DINESWIFT PHASE 2 REQUIREMENTS TRACEABILITY MATRIX (P2 - PHASE 2)

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This matrix documents the medium priority use cases, requirements, implementation plan, and detailed test case definitions for Phase 2 (Customer Communication, Loyalty, Inventory, and Dispatch).

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1. MEDIUM PRIORITY USE CASES TO REQUIREMENTS MAPPING

1.1. Mobile App Use Cases (P2)

Use Case ID	Use Case Name	Functional Requirements	Non-Functional Requirements	Priority	Test Case ID	Sprint
UC-MOB-COMM-013	Initiate Chat Session	MOBILE-APP-FR-201-P2	MOBILE-NFR-301-P1, MOBILE-NFR-302-P1	Medium	MTC-MOB-101	3
UC-MOB-COMM-014	Send Message to Staff	MOBILE-APP-FR-202-P2	MOBILE-NFR-002-P1	Medium	MTC-MOB-102	3
UC-MOB-COMM-015	Rate Dining Experience	MOBILE-APP-FR-203-P2	MOBILE-NFR-301-P1	Medium	MTC-MOB-103	4
UC-MOB-COMM-016	Provide Detailed Feedback	MOBILE-APP-FR-204-P2	MOBILE-NFR-301-P1	Medium	MTC-MOB-104	4
UC-MOB-COMM-017	Rate Specific Waiter	MOBILE-APP-FR-205-P2	MOBILE-NFR-301-P1	Medium	MTC-MOB-105	4
UC-MOB-LOYALTY-018	View Loyalty Status	MOBILE-APP-FR-206-P2	MOBILE-NFR-001-P1	Medium	MTC-MOB-106	3
UC-MOB-LOYALTY-019	Browse Available Rewards	MOBILE-APP-FR-207-P2	MOBILE-NFR-002-P1	Medium	MTC-MOB-107	3
UC-MOB-LOYALTY-020	Redeem Points for Rewards	MOBILE-APP-FR-208-P2	MOBILE-NFR-002-P1	Medium	MTC-MOB-108	4
UC-MOB-LOYALTY-021	Track Points Balance	MOBILE-APP-FR-209-P2	MOBILE-NFR-002-P1	Medium	MTC-MOB-109	3

1.2. Local Server Use Cases (P2)

Use Case ID	Use Case Name	Functional Requirements	Non-Functional Requirements	Priority	Test Case ID	Sprint
UC-LOCAL-DISPATCH-106	Monitor Order Readiness	LOCAL-FR-101-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-101	3
UC-LOCAL-DISPATCH-107	Create Delivery Batches	LOCAL-FR-102-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-102	3
UC-LOCAL-DISPATCH-108	Assign Waiter to Batch	LOCAL-FR-103-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-103	3
UC-LOCAL-DISPATCH-109	Optimize Delivery Routes	LOCAL-FR-104-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-104	4
UC-LOCAL-DISPATCH-110	Track Batch Progress	LOCAL-FR-105-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-105	4
UC-LOCAL-INVENTORY-111	Track Stock Levels	LOCAL-FR-106-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-106	3
UC-LOCAL-INVENTORY-112	Trigger Low Stock Alerts	LOCAL-FR-107-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-107	3
UC-LOCAL-INVENTORY-113	Auto-deduct Inventory	LOCAL-FR-108-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-108	3
UC-LOCAL-INVENTORY-114	Calculate Order Suggestions	LOCAL-FR-109-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-109	4
UC-LOCAL-COMM-115	Route Messages in Real-time	LOCAL-FR-110-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-110	4
UC-LOCAL-COMM-116	Prioritize Urgent Requests	LOCAL-FR-111-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-111	4
UC-LOCAL-COMM-117	Store Chat Sessions	LOCAL-FR-112-P2	LOCAL-NFR-101-P1	Medium	MTC-LOCAL-112	4

Use Case ID	Use Case Name	Functional Requirements	Non-Functional Requirements	Priority	Test Case ID	Sprint
UC-LOCAL-LOYALTY-118	Apply Loyalty Discounts	LOCAL-FR-113-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-113	4
UC-LOCAL-LOYALTY-119	Validate Reward Eligibility	LOCAL-FR-114-P2	LOCAL-NFR-001-P1	Medium	MTC-LOCAL-114	4

1.3. Cloud Server Use Cases (P2)

Use Case ID	Use Case Name	Functional Requirements	Non-Functional Requirements	Priority	Test Case ID	Sprint
UC-CLOUD-INVENTORY-208	Send Orders to Supplier	CLOUD-FR-201-P2	CLOUD-NFR-001-P1	Medium	MTC-CLOUD-101	3
UC-CLOUD-INVENTORY-209	Track Order Status	CLOUD-FR-202-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-102	3
UC-CLOUD-INVENTORY-210	Reconcile Payments	CLOUD-FR-203-P2	CLOUD-NFR-101-P1	Medium	MTC-CLOUD-103	4
UC-CLOUD-INVENTORY-211	Rate Supplier Performance	CLOUD-FR-204-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-104	4
UC-CLOUD-COMM-212	Aggregate Feedback Data	CLOUD-FR-205-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-105	4
UC-CLOUD-COMM-213	Calculate Performance Metrics	CLOUD-FR-206-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-106	4
UC-CLOUD-COMM-214	Generate Analytics Reports	CLOUD-FR-207-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-107	4
UC-CLOUD-LOYALTY-215	Auto-enroll Customers	CLOUD-FR-208-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-108	3
UC-CLOUD-LOYALTY-216	Track Customer Metrics	CLOUD-FR-209-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-109	3

UC-CLOUD-LOYALTY-217	Manage Tier Progression	CLOUD-FR-210-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-110	3
UC-CLOUD-LOYALTY-218	Calculate Points Earned	CLOUD-FR-211-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-111	3
UC-CLOUD-LOYALTY-219	Update Points Balance	CLOUD-FR-212-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-112	3
UC-CLOUD-LOYALTY-220	Process Reward Redemption	CLOUD-FR-213-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-113	4
UC-CLOUD-LOYALTY-221	Maintain Rewards Catalog	CLOUD-FR-214-P2	CLOUD-NFR-002-P1	Medium	MTC-CLOUD-114	3

1.4. Web App Use Cases (P2)

Use Case ID	Use Case Name	Functional Requirements	Non-Functional Requirements	Priority	Test Case ID	Sprint
UC-WEB-KITCHEN-304	Mark Order Ready (Dispatch)	WEB-APP-FR-101-P2	WEB-NFR-001-P1	Medium	MTC-WEB-101	3
UC-WEB-KITCHEN-305	View Order Queue	WEB-APP-FR-102-P2	WEB-NFR-001-P1	Medium	MTC-WEB-102	3
UC-WEB-DISPATCH-306	Receive Batch Assignment	WEB-APP-FR-103-P2	WEB-NFR-001-P1	Medium	MTC-WEB-103	3
UC-WEB-DISPATCH-307	View Delivery Route	WEB-APP-FR-104-P2	WEB-NFR-001-P1	Medium	MTC-WEB-104	3
UC-WEB-DISPATCH-308	Verify OTP Delivery	WEB-APP-FR-105-P2	WEB-NFR-001-P1	Medium	MTC-WEB-105	3
UC-WEB-DISPATCH-309	Mark Delivery Complete	WEB-APP-FR-106-P2	WEB-NFR-001-P1	Medium	MTC-WEB-106	3
UC-WEB-INVENTORY-313	View Inventory Alerts	WEB-APP-FR-107-P2	WEB-NFR-001-P1	Medium	MTC-WEB-107	4

UC-WEB-INVENTORY-314	Create Purchase Orders	WEB-APP-FR-108-P2	WEB-NFR-001-P1	Medium	MTC-WEB-108	4
UC-WEB-INVENTORY-315	Adjust Order Quantities	WEB-APP-FR-109-P2	WEB-NFR-001-P1	Medium	MTC-WEB-109	4
UC-WEB-INVENTORY-316	Reject Delivery Items	WEB-APP-FR-110-P2	WEB-NFR-001-P1	Medium	MTC-WEB-110	4
UC-WEB-INVENTORY-317	Capture Rejection Proof	WEB-APP-FR-111-P2	WEB-NFR-001-P1	Medium	MTC-WEB-111	4
UC-WEB-COMM-318	Receive Customer Messages	WEB-APP-FR-112-P2	WEB-NFR-001-P1	Medium	MTC-WEB-112	4
UC-WEB-COMM-319	Respond to Customer	WEB-APP-FR-113-P2	WEB-NFR-001-P1	Medium	MTC-WEB-113	4
UC-WEB-COMM-320	View Customer Feedback	WEB-APP-FR-114-P2	WEB-NFR-001-P1	Medium	MTC-WEB-114	4
UC-WEB-COMM-321	Handle Urgent Requests	WEB-APP-FR-115-P2	WEB-NFR-001-P1	Medium	MTC-WEB-115	4

1.5. Management Dashboard Use Cases (P2)

Use Case ID	Use Case Name	Functional Requirements	Non-Functional Requirements	Priority	Test Case ID	Sprint
UC-DASH-INVENTORY-404	View Inventory Analytics	DASH-FR-201-P2	DASH-NFR-001-P2	Medium	MTC-DASH-101	4
UC-DASH-INVENTORY-405	Analyze Supplier Performance	DASH-FR-202-P2	DASH-NFR-001-P2	Medium	MTC-DASH-102	4
UC-DASH-COMM-406	View Staff Performance	DASH-FR-203-P2	DASH-NFR-001-P2	Medium	MTC-DASH-103	4
UC-DASH-COMM-407	Analyze Customer Satisfaction	DASH-FR-204-P2	DASH-NFR-001-P2	Medium	MTC-DASH-104	4

UC-DASH-COMM-408	Identify Improvement Areas	DASH-FR-205-P2	DASH-NFR-001-P2	Medium	MTC-DASH-105	4
UC-DASH-LOYALTY-409	View Loyalty Analytics	DASH-FR-206-P2	DASH-NFR-001-P2	Medium	MTC-DASH-106	4
UC-DASH-LOYALTY-410	Identify VIP Customers	DASH-FR-207-P2	DASH-NFR-001-P2	Medium	MTC-DASH-107	4
UC-DASH-LOYALTY-411	Configure Reward Programs	DASH-FR-208-P2	DASH-NFR-001-P2	Medium	MTC-DASH-108	4
UC-DASH-LOYALTY-412	Personalize Customer Offers	DASH-FR-209-P2	DASH-NFR-001-P2	Medium	MTC-DASH-109	4

2. IMPLEMENTATION PRIORITY MATRIX

2.1. Quadrant 1: High Business Value, Medium Complexity (Start Sprint 3)

Use Case	Components	Requirements	Effort	Business Value
UC-WEB-DISPATCH-306	Web App, Local Server	WEB-APP-FR-103-P2, LOCAL-FR-103-P2	Medium	High
UC-LOCAL-INVENTORY-111	Local Server, Web App	LOCAL-FR-106-P2, WEB-APP-FR-107-P2	Medium	High
UC-CLOUD-LOYALTY-215	Cloud Server, Mobile App	CLOUD-FR-208-P2, MOBILE-APP-FR-206-P2	Medium	High

2.2. Quadrant 2: Medium Business Value, Low Complexity (Quick Wins)

Use Case	Components	Requirements	Effort	Business Value
UC-MOB-LOYALTY-018	Mobile App, Cloud Server	MOBILE-APP-FR-206-P2, CLOUD-FR-209-P2	Low	Medium
UC-WEB-KITCHEN-305	Web App, Local Server	WEB-APP-FR-102-P2, LOCAL-FR-101-P2	Low	Medium
UC-CLOUD-LOYALTY-221	Cloud Server	CLOUD-FR-214-P2	Low	Medium

3. DETAILED TEST CASE DEFINITIONS (CORRECTED)

3.1. Mobile App Test Cases (P2)

These test cases validate the core customer-facing communication and loyalty features.

Test Case ID	Description	Preconditions	Test Steps	Expected Result
TC-MOB-101	Initiate Chat Session	Customer is authenticated and views the 'Help' screen.	1. Tap the "Chat with Staff" button. 2. Verify a chat window/interface appears.	A new, active chat session interface loads successfully with a message input field and send button.
TC-MOB-101A	Offline chat message queuing	Customer's device is in Airplane Mode or has no internet connection.	1. Customer drafts and attempts to send a message. 2. Customer reconnects to the internet. 3. Check the chat history on both Mobile and Web App.	The message is successfully **queued** on the Mobile App and is sent immediately upon reconnection, appearing in the staff's chat history.
TC-MOB-101B	Encrypted message transmission	Same as TC-MOB-101. Intercept network traffic between the app and Local Server.	1. Initiate a chat session. 2. Send a test message ("Secret Test Message 456"). 3. Monitor network packets for the message payload.	The message payload observed in the network traffic must be **encrypted/obfuscated**, confirming protocol compliance for secure chat.
TC-MOB-106	View Loyalty Status Display	Customer has an active account with a point balance (e.g., 500 points).	1. Navigate to the Loyalty section. 2. Verify the current tier level (e.g., 'Bronze') and points balance are clearly displayed.	The loyalty status and points balance (e.g., "500 Points, Bronze Tier") are accurately rendered on the screen.
TC-MOB-106A	Points balance real-time updates	Customer earns 100 points in a new transaction. Customer is currently viewing the Loyalty screen.	1. Complete a qualifying transaction. 2. Observe the points balance display on the Mobile App.	The points balance updates to the new total (e.g., 600) within **3 seconds** of the transaction being logged by the Cloud Server.

TC-MOB-106B	Tier progression visualization	Customer is near the next tier (e.g., 90% progress to 'Silver').	1. View the Loyalty Status screen. 2. Observe the visual progress bar or indicator.	The visual indicator accurately reflects the customer's current progress toward the next loyalty tier, based on spend or points accumulation.

3.2. Local Server Test Cases (P2)

These test cases focus on validating the core business logic running on the local restaurant server.

Test Case ID	Description	Preconditions	Test Steps	Expected Result
TC-LOCAL-101	Monitor Order Readiness Logic	An order is marked as 'Ready' by the kitchen staff (Web App).	1. Monitor the Local Server logs/status endpoint for the order ID. 2. Verify the server transitions the order status internally.	The order status is updated from 'Preparing' to 'Ready' within <500**ms** of the kitchen action, triggering the next dispatch step.
TC-LOCAL-101A	Real-time status updates	Waiter is assigned a batch. The waiter marks the first stop as complete.	1. Check the Local Server's internal batch tracking status.	The batch status is updated from 'Dispatched' to 'En Route (Stop 1 Complete)' in real-time (<1 second).
TC-LOCAL-101B	Batch creation triggers	Two orders are marked 'Ready' within 10 seconds of each other.	1. Wait 15 seconds after the second order is ready. 2. Check the dispatch queue.	The Local Server automatically creates a **single dispatch batch** containing both orders due to the proximity of their readiness times.
TC-LOCAL-106	Real-time Stock Level Tracking	An ingredient's stock level is 10 units. A new dish uses 2 units.	1. A new order requiring the ingredient is placed. 2. Check the Local Server's stock database for the ingredient.	The stock level is instantly updated to 8 units in the local database upon order submission.
TC-LOCAL-106A	Real-time inventory updates	An order is canceled before preparation begins (2 units of Ingredient X are consumed).	1. Check Ingredient X's current stock level. 2. The order is cancelled. 3. Check the stock level	The stock level for Ingredient X is instantly returned to its pre-order submission value

			immediately after cancellation.	(reversing the consumption).
TC-LOCAL-106B	Low stock threshold validation	Stock level for Item Y is at 1 unit (threshold is 5).	1. Check the Local Server's alert log/queue. 2. Temporarily raise the threshold to 10 and re-run validation.	The server correctly generates a **Low Stock Alert** for Item Y when the threshold is 5, and generates a new alert when the threshold is 10.

3.3.   Cloud Server Test Cases (P2)

These test cases validate the cloud services responsible for external communications and data aggregation.

Test Case ID	Description	Preconditions	Test Steps	Expected Result
TC-CLOUD-101	Order transmission success rate	A Purchase Order (PO) is generated for a supplier via the Web App.	1. The Cloud Server receives the PO request. 2. Monitor the external API call to the Supplier system.	The Cloud Server successfully transmits the PO data to the supplier and receives an HTTP 200/201 acknowledgment.
TC-CLOUD-101A	Supplier API integration	Supplier API endpoint is temporarily down (simulate 503 error).	1. Attempt to transmit a PO. 2. Monitor the Cloud Server's retry attempts.	The Cloud Server attempts to transmit the PO using an **exponential backoff** strategy and logs a critical failure after the maximum retry attempts.
TC-CLOUD-101B	Order data validation	PO is created with an invalid quantity (e.g., negative number) from the Local Server.	1. The Cloud Server attempts to validate the incoming PO structure. 2. Check the internal error logs.	The Cloud Server rejects the PO request **before transmission**, logs a validation error, and notifies the originating Local Server.
TC-CLOUD-108	Auto-enrollment Trigger	A new customer completes their first transaction without a loyalty account.	1. The transaction is logged on the Cloud Server. 2. Check the Customer Database.	The customer is automatically assigned a new loyalty ID and enrolled in the default loyalty program (CLOUD-FR-208-P2).

Test Case ID	Description	Preconditions	Test Steps	Expected Result
TC-CLOUD-108A	Enrollment trigger validation	Customer completes a transaction but opts-out of the loyalty program during checkout.	1. Transaction is logged. 2. Check the Customer Database.	The customer is **not** auto-enrolled, and no loyalty ID is assigned, respecting the opt-out flag.
TC-CLOUD-108B	Duplicate enrollment prevention	Attempt to trigger auto-enrollment for a customer who is already enrolled.	1. Complete a transaction for an existing member. 2. Monitor the database for a new loyalty profile.	No new loyalty profile is created, preventing data duplication.

3.4. Web App Test Cases (P2)

These test cases validate the web interface used by staff (kitchen, waiters, managers) for daily operations.

Test Case ID	Description	Preconditions	Test Steps	Expected Result
TC-WEB-103	Receive Batch Assignment Notification	A local server assigns a batch of orders (LOCAL-FR-103-P2) to a logged-in waiter.	1. Waiter is on their dashboard page. 2. Monitor the screen.	A visible, audible, and persistent notification alerts the waiter to the new batch assignment, linking to the details.
TC-WEB-103A	Real-time batch updates	Waiter begins the batch (status: 'En Route'). Local Server updates the batch status.	1. Another waiter views the status of the batch on their shared dispatch dashboard.	The batch status updates automatically on the secondary waiter's screen to 'En Route' without manual refresh.
TC-WEB-103B	Waiter notification reliability	A new batch is assigned while the waiter is viewing another screen (e.g., Inventory).	1. Waiter navigates to a non-dispatch page. 2. Local Server assigns a batch.	The notification appears as a persistent overlay or badge regardless of the current page being viewed.
TC-WEB-108	Purchase Order Creation work flow	Manager user is logged into the inventory section.	1. Open the 'Create PO' form. 2. Enter supplier details and line items. 3. Submit the form.	The form accepts all required input and sends the purchase order request to the Cloud Server for processing.
TC-WEB-108A	Order quantity validation	Manager attempts to enter a non-numeric value or a negative number for an item	1. Enter an invalid quantity (e.g., "-5"). 2. Attempt to submit.	The form displays an immediate **client-side validation error** and prevents submission until a

Test Case ID	Description	Preconditions	Test Steps	Expected Result
			quantity on the PO form.	valid positive numeric quantity is entered.
TC-WEB-108B	Supplier selection accuracy	Manager uses the search bar to find Supplier 'FoodCo' but types 'Food Co.'.	1. Type the misspelled name into the supplier search field. 2. Observe the search results dropdown.	The search function provides relevant results, successfully suggesting 'FoodCo' despite the minor spelling/spacing variation.

3.5. Management Dashboard Test Cases (P2 & P3)

This section includes the Phase 2 analytics reporting cases, along with the detailed Phase 3 (P3) cases for completeness.

Test Case ID	Description	Preconditions	Test Steps	Expected Result
TC-DASH-101	View Inventory Analytics Data Source(accuracy)	Current inventory levels are available from the Local Server.	1. Navigate to the Inventory Dashboard. 2. Verify that the displayed Stock-Out Risk metric matches the raw calculated data.	All P2 inventory metrics (Stock-Out Risk, Low-Stock Count) are displayed accurately based on the source data.
TC-DASH-101A	Real-time data updates	Local Server stock drops below the threshold, triggering an alert.	1. The manager is viewing the Inventory Dashboard. 2. Observe the Low-Stock Count metric.	The Low-Stock Count metric is updated on the Dashboard within **5 seconds** of the Local Server registering the low stock event.
TC-DASH-101B	Metric calculation validation	Manually calculate the Stock-Out Risk based on 5 high-demand items' data.	1. Compare the manual calculation against the Dashboard's displayed metric.	The Dashboard's Stock-Out Risk metric matches the manually calculated value with less than 0.01% deviation.

TC-DASH-106	View Loyalty Analytics Summary(accuracy)	Key customer loyalty metrics (UC-CLOUD-LOYALTY-216) are tracked.	1. Navigate to the Loyalty Dashboard. 2. View the Total Enrolled Customers and Point Redemption Rate.	The summary metrics are displayed in easily digestible cards/widgets and are numerically accurate.
TC-DASH-106A	Customer segmentation display	Segmentation rules are applied by the Cloud Server (e.g., VIP → Top 10% spend).	1. View the Loyalty Dashboard segmentation chart. 2. Verify the customer counts in the displayed segments (e.g., 'VIP', 'Regular').	The visual display accurately reflects the customer count for each loyalty segment as defined and tracked by the Cloud Server.
TC-DASH-106B	Program performance metrics	Total points redeemed in the last quarter is 50,000.	1. Check the Point Redemption Rate metric on the dashboard. 2. Manually calculate the rate (e.g., 50,000/Total Points Issued).	The calculated Redemption Rate metric is displayed accurately and uses the correct input data from the Cloud Server.

4. DETAILED TRACEABILITY SUMMARY

This table summarizes the core traceability for the use cases detailed in Section 3.1.

Component	Use Case	Implements (FR/NFR)	Dependencies	Critical Test Cases
Mobile App	UC-MOB-COMM-013 (Initiate Chat)	MOBILE-APP-FR-201-P2, MOBILE-NFR-301/302-P1	LOCAL-FR-110-P2 (Local Server message routing), CLOUD-FR-205-P2 (Cloud Server feedback aggregation)	**TC-MOB-101** (Success Rate), **TC-MOB-101A** (message queuing), **TC-MOB-101B** (Encryption)
Mobile App	UC-MOB-LOYALTY-018 (View Loyalty Status)	MOBILE-APP-FR-206-P2, MOBILE-NFR-001-P1	CLOUD-FR-209-P2 (Metrics Tracking), CLOUD-FR-217-P2: (Cloud Server tier progression)	**TC-MOB-106** (Display Accuracy), **TC-MOB-106A** (Points balance Real-time updates), MOB-106B (Tier progression visualization)
Local Server	UC-LOCAL-DISPATCH-106 (Monitor Order Readiness)	LOCAL-FR-101-P2, LOCAL-NFR-001-P1	WEB-APP-FR-101-P2 (Order Ready Marking), CLOUD-FR-222-P2 (Cloud Server order tracking)	**TC-LOCAL-101** (Order readiness detection accuracy), **TC-LOCAL-101A** (Real-time status updates), **TC-LOCAL-101B** (Batch Trigger)
Local Server	UC-LOCAL-INVENTORY-111 (Track Stock Levels)	LOCAL-FR-106-P2, LOCAL-NFR-001-P1	WEB-APP-FR-107-P2 (Inventory display), CLOUD-FR-225-P2 (Cloud Server inventory tracking)	**TC-LOCAL-106** (Tracking Accuracy), **TC-LOCAL-106A** (Real-time inventory Updates), **TC-LOCAL-106B** (Low stock threshold validation)
Cloud Server	UC-CLOUD-LOYALTY-215 (Auto-enroll Customers)	CLOUD-FR-208-P2, CLOUD-NFR-002-P1	MOBILE-APP-FR-206-P2 (loyalty Status Display), CLOUD-FR-209-P2 (Cloud Server customer metrics)	**TC-CLOUD-108** (100% Enrollment accuracy), **TC-CLOUD-108A** (Enrollment trigger validation), **TC-CLOUD-108B** (No Duplicates)

Cloud Server	UC-CLOUD-INVENTORY-208 (Send Orders to Supplier)	CLOUD-FR-201-P2, CLOUD-NFR-001-P1	WEB-APP-FR-108-P2 (PO Creation), LOCAL-FR-109-P2 (Local Server order suggestions)	**TC-CLOUD-101** (Success Rate), **MTC-CLOUD-101A** (supplier API Integration), **TC-CLOUD-101B** (Order data validation)
Web App	UC-WEB-DISPATCH-306 (Receive Batch Assignment)	WEB-APP-FR-103-P2, WEB-NFR-001-P1	LOCAL-FR-103-P2 (local server Waiter Assignment), LOCAL-FR-104-P2 (Local Server route optimization)	**TC-WEB-103** (batch assignment Display Accuracy), **TC-WEB-103A** (Real-time batch updates) **TC-WEB-103B** (Notification Reliability)
Web App	UC-WEB-INVENTORY-314 (Create Purchase Orders)	WEB-APP-FR-108-P2, WEB-NFR-001-P1	LOCAL-FR-109-P2 (Order Suggestions), CLOUD-FR-201-P2 (Cloud Server supplier transmission)	**TC-WEB-108** (purchase order creation Workflow), **MTC-WEB-108A** (order Quantity Validation), **TC-WEB-108B** (Supplier selection accuracy)
Dashboard	UC-DASH-INVENTORY-404 (View Inventory Analytics)	DASH-FR-201-P2, DASH-NFR-001-P2	LOCAL-FR-106-P2 (Stock level Data trcking), CLOUD-FR-225-P2 (Cloud Server inventory data)	**TC-DASH-101** (inventory analytics Display Accuracy), **TC-DASH-101A** (Real-time Updates), TC-DASH-101B (Metric calculation validation)
Dashboard	UC-DASH-LOYALTY-409 (View Loyalty Analytics)	DASH-FR-206-P2, DASH-NFR-001-P2	CLOUD-FR-209-P2 (Customer Metrics), CLOUD-FR-217-P2 (Cloud Server tier progression)	**TC-DASH-106** (loyalty Analytics Accuracy), **TC-DASH-106A** (customer Segmentation Display), **TC-DASH-106B** (Program performance metrics)

5. SPRINT PLANNING MATRIX

5.1.   Sprint 3: Intelligent Operations (Weeks)

Use Case	Component Team	Requirements	Acceptance Criteria
UC-WEB-DISPATCH-306	Web Team	WEB-APP-FR-103-P2	Batch assignment received within 2 seconds
UC-LOCAL-INVENTORY-111	Backend Team	LOCAL-FR-106-P2	Stock levels tracked with 99% accuracy
UC-CLOUD-LOYALTY-215	Cloud Team	CLOUD-FR-208-P2	100% customer auto-enrollment rate
UC-MOB-LOYALTY-018	Mobile Team	MOBILE-APP-FR-206-P2	Loyalty status loads in <2 seconds
UC-WEB-KITCHEN-305	Web Team	WEB-APP-FR-102-P2	Order queue displays 50+ orders
UC-CLOUD-LOYALTY-221	Cloud Team	CLOUD-FR-214-P2	Rewards catalog accessible in <1 second
UC-LOCAL-DISPATCH-106	Backend Team	LOCAL-FR-101-P2	Order readiness detected in <500 ms
UC-LOCAL-DISPATCH-107	Backend Team	LOCAL-FR-102-P2	Batches created for ready orders
UC-LOCAL-DISPATCH-108	Backend Team	LOCAL-FR-103-P2	Waiters assigned within 1 second
UC-CLOUD-INVENTORY-208	Cloud Team	CLOUD-FR-201-P2	Supplier orders sent with 95% success
UC-CLOUD-INVENTORY-209	Cloud Team	CLOUD-FR-202-P2	Order status tracked in real-time
UC-CLOUD-LOYALTY-216	Cloud Team	CLOUD-FR-209-P2	Customer metrics updated in real-time
UC-CLOUD-LOYALTY-217	Cloud Team	CLOUD-FR-210-P2	Tier progression calculated accurately
UC-CLOUD-LOYALTY-218	Cloud Team	CLOUD-FR-211-P2	Points calculated for each transaction
UC-CLOUD-LOYALTY-219	Cloud Team	CLOUD-FR-212-P2	Points balances updated immediately
UC-MOB-COMM-013	Mobile Team	MOBILE-APP-FR-201-P2	Chat sessions initiated successfully
UC-MOB-COMM-014	Mobile Team	MOBILE-APP-FR-202-P2	Messages delivered within 5 seconds

UC-MOB-LOYALTY-019	Mobile Team	MOBILE-APP-FR-207-P2	Rewards catalog loads in <3 seconds
UC-MOB-LOYALTY-021	Mobile Team	MOBILE-APP-FR-209-P2	Points balance displays accurately
UC-WEB-DISPATCH-307	Web Team	WEB-APP-FR-104-P2	Delivery routes displayed clearly
UC-WEB-DISPATCH-308	Web Team	WEB-APP-FR-105-P2	OTP verification process works
UC-WEB-DISPATCH-309	Web Team	WEB-APP-FR-106-P2	Delivery completion recorded

5.2. Sprint 4: Advanced Features (Weeks 7-8)

Use Case	Component Team	Requirements	Acceptance Criteria
UC-MOB-COMM-015	Mobile Team	MOBILE-APP-FR-203-P2	Rating submission success >95%**Error! Filename not specified.**
UC-MOB-COMM-016	Mobile Team	MOBILE-APP-FR-204-P2	Detailed feedback captured
UC-MOB-COMM-017	Mobile Team	MOBILE-APP-FR-205-P2	Waiter-specific ratings recorded
UC-MOB-LOYALTY-020	Mobile Team	MOBILE-APP-FR-208-P2	Points redemption processed
UC-LOCAL-DISPATCH-109	Backend Team	LOCAL-FR-104-P2	Route optimization reduces delivery time by 25%**Error! Filename not specified.**
UC-LOCAL-DISPATCH-110	Backend Team	LOCAL-FR-105-P2	Batch progress tracked in real-time
UC-LOCAL-INVENTORY-114	Backend Team	LOCAL-FR-109-P2	Order suggestions 90% accurate
UC-LOCAL-COMM-115	Backend Team	LOCAL-FR-110-P2	Messages routed within 1 second
UC-LOCAL-COMM-116	Backend Team	LOCAL-FR-111-P2	Urgent requests prioritized
UC-LOCAL-COMM-117	Backend Team	LOCAL-FR-112-P2	Chat sessions stored securely
UC-LOCAL-LOYALTY-118	Backend Team	LOCAL-FR-113-P2	Loyalty discounts applied correctly
UC-LOCAL-LOYALTY-119	Backend Team	LOCAL-FR-114-P2	Reward eligibility validated

UC-CLOUD-INVENTORY-210	Cloud Team	CLOUD-FR-203-P2	Payments reconciled accurately
UC-CLOUD-INVENTORY-211	Cloud Team	CLOUD-FR-204-P2	Supplier performance rated
UC-CLOUD-COMM-212	Cloud Team	CLOUD-FR-205-P2	Feedback data aggregated
UC-CLOUD-COMM-213	Cloud Team	CLOUD-FR-206-P2	Performance metrics calculated
UC-CLOUD-COMM-214	Cloud Team	CLOUD-FR-207-P2	Analytics reports generated
UC-CLOUD-LOYALTY-220	Cloud Team	CLOUD-FR-213-P2	Reward redemption processed in <1 second
UC-WEB-INVENTORY-313	Web Team	WEB-APP-FR-107-P2	Inventory alerts displayed
UC-WEB-INVENTORY-314	Web Team	WEB-APP-FR-108-P2	Purchase orders created in <30 seconds
UC-WEB-INVENTORY-315	Web Team	WEB-APP-FR-109-P2	Order quantities adjusted
UC-WEB-INVENTORY-316	Web Team	WEB-APP-FR-110-P2	Item rejection workflow functional
UC-WEB-INVENTORY-317	Web Team	WEB-APP-FR-111-P2	Rejection proof captured
UC-WEB-COMM-318	Web Team	WEB-APP-FR-112-P2	Customer messages received
UC-WEB-COMM-319	Web Team	WEB-APP-FR-113-P2	Responses sent to customers
UC-WEB-COMM-320	Web Team	WEB-APP-FR-114-P2	Customer feedback viewed
UC-WEB-COMM-321	Web Team	WEB-APP-FR-115-P2	Urgent requests handled
UC-DASH-INVENTORY-404	Dashboard Team	DASH-FR-201-P2	Inventory analytics displayed

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UC-DASH-INVENTORY-405	Dashboard Team	DASH-FR-202-P2	Supplier performance analyzed
UC-DASH-COMM-406	Dashboard Team	DASH-FR-203-P2	Staff performance viewed
UC-DASH-COMM-407	Dashboard Team	DASH-FR-204-P2	Customer satisfaction analyzed
UC-DASH-COMM-408	Dashboard Team	DASH-FR-205-P2	Improvement areas identified
UC-DASH-LOYALTY-409	Dashboard Team	DASH-FR-206-P2	Loyalty analytics viewed
UC-DASH-LOYALTY-410	Dashboard Team	DASH-FR-207-P2	VIP customers identified
UC-DASH-LOYALTY-411	Dashboard Team	DASH-FR-208-P2	Reward programs configured
UC-DASH-LOYALTY-412	Dashboard Team	DASH-FR-209-P2	Customer offers personalized

6. RISK ASSESSMENT BY USE CASE

6.1. High Risk Use Cases

Use Case	Risk	Mitigation	Owner
UC-LOCAL-DISPATCH-109	Route optimization algorithm complexity	Pre-calculated routes, fallback to proximity	Backend Team Lead
UC-CLOUD-LOYALTY-220	Points redemption transaction conflicts	Database locking, rollback mechanisms	Cloud Team Lead
UC-WEB-INVENTORY-316	Supplier relationship impact	Clear rejection policies, communication protocols	Web Team Lead

6.2. Medium Risk Use Cases

Use Case	Risk	Mitigation	Owner
UC-MOB-COMM-013	Low user adoption of chat feature	Prominent UI placement, staff training	Mobile Team
UC-CLOUD-COMM-212	Data aggregation performance issues	Incremental processing, caching strategies	Cloud Team
UC-DASH-LOYALTY-411	Complex reward program configuration	Template-based setup, validation rules	Dashboard Team
UC-LOCAL-INVENTORY-114	Inaccurate order suggestions	Machine learning validation, manual override	Backend Team
UC-CLOUD-INVENTORY-210	Payment reconciliation errors	Audit trails, manual review process	Cloud Team

6.3. Low Risk Use Cases

Use Case	Risk	Mitigation	Owner
UC-MOB-LOYALTY-018	Simple display functionality	Standard UI components, fallback states	Mobile Team
UC-WEB-KITCHEN-305	Basic queue display	Pagination, filtering options	Web Team
UC-CLOUD-LOYALTY-221	Static catalog management	CRUD operations, validation	Cloud Team
UC-DASH-INVENTORY-404	Standard analytics display	Chart libraries, data caching	Dashboard Team

7. SUCCESS METRICS TRACKING

Use Case	Primary Metric	Target	Measurement Method
UC-LOCAL-DISPATCH-106	Order Delivery Time	30% reduction	Order timing analytics
UC-CLOUD-LOYALTY-215	Customer Retention	15% increase	Repeat customer rate
UC-LOCAL-INVENTORY-111	Stock-out Incidents	50% reduction	Inventory analytics
UC-MOB-COMM-013	Response Time	<2 minutes	Chat response metrics
UC-CLOUD-INVENTORY-208	Order Accuracy	95%+	Supplier reconciliation reports
UC-WEB-DISPATCH-306	Waiter Efficiency	20% improvement	Orders per hour metrics
UC-MOB-LOYALTY-020	Redemption Rate	25% of points redeemed	Loyalty program analytics
UC-CLOUD-COMM-212	Feedback Collection	40% of customers provide feedback	Rating system analytics
UC-DASH-INVENTORY-404	Manager Adoption	70% use dashboard weekly	Dashboard usage analytics
UC-LOCAL-DISPATCH-109	Route Efficiency	25% distance reduction	GPS tracking analytics

8. CROSS-COMPONENT DEPENDENCIES AND BUSINESS OUTCOMES

8.1. Dependencies for P2

Cross-Component Dependencies:

- **Loyalty System:** Mobile App (Loyalty UI) → Cloud Server (Points Calculation) → Local Server (Discount Application)
- **Intelligent Dispatch:** Web App (Kitchen) → Local Server (Batch Creation) → Web App (Waiter) → Mobile App (OTP Verification)
- **Inventory Management:** Local Server (Stock Tracking) → Web App (Manager Alerts) → Cloud Server (Supplier Orders) → Supplier Systems
- **Communication System:** Mobile App (Customer Chat) → Local Server (Message Routing) → Web App (Staff Response) → Cloud Server (Analytics)

Phase Dependencies:

- **P1 Foundation Required:** All P2 features build on P1 core systems.
- **Payment System:** Loyalty points depend on payment processing from P1.
- **Menu System:** Inventory management requires menu item data from P1.
- **Order System:** Dispatch system requires order processing from P1.
- **Booking System:** Customer metrics integrate with booking data from P1.

8.2. Phase 2 Business Outcomes

Operational Improvements:

- 30% **faster order delivery** through intelligent dispatch
- 50% **reduction in stock-outs** via inventory management
- 25% **increase in waiter efficiency** with optimized routing

Customer Experience:

- 15% **higher customer retention** via loyalty program
- 40% **feedback collection rate** through communication system
- 25% **points redemption rate** driving repeat business

Business Intelligence:

- 70% **manager adoption** of analytics dashboard
- Real-time operational insights for decision making
- Data-driven supplier management improving costs