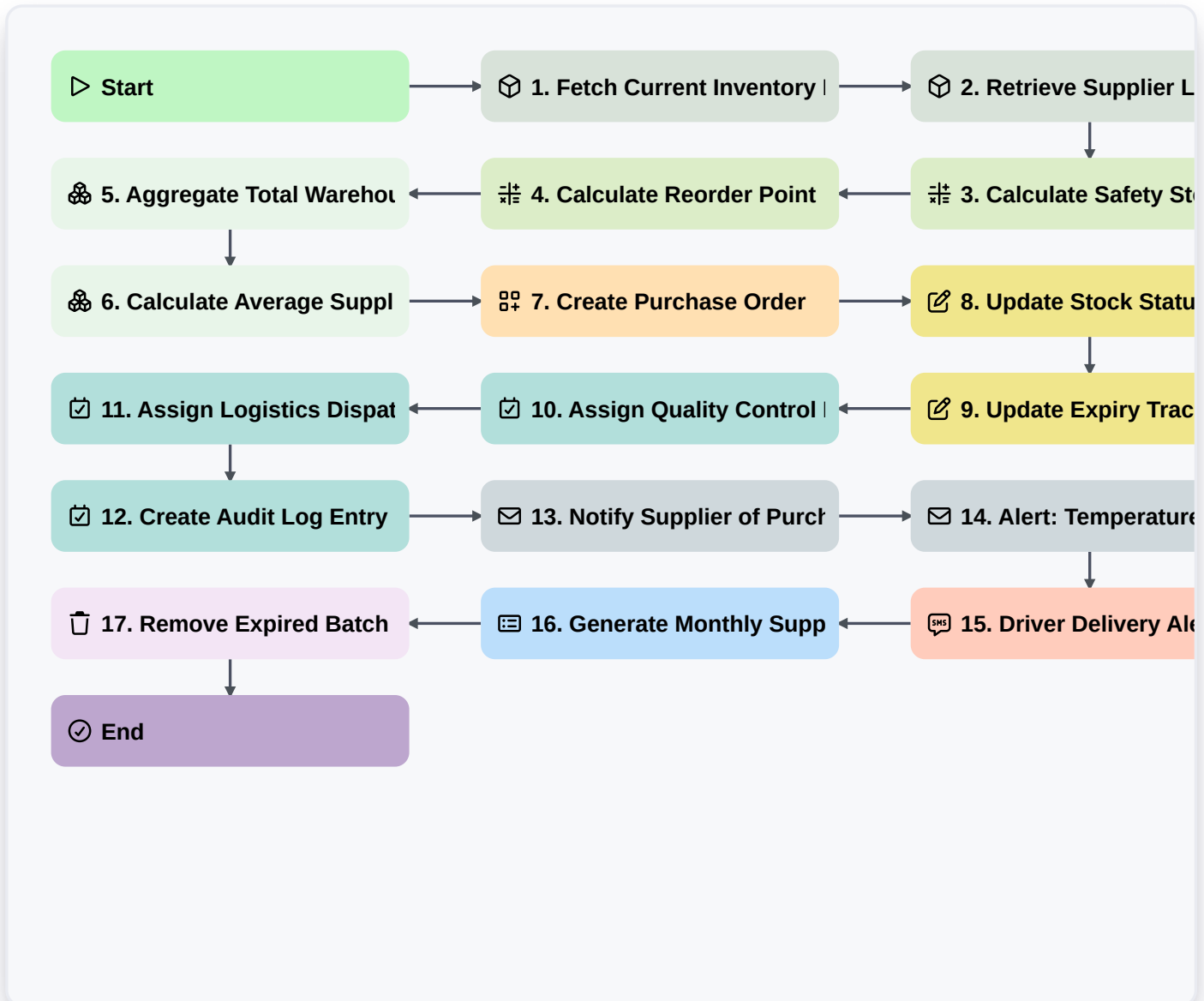


# Pharmaceutical Supply Chain And Logistics Optimization



## ▶ Start

Start of the Workflow/Process.

## 📦 1. Fetch Current Inventory Levels

Retrieve existing stock levels for raw materials and active pharmaceutical ingredients (API) from the Inventory Data Model.

## 📦 2. Retrieve Supplier Lead Times

Fetch historical lead time data for various suppliers to calculate potential delivery delays.

## 📊 3. Calculate Safety Stock Level

Execute formula:  $(\text{Average Daily Usage} * \text{Lead Time}) + \text{Safety Stock Buffer}$  to determine minimum threshold.

## 📊 4. Calculate Reorder Point

Execute formula:  $(\text{Daily Demand} * \text{Lead Time}) + \text{Safety Stock}$  to identify when a new purchase order is required.

## 📦 5. Aggregate Total Warehouse Capacity

Sum the volume of all current stock entries to check against total warehouse storage capacity.



## **6. Calculate Average Supplier Performance Score**

Calculate the average of all recent 'On-Time Delivery' ratings for a specific supplier.

## **7. Create Purchase Order**

Generate a new entry in the Purchase Order Data Model when stock falls below the Reorder Point.

## **8. Update Stock Status**

Update the 'Status' field of a specific batch entry to 'In Transit' or 'Quarantine' upon arrival.

## **9. Update Expiry Tracking**

Update the 'Risk Level' field of a product batch based on the remaining shelf life.

## **10. Assign Quality Control Inspection**

Create a task for the Lab Technician to perform a chemical composition test on new incoming batches.

## **11. Assign Logistics Dispatch**

Create a task for the Logistics Manager to coordinate temperature-controlled transport for sensitive batches.

## **12. Create Audit Log Entry**

Create a task for the Compliance Officer to review and sign off on the batch's regulatory documentation.

## **13. Notify Supplier of Purchase Order**

Send an automated email to the supplier's procurement contact with the newly created Purchase Order details.

## **14. Alert: Temperature Deviation**

Send an urgent email to the Quality Assurance team if sensor data indicates a breach in cold chain temperature limits.

## **15. Driver Delivery Alert**

Send an SMS to the logistics driver with the delivery window and warehouse gate instructions.

## **16. Generate Monthly Supply Chain Efficiency Report**

Create a comprehensive report summarizing lead time variances, stockout incidents, and supplier reliability.

## **17. Remove Expired Batch Records**

Delete entries from the 'Active Inventory' model for batches that have passed their expiration date and been moved to disposal.

## **End**

End of the Workflow/Process.