Lesson 23

Topic: Power BI Final Dashboard Project – Car Sales Dashboard Requirements

Objective: Design and build a fully interactive and professional Power BI Dashboard to analyze the performance of car sales based on the provided dataset. This project should demonstrate mastery of Power BI Desktop features, including data modeling, transformation, DAX, and dashboard design.

1. Key Performance Indicators (KPIs)

- **Total Sales Revenue:**
  Total Revenue = SUM(CarSales[sellingprice])
- **Total Cars Sold:**
  Total Cars Sold = COUNT(CarSales[VIN])
- **Average Selling Price:**
  Avg Selling Price = AVERAGE(CarSales[sellingprice])
- **Average Car Condition:**
  Avg Condition = AVERAGE(CarSales[condition])
- **Average Odometer Reading:**
  Avg Odometer = AVERAGE(CarSales[odometer])
- **% Difference (Selling Price vs MMR):**
  MMR Difference % = DIVIDE(CarSales[sellingprice] - CarSales[mmr], CarSales[mmr])

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2. Advanced DAX Measures

- **% Above MMR Price:**
  Above MMR % = DIVIDE(COUNTROWS(FILTER(CarSales, CarSales[sellingprice] > CarSales[mmr])), COUNTROWS(CarSales))
- **Avg Selling Price by Make:**
  Avg Price by Make = AVERAGEX(VALUES(CarSales[make]), [Avg Selling Price])
- **Sales Trend by Month/Year:**
  Use a line chart with SUM(CarSales[sellingprice]) and the saledate field in a proper date hierarchy (Year, Month).
- **Top 5 Car Brands by Sales Volume:**
  Create a measure:
  Sales Volume = COUNT(CarSales[VIN])
  Then use a visual-level filter or RANKX to display only top 5 makes.

- **Avg Condition by Body Type:**
  Avg Condition by Body = AVERAGEX(VALUES(CarSales[body]), [Avg Condition])
- **Sales by Transmission Type:**
  Sales by Transmission = CALCULATE([Total Revenue], VALUES(CarSales[transmission]))
- **Price Deviation from MMR:**
  Price Deviation = CarSales[sellingprice] - CarSales[mmr]

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3. Time Intelligence

- **Extract Year, Month Name, Quarter:**
  Create calculated columns:

DAX

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Sale Year = YEAR(CarSales[saledate])

Sale Month = FORMAT(CarSales[saledate], "MMMM")

Sale Quarter = "Q" & FORMAT(CarSales[saledate], "Q")

- **Monthly Sales Trend Visual:**
  Use a line chart with saledate (Month hierarchy) and SUM(sellingprice).
- **Date Slicer:**
  Add saledate as a slicer to filter the whole dashboard.

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4. Add Interactivity with Slicers

Add slicers for these fields:

- make
- model
- year
- body
- transmission
- color
- state
- seller

Enable **sync slicers** across pages if needed.

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5. Visuals to Include

Visual Type	Description
Line Chart	Sales trend by Month or Quarter
Bar Chart	Top car brands by number of sales
Pie / Donut Chart	Distribution by body or transmission
Table / Matrix	Breakdown by make and model, include KPIs
Map	Sales distribution by state
KPI Tiles	Show Total Revenue, Total Units Sold, Avg Price, etc
Decomposition Tree	Drill-down: make → model → year
Treemap	Seller-wise total revenue contribution

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6. Interactivity Features

- **Drillthrough:** Enable drillthrough from make to model-level detail page.
- **Tooltips:** Add selling price, odometer, and condition as tooltip fields.
- **Cross-filtering:** Turn on for all visuals for responsive interactivity.

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7. Data Modeling & Transformations

- **Clean Missing Values:**
  Filter out rows where make, model, or sellingprice is blank.
- **Calculated Columns:**

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Sale Month = FORMAT(CarSales[saledate], "MMMM")

Price Category =

SWITCH(

```
  TRUE(),
  CarSales[sellingprice] < 10000, "Low",
  CarSales[sellingprice] < 20000, "Medium",
  "High"
)
```

- **Calculated Tables:**
  Optional, for ranking top models or creating dynamic lookup tables.

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8. Export & Sharing Features

- **Bookmarks:** Set bookmarks for Brand View, Model View, etc.
- **Report Page Tooltips:** Design tooltip pages for showing extra info.
- **Navigation:** Use buttons to navigate between report pages.
- **Design Polish:** Apply professional themes, consistent fonts, and section titles.

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9. Bonus (Optional)

- **What-If Parameter for MMR Margin:**
  Create a parameter for ±5%, ±10% and use it to adjust thresholds dynamically.
- **RANKX for Best-Selling Models:**

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Model Rank =
RANKX(
  ALL(CarSales[model]),
  CALCULATE(COUNT(CarSales[VIN])),
  ,
  DESC
)
```

- **Classification Based on Price vs MMR:**

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```
Price Status =
SWITCH(
  TRUE(),
  CarSales[sellingprice] > CarSales[mmr]*1.1, "Overpriced",
  CarSales[sellingprice] < CarSales[mmr]*0.9, "Underpriced",
  "Fair"
)
```