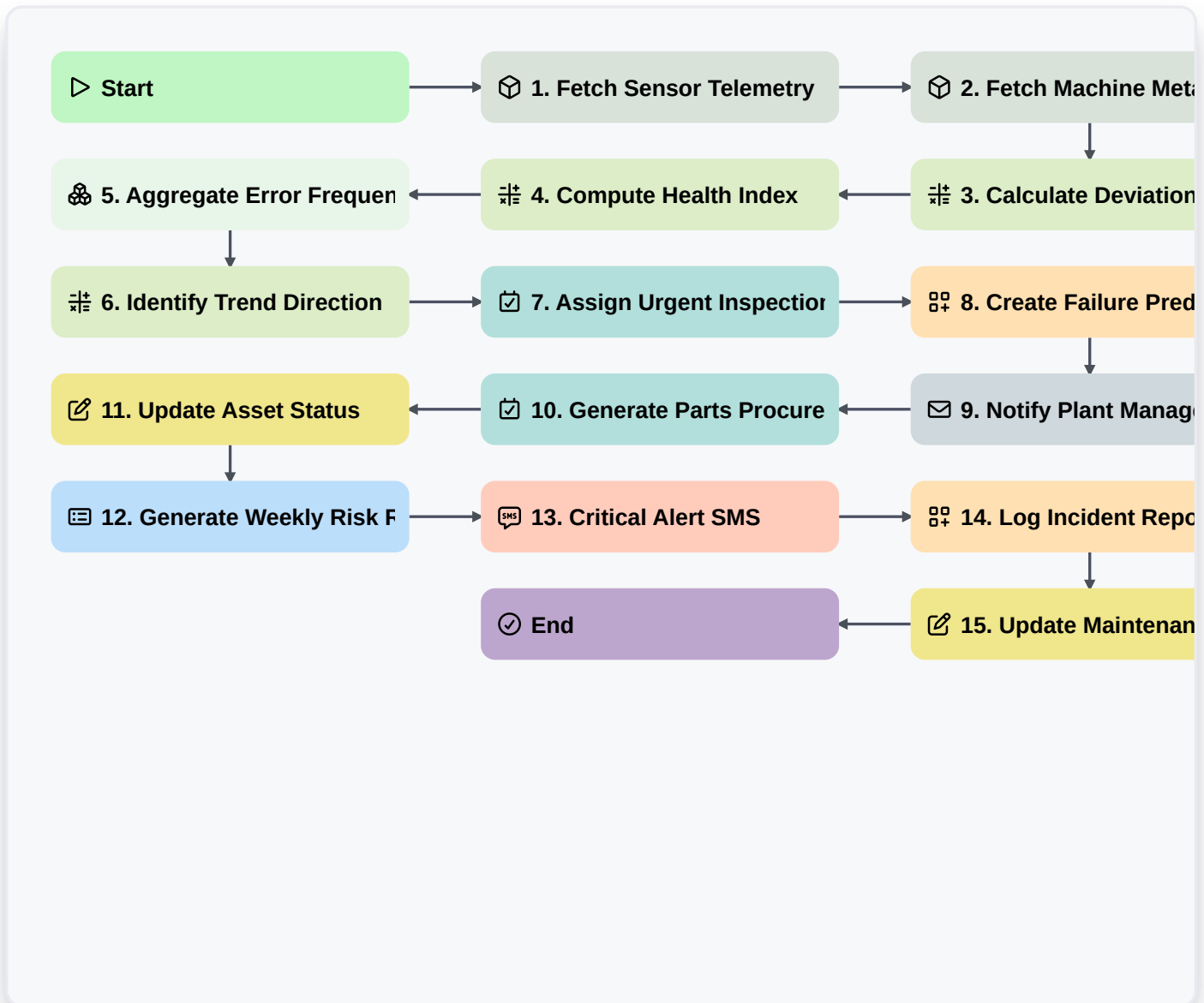


Predictive Failure Analysis Workflow



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. Fetch Machine Metadata

Retrieve operational thresholds and maintenance history for the specific asset being analyzed.

3. Calculate Deviation Score

Calculate the variance between current sensor readings and the predefined safety thresholds.

4. Compute Health Index

Execute a formula to derive a 0-100% health score based on aggregated degradation variables.

5. Aggregate Error Frequencies

Sum the total number of 'Warning' flags recorded in the last 24 hours from the Error Logs model.

6. Identify Trend Direction

Compare current aggregated values against historical averages to determine if the failure trend is accelerating.



7. Assign Urgent Inspection Task

Create a high-priority task for the Maintenance Engineer if the Health Index falls below 40%.

8. Create Failure Prediction Record

Create a new entry in the 'Predictions' data model containing the calculated risk score and predicted failure date.

9. Notify Plant Manager

Send an automated email alert to the Plant Manager containing the summary of the predicted failure.

10. Generate Parts Procurement Task

Create a task for the Logistics Team to check inventory for required replacement components.

11. Update Asset Status

Update the 'Current Status' field in the Asset Data Model to 'At Risk' or 'Under Inspection'.

12. Generate Weekly Risk Report

Generate a comprehensive report summarizing all predicted failures and maintenance costs for the week.

13. Critical Alert SMS

Send an SMS alert to the On-Call Technician if the deviation score exceeds the critical threshold.

14. Log Incident Report

Create an entry in the Incident Log model to document the triggering event of the prediction.

15. Update Maintenance Schedule

Update the next scheduled maintenance date in the Maintenance Plan model based on the new prediction.

End

End of the Workflow/Process.