

car-inventory-dashboard

Excel data modelling project with Fact/Dim schema and interactive dashboard.

****Car Inventory Dashboard (Excel + Tableau)****

Overview

This project analyzes a fictional car inventory dataset using a Fact/Dimension star schema, Excel-based data modelling, and an interactive Tableau dashboard.

The goal is to demonstrate skills in data cleaning, modelling, KPI creation, and visual analytics.

The final dashboard allows users to explore:

- Mileage patterns
- Warranty risk
- Driver behaviour
- Car age distribution
- Make/Model performance

Data Model (Star Schema)

The dataset was modelled using a Fact table and multiple Dimension tables:

...

DimDriver

|

DriverKey

|

DimCar CarKey FactCarInventory MakeModelKey DimMakeModel

|

WarrantyKey

|
DimWarranty

...

****Fact Table****

FactCarInventory

- CarKey
- DriverKey
- MakeModelKey
- WarrantyKey
- Age
- Miles
- MilesPerYear
- WarrantyRisk (calculated)

****Dimension Tables****

- DimDriver - Driver details
- DimMakeModel - Make & model attributes
- DimWarranty - Warranty limits
- DimCar - Car metadata

Key Calculations

****Miles Per Year****

Miles / Age

****Warranty Risk****

IF Miles > WarrantyMiles THEN "Exceeded" ELSE "WithinLimit"

- Total Cars
- Average Miles
- % Exceeding Warranty
- Oldest Car Age

****Dashboard Features (Tableau)****

The interactive Tableau dashboard includes:

1. Miles by Driver

- Horizontal bar chart ranking drivers by total mileage.

2. Warranty Risk

- Pie chart showing the proportion of cars exceeding warranty limits.

3. Car Age Distribution

- Column chart showing how many cars fall into each age group.

4. Average Miles by Make

- Bar chart comparing average mileage across manufacturers.

5. Interactive Filters

- Users can filter the entire dashboard by:
 - Driver
 - Make
 - Model
 - Warranty Status
 - Age

Tools Used

- Excel
- Power Query

- XLOOKUP
- Fact/Dim modelling
- PivotTables
- Tableau
- Relationships
- Filters
- Dashboard design
- GitHub
- Project documentation

****Screenshots:****

- /screenshots/Dashboard.png
- /screenshots/AvgMilesbyMake.png
- /screenshots/FiltersinAction.png

Insights

- Chrysler vehicles show the highest average mileage.
- Most cars remain within warranty limits, but a notable minority exceed them.
- Driver "Smith" has the highest total mileage.
- Car ages cluster between 10-20 years, with a few older outliers.

****What I Learned****

- How to design a clean star schema for analysis
- How to enrich fact tables using XLOOKUP
- How to build interactive dashboards in Tableau
- How to communicate insights visually
- How to structure a project for portfolio and GitHub

****Repository Structure****

Code

Car_Inventory_Dashboard.xlsx

screenshots/

Dashboard.png

AvgMilesbyMake.png

FiltersinAction.png

Dash1.twb (tableau workbook)

README.md