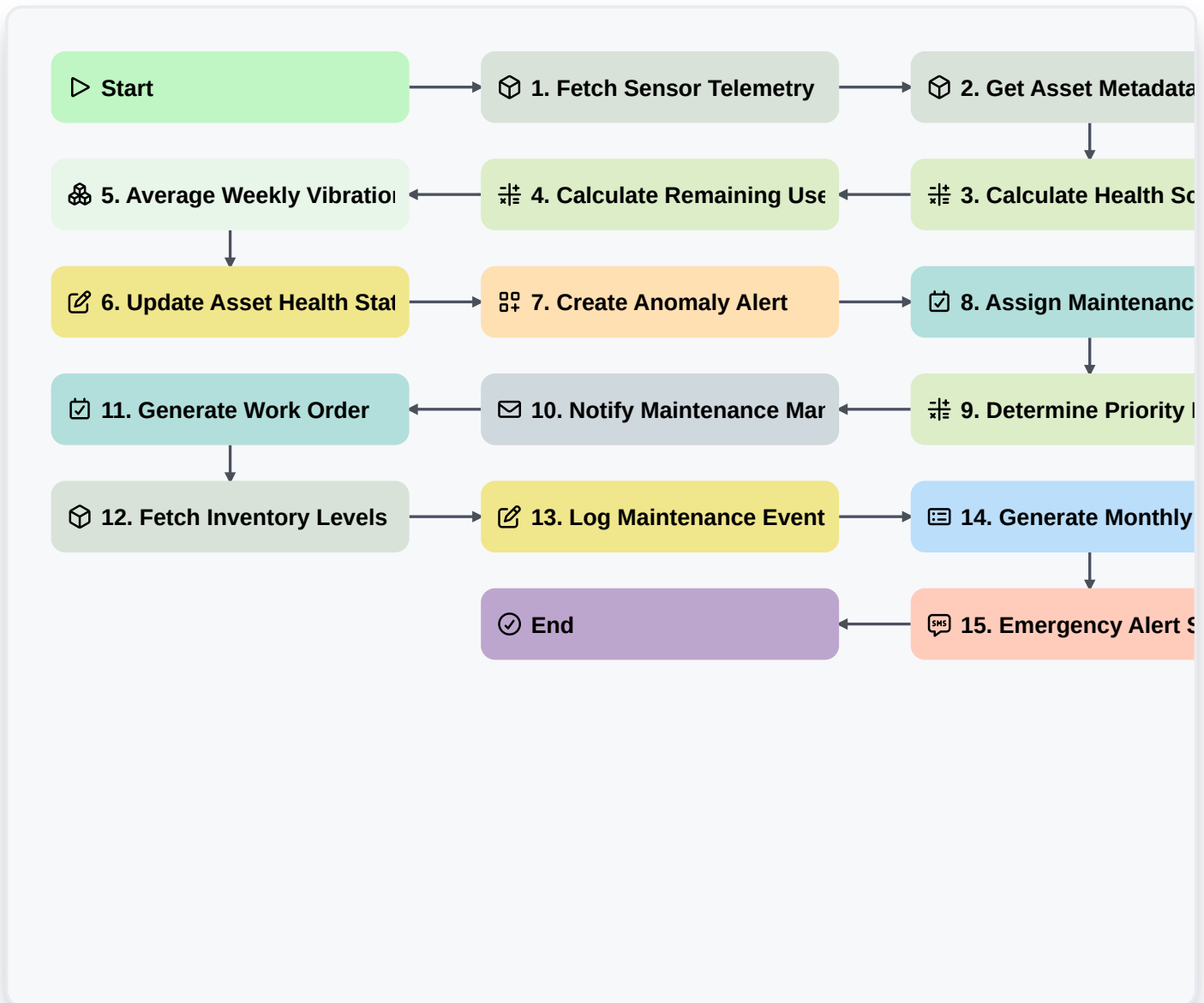


# Predictive Maintenance Monitoring Workflow



## ▷ Start

Start of the Workflow/Process.

## 📦 1. Fetch Sensor Telemetry

Retrieve the latest vibration, temperature, and pressure readings from the IoT sensor data model.

## 📦 2. Get Asset Metadata

Retrieve machine specifications, maintenance history, and threshold limits from the Equipment data model.

## 🔢 3. Calculate Health Score

Execute a formula comparing current sensor values against predefined threshold limits to determine the degradation percentage.

## 🔢 4. Calculate Remaining Useful Life (RUL)

Calculate the estimated time until failure based on the rate of change in sensor degradation.

## 🌀 5. Average Weekly Vibration

Aggregate the last 7 days of vibration data to identify upward trends in mechanical oscillation.

## 📝 6. Update Asset Health Status

Update the 'Current Condition' field in the Equipment data model based on the calculated health score.



## **7. Create Anomaly Alert**

Create a new entry in the Alerts data model when sensor values exceed safety thresholds.

## **8. Assign Maintenance Inspection**

Create a task for the Maintenance Technician to perform a physical inspection of the flagged asset.

## **9. Determine Priority Level**

Calculate task priority (Low, Medium, High, Critical) based on the RUL and the impact of asset failure.

## **10. Notify Maintenance Manager**

Send an email notification to the Maintenance Manager containing the anomaly details and the calculated risk level.

## **11. Generate Work Order**

Create a specific task for the Parts Department to check availability of replacement components.

## **12. Fetch Inventory Levels**

Retrieve stock levels for critical spare parts from the Inventory data model.

## **13. Log Maintenance Event**

Update the Maintenance Log entry to record that a predictive alert was triggered and an inspection was initiated.

## **14. Generate Monthly Health Report**

Create a summary report aggregating all detected anomalies and completed inspections for the monthly management review.

## **15. Emergency Alert SMS**

Send an urgent SMS to the On-Call Engineer if the health score drops below the critical threshold (e.g., < 10%).

## **End**

End of the Workflow/Process.