Pharmacy Inventory & Sales Analytics

Power BI • DAX • Star Schema • Inventory Operations (Synthetic Dataset)

Overview

A portfolio project demonstrating end-to-end BI delivery for a retail pharmacy scenario: data preparation, star-schema modelling, KPI definition, and interactive dashboards for sales performance and stockout risk.

Business goals

- Provide an executive view of sales and profitability by store and time period.
- Monitor stockout risk and identify trends (is it improving or deteriorating?).
- Identify a small set of SKUs driving most stockout days to prioritise replenishment actions.

Tools & skills demonstrated

- Power BI Desktop (Power Query, modelling, visuals)
- DAX measures (profitability KPIs, rolling average)
- Star schema / dimensional modelling (dim_date, dim_store, dim_product, dim_supplier)
- Operational analytics: inventory snapshot + stockout driver analysis

Dashboards

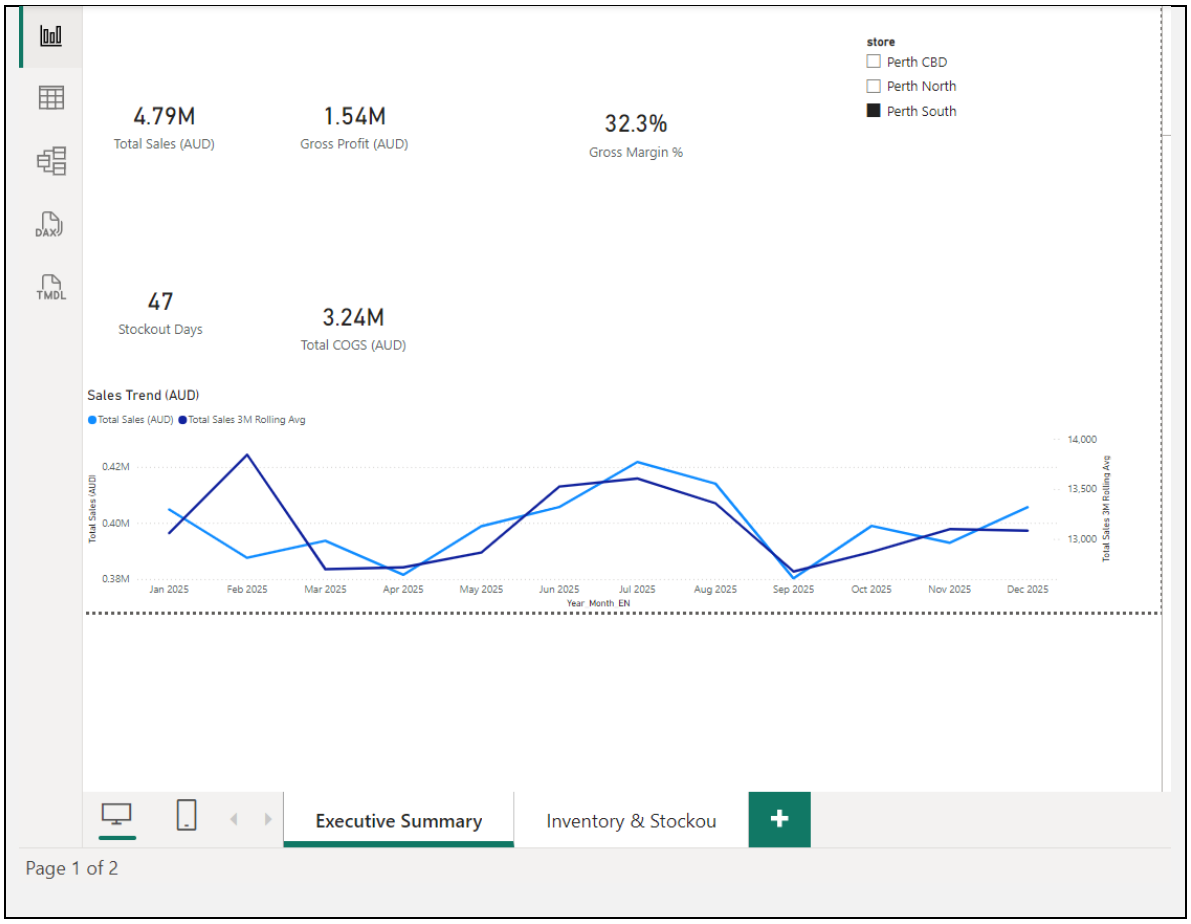
Page 1 — Executive Summary:

- • KPI cards: Total Sales, Total COGS, Gross Profit, Gross Margin %, Stockout Days
- • Monthly sales trend + 3-month rolling average (secondary axis for readability)
- • Store slicer for quick segmentation

Screenshot: Executive Summary page

PASTE SCREENSHOT HERE

(Export from Power BI as PDF/PNG and paste)



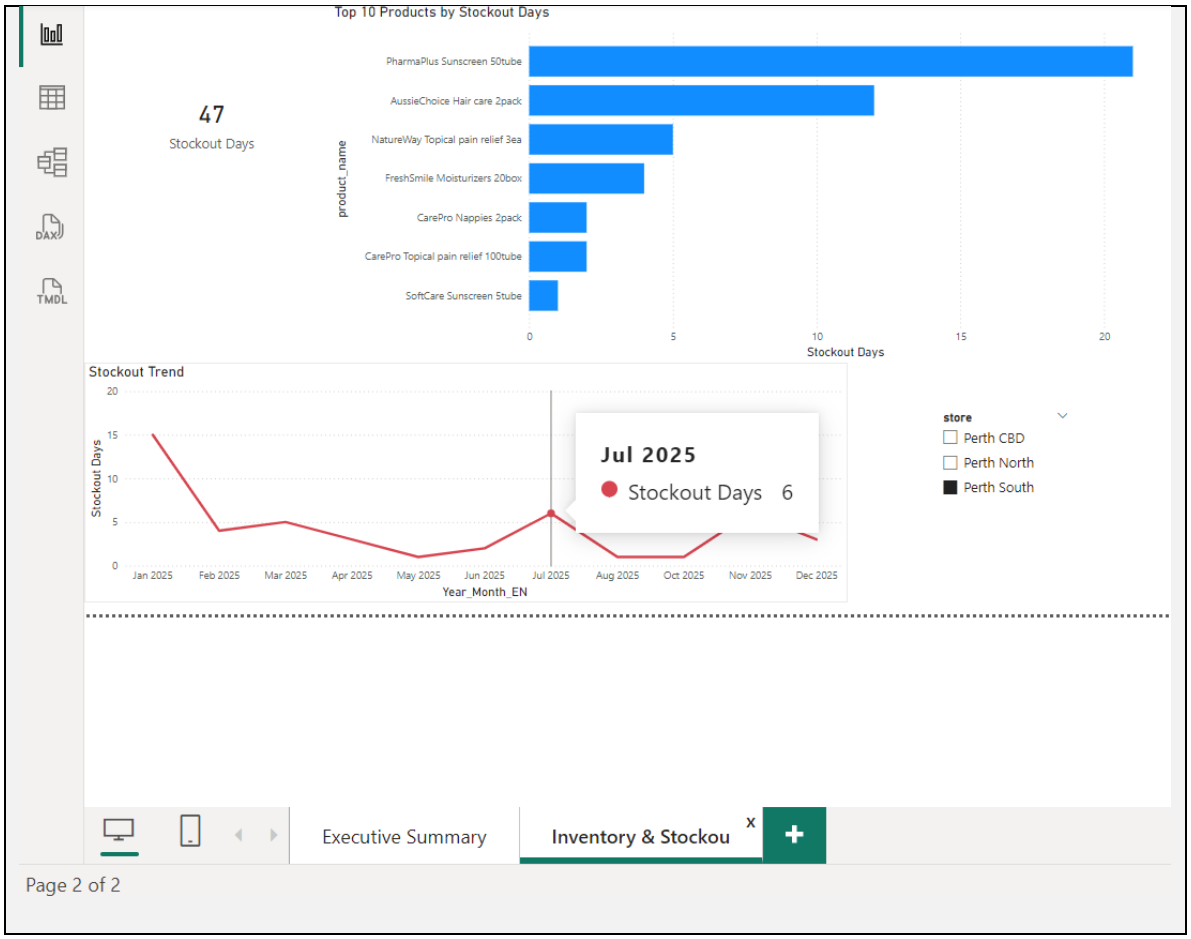
Page 2 — Inventory & Stockout:

- • Stockout Days KPI + monthly trend
- • Top 10 products by Stockout Days (Top-N filter + descending sort)
- • Store slicer for store-specific investigation

Screenshot: Inventory & Stockout page

PASTE SCREENSHOT HERE

(Export from Power BI as PDF/PNG and paste)


Top 10 Products by Stockout Days
47
Stockout Days
PharmaPlus Sunscreen 50tube
AussieChoice Hair care 2pack
NatureWay Topical pain relief 3ea
FreshSmile Moisturizers 20box
CarePro Nappies 2pack
CarePro Topical pain relief 100tube
SoftCare Sunscreen 5tube
product_name
0
5
10
15
20
Stockout Days
Stockout Trend
20
15
10
5
0
Stockout Days
Jan 2025
Feb 2025
Mar 2025
Apr 2025
May 2025
Jun 2025
Jul 2025
Aug 2025
Oct 2025
Nov 2025
Dec 2025
Year_Month_EN
Jul 2025
Stockout Days 6
store
Perth CBD
Perth North
Perth South
DAX
TMDL
Executive Summary
Inventory & Stockou

Data model & tables

Synthetic dataset (safe to share publicly). Table row counts:

Table	Type	Grain / description	Rows
dim_date	Dimension	Calendar (daily) incl. Year/Month/Weekend flags	365
dim_store	Dimension	Stores (Perth CBD / North / South)	3
dim_product	Dimension	Products incl. category, supplier mapping	180
dim_supplier	Dimension	Suppliers	20
fact_sales	Fact	Daily sales at store-product level	152,509
fact_inventory_snapshot	Fact	Daily on-hand/on-order snapshot at store-product level	197,100
fact_purchase_orders	Fact	Purchase orders (PO) lines	4,875
fact_goods_receipts	Fact	Goods receipt lines (GR)	4,875
fact_invoices	Fact	Invoice headers	4,316
fact_invoice_lines	Fact	Invoice lines	4,875
fact_invoice_processing	Fact	Invoice processing KPI (daily)	1,095

Key measures (DAX)

Measure	Definition (high-level)	Business meaning
Total Sales (AUD)	SUM(fact_sales[net_sales_aud])	Revenue size
Total COGS (AUD)	SUM(fact_sales[cogs_aud])	Cost to serve
Gross Profit (AUD)	[Total Sales] - [Total COGS]	Profit in dollars
Gross Margin %	DIVIDE([Gross Profit], [Total Sales])	Profit efficiency
Stockout Days	COUNTROWS(FILTER(fact_inventory_snapshot, on_hand_units = 0))	Stockout risk indicator
Total Sales 3M Rolling Avg	AVERAGEX(DATESINPERIOD(dim_date[date], MAX(dim_date[date]), -3, MONTH), [Total Sales])	Trend smoothing

Example insights you can discuss in interviews

- Stockout days are concentrated in a small number of SKUs → targeted replenishment can reduce overall risk.

- Stockout trend shows periods of improvement followed by a rise towards year-end → investigate lead time, seasonal demand, and reorder points.
- Use store slicer to check whether stockouts are SKU-driven or store-specific.

How to share (recommended)

- Attach a 1–2 page PDF case study + screenshots when requested (safe, recruiter-friendly).
- Host screenshots + README on GitHub; keep PBIX private or provide upon request.
- Always confirm you are using synthetic data (no employer data).

Last updated: 2026-02-08