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# car-inventory-dashboard
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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