menu is updated with the changes made by the manager.
Result	The updated menu is reflected in the user-facing application/website.
Main Scenario	1. Manager navigates to the menu management section. 2. Manager selects an option to add a new item, edit an existing item, or remove an item. 3. Manager enters or modifies the item details (name, description, price, category, etc.). 4. Manager saves the changes. 5. The system updates the menu database.
Alternative Scenario	A1. Manager enters invalid data (e.g., non-numeric price) → System displays an error message. A2. System fails to save the changes to the database → System displays an error message. A3. Manager attempts to update recipe content for a menu item → The "Update Recipe Content" include use case is invoked.

Use Case 07:

Field	Details
Designation	UC-07
Name	Manage Promotions
Authors	Areeza Afridi
Priority	Medium
Criticality	Moderate
Responsible	Marketing Team, Backend Team
Description	Allows the manager to create, edit, and deactivate promotional offers, including discounts, special deals, and festive promotions.
Trigger Events	Manager logs into the admin panel and navigates to the promotions management section.
Actors	Manager
Pre-Conditions	Manager has valid login credentials and access to the admin panel.
Post-Conditions	Promotional offers are created, updated, or deactivated in the system.
Result	The created/updated promotions can be applied by users during order placement.
Main Scenario	1. Manager navigates to the promotions management section. 2. Manager selects an option to create a new promotion, edit an existing one, or deactivate a promotion. 3. Manager enters the promotion details (name, description, discount percentage/amount, validity period, applicable items, etc.). 4. Manager saves the changes. 5. The system updates the promotions database.
Alternative Scenario	A1. Manager enters invalid promotion details (e.g., illogical discount rules) → Error prompt. A2. System fails to save the changes to the database → Error prompt. A3. Manager needs to update recipe content related to a promoted item → The "Update Recipe Content" include use case is invoked.

Use Case 08:

Field	Details
Designation	UC-08
Name	Sync Real-time Tracking
Authors	Areeza Afridi
Priority	High
Criticality	Moderate
Responsible	Backend Team
Description	Allows the delivery personnel's current location to be continuously updated and made available to the system and potentially the customer.
Trigger Events	Delivery personnel starts their shift or begins the delivery of an order via their mobile application. Location services are active on their device.
Actors	Delivery Personnel
Pre-Conditions	Delivery personnel is logged into their delivery application, has an active internet connection, and has granted location access to the application.
Post-Conditions	The delivery personnel's real-time location data is transmitted to the central system.
Result	The system can track the delivery progress and provide updates to the customer.
Main Scenario	1. Delivery personnel starts their delivery task on their app. 2. The app periodically captures the device's GPS coordinates. 3. The location data is transmitted to the central server. 4. The server updates the delivery personnel's current location in the tracking system.
Alternative Scenario	A1. No internet connection → Location data cannot be transmitted. A2. GPS signal is weak or unavailable → Location accuracy is reduced or no data is available. A3. Delivery personnel disable location services → No location updates are sent.

Use Case 09:

Field	Details
Designation	UC-09
Name	Process Payment
Authors	Bisma Ramzan
Priority	High
Criticality	Critical
Responsible	Payment Gateway Provider, Backend Team
Description	Handles the transaction of funds from the user to the restaurant after the payment details have been validated.
Trigger Events	The system receives a confirmation that the payment details are valid.
Actors	Payment Gateway
Pre-Conditions	User has initiated the payment process and provided their payment details.
Post-Conditions	The payment is either successfully processed or declined.
Result	The restaurant receives payment for the order, and the user's payment account is charged (or the transaction fails).
Main Scenario	1. The system sends the validated payment details and transaction amount to the payment gateway. 2. The payment gateway processes the transaction. 3. The payment gateway returns a success or failure response to the system. 4. The system updates the order status and informs the user about the payment outcome.
Alternative Scenario	A1. Insufficient funds on the user's account → Payment gateway returns a decline message. A2. Technical error at the payment gateway → Payment gateway returns a transaction failure message. A3. Payment is flagged as potentially fraudulent → Payment gateway may hold or decline the transaction.

Use Case 10:

Field	Details
Designation	UC-10
Name	Process Voice Commands
Authors	Bisma Ramzan
Priority	Medium
Criticality	Moderate
Responsible	AI Development Team
Description	Interprets and executes the commands spoken by the user through the voice interface. This includes understanding the intent and triggering the appropriate actions within the system.
Trigger Events	User initiates voice interaction and speaks a command.
Actors	SpiceBot
Pre-Conditions	The voice recognition system is active and has transcribed the user's speech. The user may or may not be validated (the diagram shows "Validate Customer Identification" as included).
Post-Conditions	The system attempts to fulfill the user's request based on the interpreted command.
Result	The requested action is performed (e.g., browsing the menu, placing an order), or the user receives feedback if the command could not be understood or executed.
Main Scenario	1. User speaks a command. 2. The system transcribes the voice input. 3. SpiceBot analyzes the transcribed text to understand the user's intent. 4. SpiceBot triggers the corresponding use case (e.g., "Browse Menu," "Place Order").
Alternative Scenario	A1. Voice input is not recognized or understood → SpiceBot prompts the user to repeat or rephrase. A2. The requested action cannot be performed due to system limitations or errors → SpiceBot informs the user. A3. The process requires customer identification → The "Validate Customer Identification" include use case is invoked. A4. The command involves waking up a vehicle component → The "Vehicle Wake Command" include use case is invoked.