USE CASE

## Use Case 1: Real-Time Shipment Tracking

- **Use Case ID:** UC-001
- **Use Case Name:** Real-Time Shipment Tracking
- **Use Case Description:** The system enables the supply chain manager to track the status of shipments in real-time, including shipment details and any delays.
- **Primary Actor:** Supply Chain Manager
- **Supporting Actor:** Carrier System
- **Pre-Condition:** Shipments are initiated, and carrier systems are integrated via API for real-time data exchange.
- **Post Condition:** Shipment statuses are updated in real-time, and any delays are flagged to the user.

### *Main Flow:*

1. **Actor Step:** The Supply Chain Manager accesses the platform's shipment tracking dashboard.
    a. **System Response:** The system displays a list of active shipments along with their current status.

2. **Actor Step:** The manager selects a specific shipment to view detailed information.
    a. **System Response:** The system retrieves and displays shipment details (origin, destination, ETA, current status).
3. **Actor Step:** The manager clicks on the 'Track Shipment' option to view real-time movement.
    a. **System Response:** The system displays the real-time location of the shipment, including a map view and any checkpoints reached.
4. **Actor Step:** The manager applies filters (e.g., by carrier, date range).
    a. **System Response:** The system updates the shipment list based on the selected filters.
5. **Actor Step:** The manager sets alerts for any shipment delays.
    a. **System Response:** The system confirms the alerts and will notify the manager if a delay occurs.

### *Alternate Flow:*

- **If the carrier system does not support real-time updates** (uses batch processing via EDI):
  - The system will retrieve and display the latest batch data instead of real-time data.
  - The system will display a notification that real-time updates are not available for this carrier.

### *Exception Flow:*

- **If the shipment data fails to load due to API failure**:
  - The system will display an error message: "Unable to retrieve shipment data."
  - The system will prompt the manager to retry or notify support.

### *Additional Requirements:*

- **Functional Requirements:**
  - The system must update shipment status every time an event occurs.

    - Real-time location tracking for shipments must be displayed on a map.
- **Non-Functional Requirements:**
    - Data should be updated in less than 2 minutes after the shipment status changes.
- **Database Requirements:**
    - Shipment status, location, and ETA should be stored in the shipment table.
- **Technical Requirements:**
    - API integration with carrier systems using RESTful APIs or EDI for batch updates.

### Use Case 2: Inventory Level Monitoring

- **Use Case ID:** UC-002
- **Use Case Name:** Inventory Level Monitoring
- **Use Case Description:** The system provides real-time monitoring of inventory levels across different warehouse locations.
- **Primary Actor:** Warehouse Manager
- **Supporting Actor:** Warehouse Management System (WMS)

- **Pre-Condition:** The WMS is integrated with the platform and provides real-time inventory data.
- **Post Condition:** Inventory levels are updated in real-time, and alerts for low stock levels are triggered.

### *Main Flow:*

1. **Actor Step:** The Warehouse Manager logs into the system and navigates to the inventory dashboard.
    a. **System Response:** The system displays current inventory levels for each product and warehouse.
2. **Actor Step:** The manager filters the inventory list by product category.
    a. **System Response:** The system updates the inventory list based on the selected category.
3. **Actor Step:** The manager clicks on a specific product to view detailed stock information.
    a. **System Response:** The system displays stock levels across all locations, including minimum and maximum thresholds.

4. **Actor Step:** The manager sets low-stock alerts for specific products.
    a. **System Response:** The system saves the alert configuration and will notify the manager when inventory falls below the set threshold.
5. **Actor Step:** The manager exports the current inventory data for reporting.
    a. **System Response:** The system generates and exports the data in the selected format (Excel, CSV, PDF).

***Alternate Flow:***

- **If inventory data is not updated due to WMS system issues**:
    - The system will display the last available inventory data and a warning that real-time updates are not available.

***Exception Flow:***

- **If the inventory details for a specific product fail to load**:

- The system will display an error message: "Unable to retrieve inventory data."
- The system will allow the manager to retry or contact support.

### *Additional Requirements:*

- **Functional Requirements:**
  - Real-time inventory updates must be displayed.
  - Alerts for low stock must be configurable by product and warehouse.
- **Non-Functional Requirements:**
  - System must update inventory data within 2 minutes of changes.
- **Database Requirements:**
  - Inventory levels and thresholds must be stored in the inventory table.
- **Technical Requirements:**
  - Integration with the WMS via API or batch processing for legacy systems.

## Use Case 3: Generate Custom Supply Chain Reports

- **Use Case ID:** UC-003
- **Use Case Name:** Generate Custom Supply Chain Reports
- **Use Case Description:** The system allows the supply chain analyst to generate custom reports on shipment and inventory performance.
- **Primary Actor:** Supply Chain Analyst
- **Supporting Actor:** None
- **Pre-Condition:** Historical shipment and inventory data are stored in the system.
- **Post Condition:** A custom report is generated and available for export in various formats.

### *Main Flow:*

1. **Actor Step:** The Supply Chain Analyst accesses the reporting section of the platform.
    a. **System Response:** The system displays available report templates and customization options.

2. **Actor Step:** The analyst selects the report type (e.g., shipment performance, inventory trends).
    a. **System Response:** The system loads the selected report template with default settings.
3. **Actor Step:** The analyst customizes the report by selecting specific fields (e.g., date range, carrier, product category).
    a. **System Response:** The system updates the report preview based on the selected filters.
4. **Actor Step:** The analyst clicks on "Generate Report."
    a. **System Response:** The system generates the report and displays it in the browser.
5. **Actor Step:** The analyst exports the report in the desired format (Excel, CSV, PDF).
    a. **System Response:** The system downloads the report in the selected format.

***Alternate Flow:***

- **If the analyst schedules a recurring report**:

    - The system allows the analyst to set up a report schedule (e.g., daily, weekly).
    - The system sends the scheduled report via email to the analyst on the specified schedule.

***Exception Flow:***

- **If the report generation takes too long or fails**:
    - The system displays an error message: "Report generation failed. Please try again later."
    - The system allows the analyst to retry or change the report parameters.

***Additional Requirements:***

- **Functional Requirements:**
    - The system must support report generation based on shipment and inventory data.
    - Reports must be exportable in multiple formats (Excel, CSV, PDF).
- **Non-Functional Requirements:**

    - Reports must be generated within 30 seconds for up to 1,000 records.
- **Database Requirements:**
    - Historical shipment and inventory data must be stored for report generation.
- **Technical Requirements:**
    - The system must allow users to schedule reports for automated delivery.

### Use Case 4: Real-Time Alerts for Delays and Low Stock

- **Use Case ID:** UC-004
- **Use Case Name:** Real-Time Alerts for Delays and Low Stock
- **Use Case Description:** The system sends real-time alerts for shipment delays and low inventory levels based on predefined thresholds.
- **Primary Actor:** Warehouse Supervisor
- **Supporting Actor:** None
- **Pre-Condition:** Shipment and inventory data are being updated in real-time.

- **Post Condition:** The warehouse supervisor receives real-time alerts for any delays or low stock levels.

### *Main Flow:*

1. **Actor Step:** The Warehouse Supervisor configures alerts for shipment delays and low stock levels.
    a. **System Response:** The system saves the alert configuration.
2. **Actor Step:** The system detects a delay in a shipment.
    a. **System Response:** The system sends a real-time alert to the supervisor via email and in-app notification.
3. **Actor Step:** The system detects that inventory for a specific product has fallen below the predefined threshold.
    a. **System Response:** The system sends a low-stock alert to the supervisor.
4. **Actor Step:** The supervisor views the details of the delay or low stock notification.

a. **System Response:** The system displays shipment details or inventory levels, along with the reason for the alert.

***Alternate Flow:***

- **If the supervisor configures custom alert preferences**:
  - The system allows the supervisor to configure specific parameters (e.g., only receive alerts for high-priority shipments or certain products).
  - The system sends alerts based on the custom preferences.

***Exception Flow:***

- **If the alert system fails to send notifications**:
  - The system logs the failure and retries sending the alert.
  - If the alert still fails, the system sends an error notification to the administrator.

### *Additional Requirements:*

- **Functional Requirements:**
  - The system must support real-time alerts for delays and low stock levels.
  - Users must be able to customize alert preferences.
- **Non-Functional Requirements:**
  - Alerts must be sent within 1 minute of detecting a delay or low stock.
- **Database Requirements:**
  - Alert settings and thresholds must be stored in the user preferences table.
- **Technical Requirements:**
  - The system must support sending alerts via multiple channels (email, SMS, in-app).

# THANK YOU