

By Kiren

Python · SQL · n8n · Google Sheets

# Automated Daily Operations Monitoring Pipeline

## – The Problem



Daily operational data is scattered across multiple raw datasets



Manual reporting makes it easy to miss early warning signals



Business teams need simple daily insights, not raw tables

# The Solution

A fully automated pipeline that runs daily without manual intervention.

Raw Orders  
/ Items /  
Payments

Daily KPI  
Aggregation  
(Python)

Rolling  
Baseline  
Analysis

Anomaly  
Detection

Automated  
Daily  
Report  
(Google  
Sheets)

# Data Processing & KPIs



Aggregated order-level  
and item-level data into  
daily metrics



Key KPIs:

- Orders Count
- Revenue
- Canceled Orders
- Average Order Value (AOV)

Ensured continuous daily coverage for reliable trend analysis

# Anomaly Detection Logic

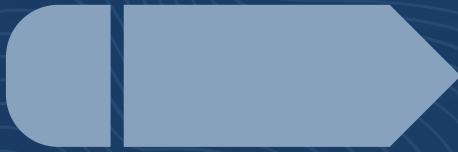


Rolling 7-day baseline (shifted to avoid data leakage)



Rule-based detection for:

- Revenue drops
- Order volume drops
- Cancellation spikes



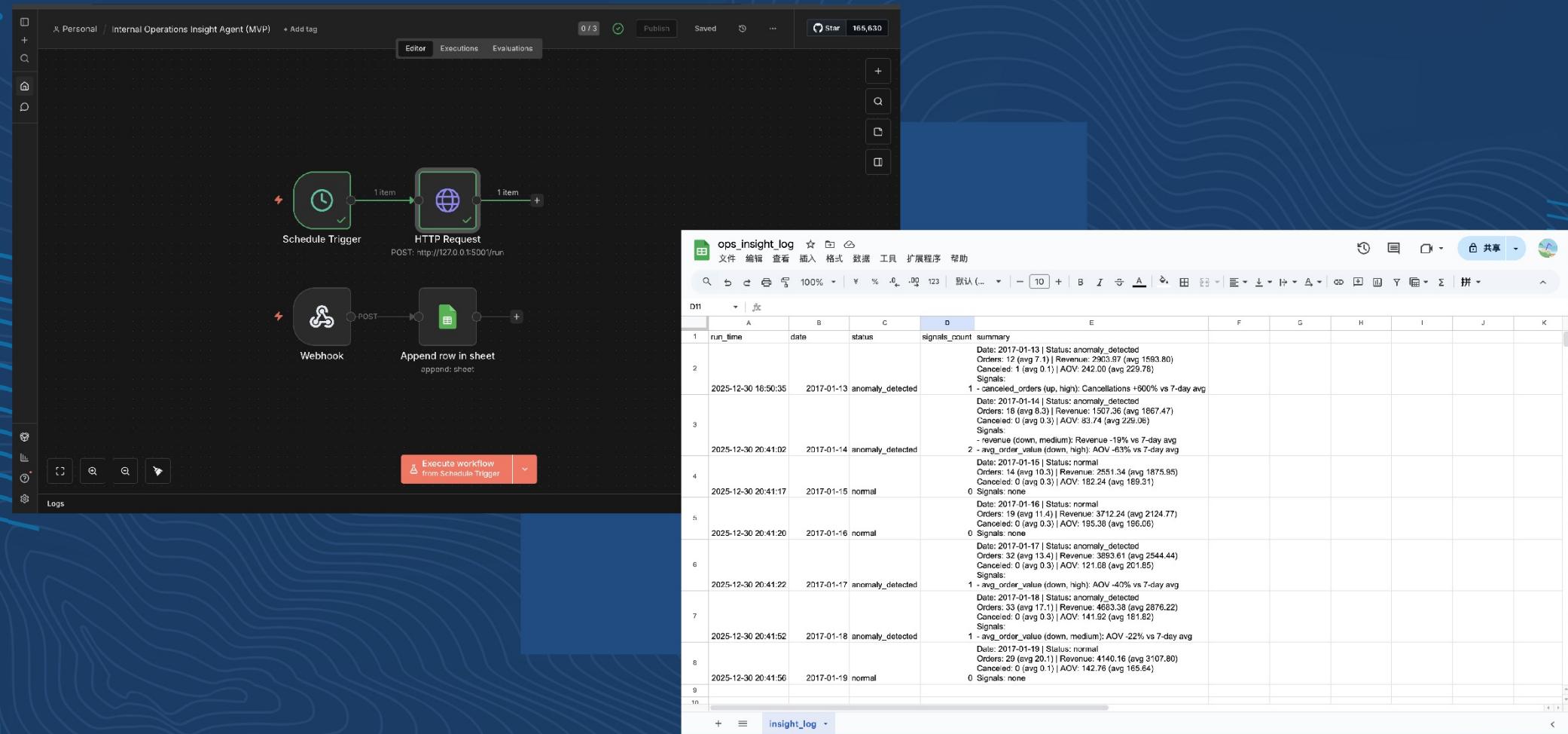
Each run produces a structured summary explaining the issue

## Automation & Scheduling

Schedule Trigger → Analysis Execution → Insight Delivery

- Daily scheduled execution (no manual runs)
- Automated reporting via Google Sheets
- Designed for hands-off monitoring by operations teams

# Sample Output



The image shows a screenshot of a workflow editor interface and its corresponding output in a spreadsheet application.

**Workflow Editor (Left):**

- The title bar shows "Personal / Internal Operations Insight Agent (MVP) + Add tag".
- The top navigation bar includes "Editor", "Executions", "Evaluations", "0 / 3", "Publish", "Saved", and a star icon with "165,630".
- The workflow consists of two main parallel paths:
  - Top path: "Schedule Trigger" (clock icon) → "HTTP Request" (globe icon, POST to `http://127.0.0.1:5001/run`) → "Append row in sheet" (document icon, "append: sheet").
  - Bottom path: "Webhook" (key icon) → "Append row in sheet" (document icon, "append: sheet").
- A button at the bottom left says "Execute workflow from Schedule Trigger".

**Output Spreadsheet (Right):**

The spreadsheet is titled "ops\_insight\_log". It has columns A, B, C, D, E, F, G, H, I, J, K. The data is as follows:

	A	B	C	D	E	F	G	H	I	J	K
1	run_time	date	status	signals_count	summary						
2	2025-12-30 16:50:35	2017-01-13	anomaly_detected		Date: 2017-01-13   Status: anomaly_detected Orders: 12 (avg 7.1)   Revenue: 2903.97 (avg 1593.80) Cancelled: 1 (avg 0.1)   AOV: 242.00 (avg 229.78) Signals: 1 - canceled_orders (up, high): Cancellations +600% vs 7-day avg						
3	2025-12-30 20:41:02	2017-01-14	anomaly_detected		Date: 2017-01-14   Status: anomaly_detected Orders: 18 (avg 8.3)   Revenue: 1507.36 (avg 1867.47) Cancelled: 0 (avg 0.3)   AOV: 83.74 (avg 228.06) Signals: - revenue (down, medium); Revenue -19% vs 7-day avg - avg_order_value (down, high); AOV -63% vs 7-day avg						
4	2025-12-30 20:41:17	2017-01-15	normal		Date: 2017-01-15   Status: normal Orders: 14 (avg 10.3)   Revenue: 2551.34 (avg 1875.95) Cancelled: 0 (avg 0.3)   AOV: 182.24 (avg 189.31) Signals: none						
5	2025-12-30 20:41:20	2017-01-16	normal		Date: 2017-01-16   Status: normal Orders: 19 (avg 11.4)   Revenue: 3712.24 (avg 2124.77) Cancelled: 0 (avg 0.3)   AOV: 195.38 (avg 186.06) Signals: none						
6	2025-12-30 20:41:22	2017-01-17	anomaly_detected		Date: 2017-01-17   Status: anomaly_detected Orders: 32 (avg 13.4)   Revenue: 3953.61 (avg 2544.44) Cancelled: 0 (avg 0.3)   AOV: 121.68 (avg 211.85) Signals: 1 - avg_order_value (down, high); AOV -40% vs 7-day avg						
7	2025-12-30 20:41:52	2017-01-18	anomaly_detected		Date: 2017-01-18   Status: anomaly_detected Orders: 33 (avg 17.1)   Revenue: 4683.38 (avg 2876.22) Cancelled: 0 (avg 0.3)   AOV: 141.92 (avg 181.82) Signals: none						
8	2025-12-30 20:41:56	2017-01-19	normal		Date: 2017-01-19   Status: normal Orders: 29 (avg 20.1)   Revenue: 4140.16 (avg 3107.80) Cancelled: 0 (avg 0.1)   AOV: 142.76 (avg 185.64) Signals: none						