



Car Sales Performance & Customer Insights Analysis

Portfolio Project Report

Tools Used: Excel • SQL • Power BI

Project Overview

The Challenge

Analyzing mid-sized automotive dealership performance using three integrated datasets: Cars, Customers, and Sales.

End-to-end analytics: Excel for cleaning, SQL for querying, Power BI for visualization.

The Goal

Understand sales drivers, identify key customer segments, and determine top revenue-generating models.



Project Objectives

01

Clean & Prepare

Ensure datasets are accurate and analysis-ready

02

Explore Trends

Analyze sales performance and revenue drivers

03

Profile Customers

Segment by demographics and purchase behavior

04

Evaluate Inventory

Assess stock status and sales impact

05

Build Dashboard

Create actionable Power BI visualizations

Data Sources



Cars.csv

- Car ID, brand, model, year
- Engine type, transmission
- Price, quantity in stock
- Status (available, reserved, sold)



Customers.csv

- Customer ID, name, gender
- Age, phone, email
- City



Sales.csv

- Sale ID, sale date
- Customer ID, car ID
- Quantity, sale price
- Salesperson, payment method

Datasets sourced from Kaggle under Apache 2.0 License



Data Cleaning Process



Remove Duplicates

Ensured unique entries across all three datasets



Correct Data Types

Converted prices to numeric, dates to proper format, age to integer



Validate Relationships

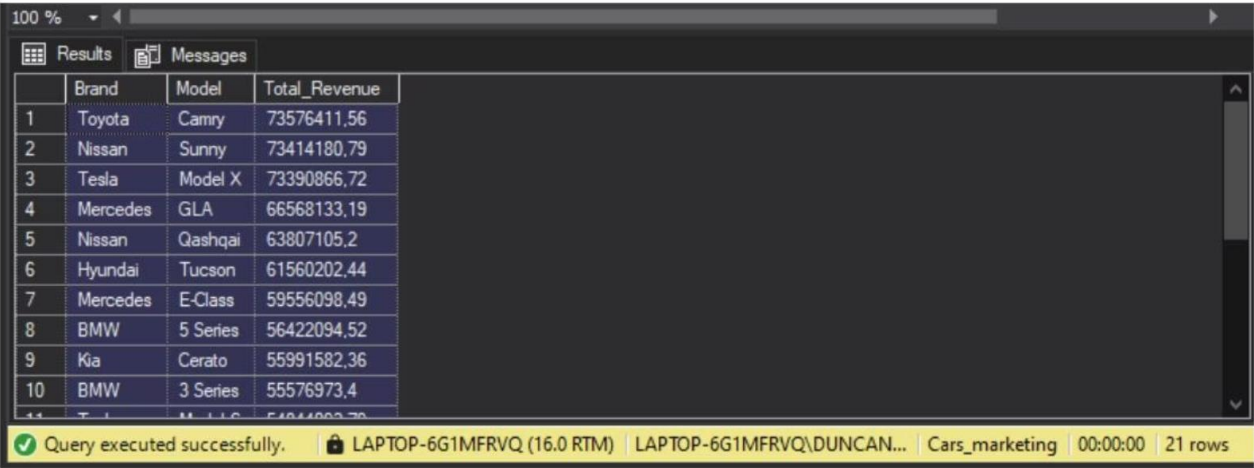
Verified Car_ID and Customer_ID integrity across tables

Result: Clean, consistent, analysis-ready dataset

SQL Analysis: Key Queries

Revenue Drivers

- Top car models by total revenue
- Average sale price per model
- Month-by-month revenue trends



A screenshot of a SQL query results window. The window has a title bar with '100 %' and a toolbar with 'Results' and 'Messages' tabs. The 'Results' tab is active, showing a table with 4 columns: an index, 'Brand', 'Model', and 'Total_Revenue'. The table contains 10 rows of data. The status bar at the bottom shows a green checkmark, 'Query executed successfully.', a lock icon, the file path 'LAPTOP-6G1MFRVQ (16.0 RTM) | LAPTOP-6G1MFRVQ\DUNCAN...', the database name 'Cars_marketing', the execution time '00:00:00', and '21 rows'.

	Brand	Model	Total_Revenue
1	Toyota	Camry	73576411,56
2	Nissan	Sunny	73414180,79
3	Tesla	Model X	73390866,72
4	Mercedes	GLA	66568133,19
5	Nissan	Qashqai	63807105,2
6	Hyundai	Tucson	61560202,44
7	Mercedes	E-Class	59556098,49
8	BMW	5 Series	56422094,52
9	Kia	Cerato	55991582,36
10	BMW	3 Series	55576973,4

Customer Behavior

- Revenue by age group
- Preferred payment methods
- Geographic sales distribution



A screenshot of a SQL query results window. The window has a title bar with '100 %' and a toolbar with 'Results' and 'Messages' tabs. The 'Results' tab is active, showing a table with 2 columns: 'Payment_Method' and 'Number_of_Sales'. The table contains 3 rows of data. The status bar at the bottom shows a green checkmark, 'Query executed successfully.', a lock icon, the file path 'LAPTOP-6G1MFRVQ (16.0 RTM) | LAPTOP-6G1MFRVQ\DUNCAN...', the database name 'Cars_marketing', the execution time '00:00:07', and '3 rows'.

	Payment_Method	Number_of_Sales
1	Installment	3395
2	Cash	3354
3	Credit	3251

Power BI Dashboard

Sales Performance

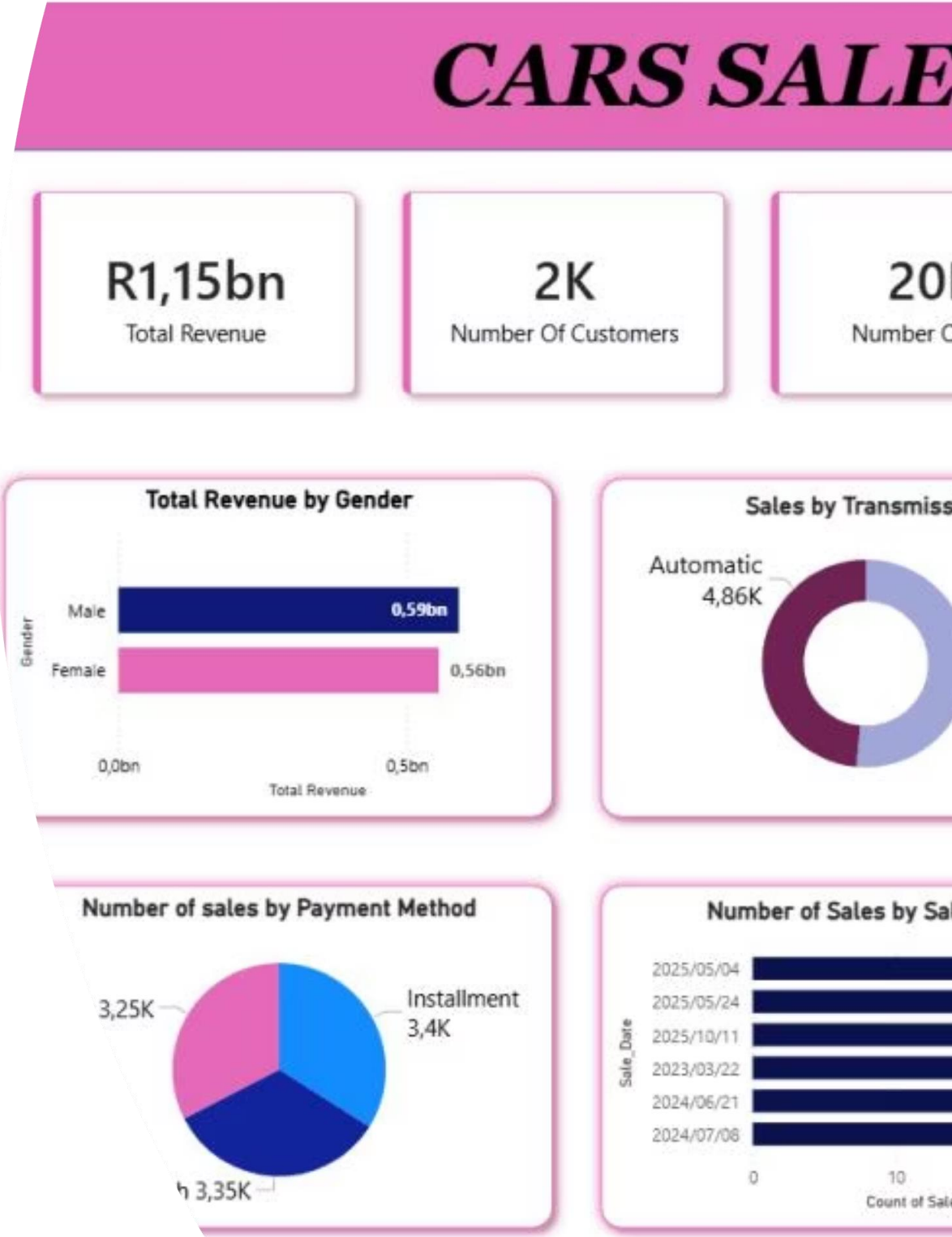
Revenue by salesperson, units by brand, payment methods, engine type analysis

Customer Insights

Revenue by age group, city mapping, gender spending, demographic slicers

Inventory Analysis

Stock by brand, slow-moving inventory identification



Key Findings



Top Performers

Tesla and Mercedes lead revenue, driven by Model X and GLA sales



Customer Profile

Customers over 51 are largest segment, contributing most revenue



Inventory Issues

High stock but low sales on certain models indicates over-ordering



Seasonal Trends

Sales peak July-October, showing clear seasonal demand patterns



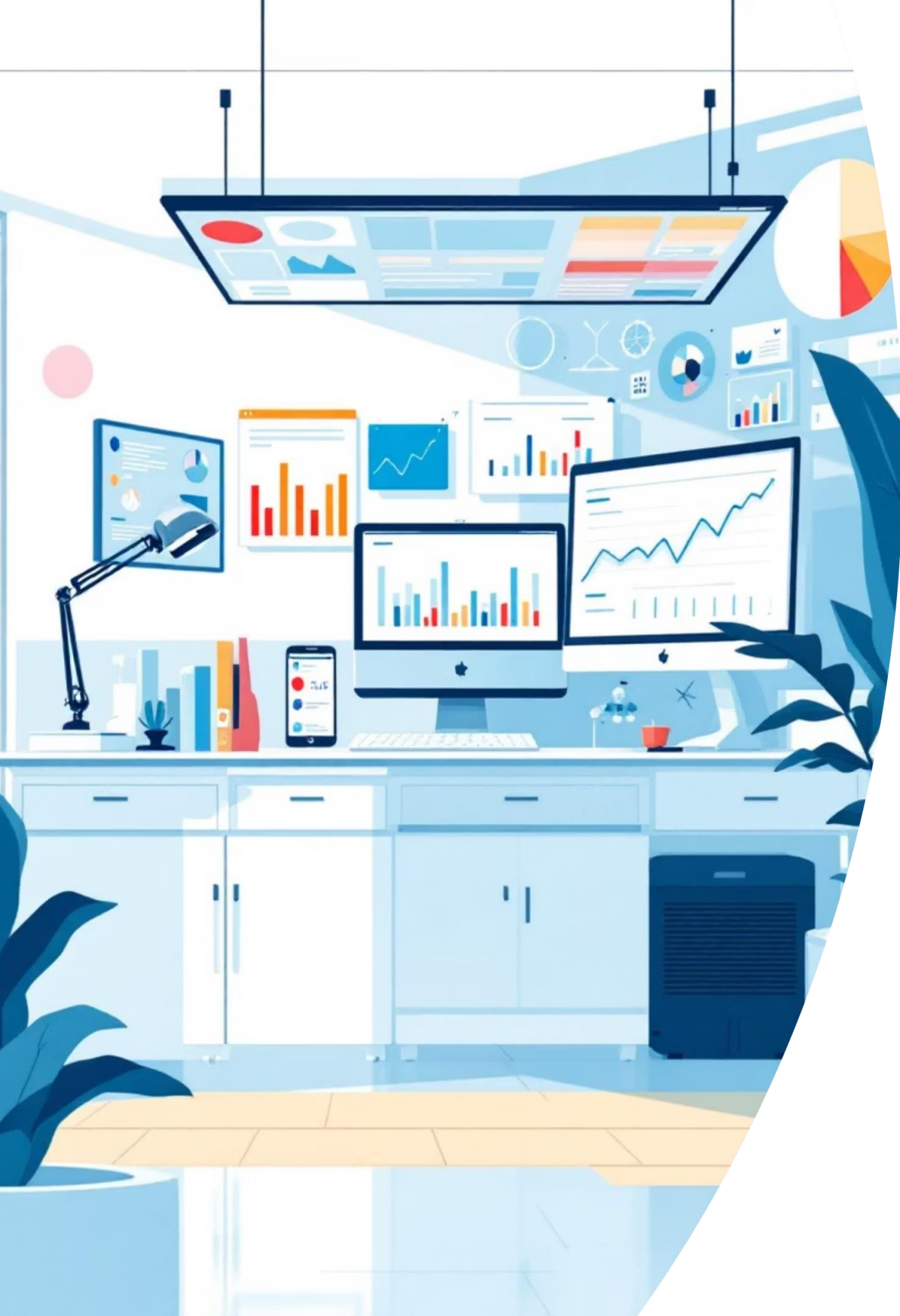
Payment Preference

Installment plans dominate, highlighting importance of financing



Sales Team

Top salespeople consistently outperform, driving disproportionate revenue



Technical Toolkit

1

Excel

Data cleaning, labeling, validation, preparation

2

SQL

Analytical queries, exploration, integrity checks

3

Power BI

Dashboard building, modeling, DAX measures, storytelling

Demonstrated Capabilities



Data Transformation

Clean and transform complex datasets efficiently



SQL Expertise

Write efficient analytical queries



Visualization

Build interactive Power BI dashboards



Communication

Communicate insights clearly and visually



Business Acumen

Combine business understanding with technical skill

End-to-end analytical capabilities for data analytics, business intelligence, and data science roles