Data Analytics Portfolio

Tamer Nas
Data Analyst

My Contacts

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Tableau

LinkedIn

GitHub

About The Data Analyst

Data analyst with a background in

sales,
marketing,
business development,
account management.

Skilled in successful business decisions by:

analyzing and drawing connections between different data sets,
identifying trends,
using key insights to turn challenges into solutions.

Improve company decision-making through comprehensive reporting and data visualizations that forecast business needs based on current business sales statistics and projected growth.

Projects

1. GameCo

Video game global sales analyses and forecasting

2. Preparing for Influenza Season

Analyses and forecasting for medical personnel and supplies for the upcoming influenza season

3. Rockbuster Stealth

Analyses for business development with online video rental system to stay competitive

4. Instacart

Analyses for marketing strategy of an online grocery store to increase sales

5. Pig E.Bank

Data mining and analysis for customer attrition for a global bank

6. German Automotive Price and Efficiency

Observing the correlations within petrol, diesel, hybrid, and electric vehicles

TOOLS

Preparing for Influenza Season ✚

To help a medical staffing agency that provides temporary workers to clinics and hospitals on an as-needed basis. The analysis will help plan for influenza season, a time when additional staff are in high demand. The final results will examine trends in influenza and how they can be used to proactively plan for staffing needs across the country.

OBJECTIVES

- Finding the age groups that are at high risk
- Finding the seasonality of influenza
- Finding the states that occurs the most number of deaths

DATA

1. Influenza deaths by geography
Source: CDC
2. Population data by geography, time, age, and gender
Source: US Census Bureau
3. Counts of influenza laboratory test results by state (survey)
Source: CDC (Fluview)
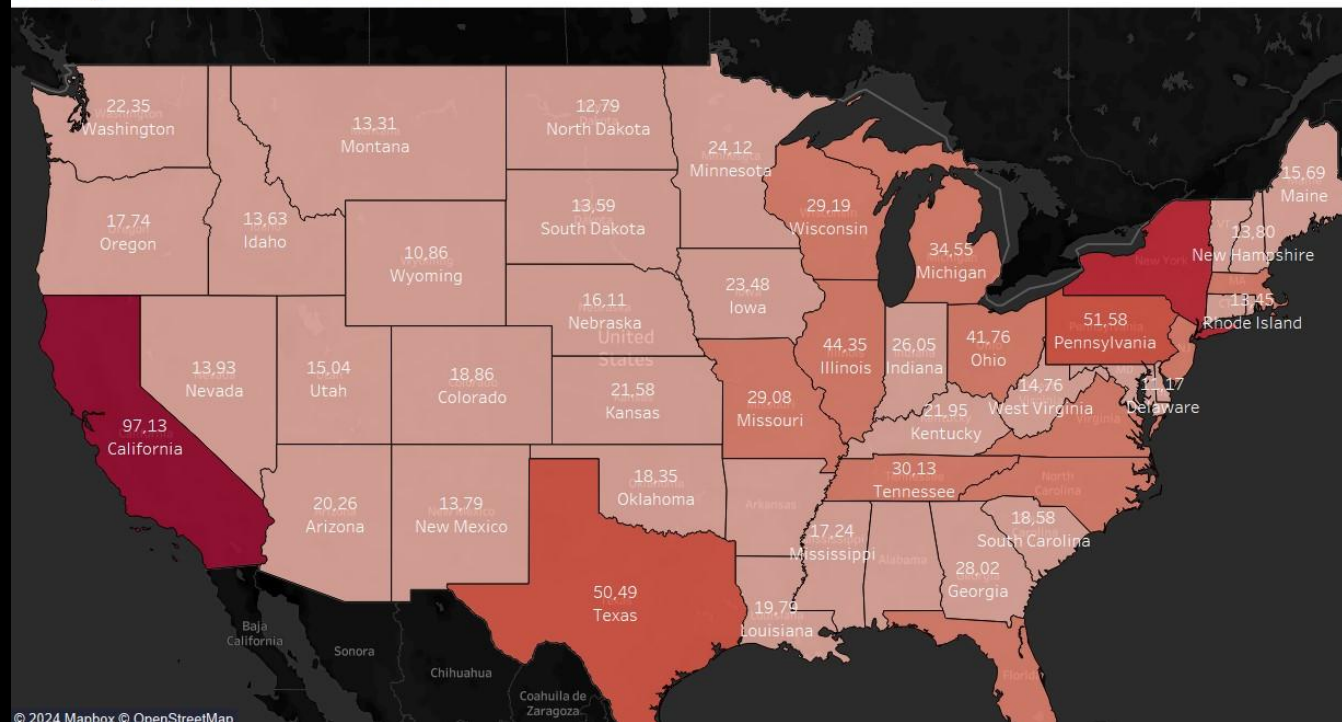4. Survey of flu shot rates in children
Source: CDC

METHODS & TOOLS

- Excel
- Tableau
- Translating business requirements
- Data cleaning
- Data integration
- Data transformation
- Statistical hypothesis testing
- Visual analysis
- Forecasting
- Presenting results to an audience

ANALYSES ⚛

Geographical Analysis

States Average Deaths

Tableau story link Influenza Shield
Video Link for Presentation Influenza Shield Presentation

ANALYSES ⚛

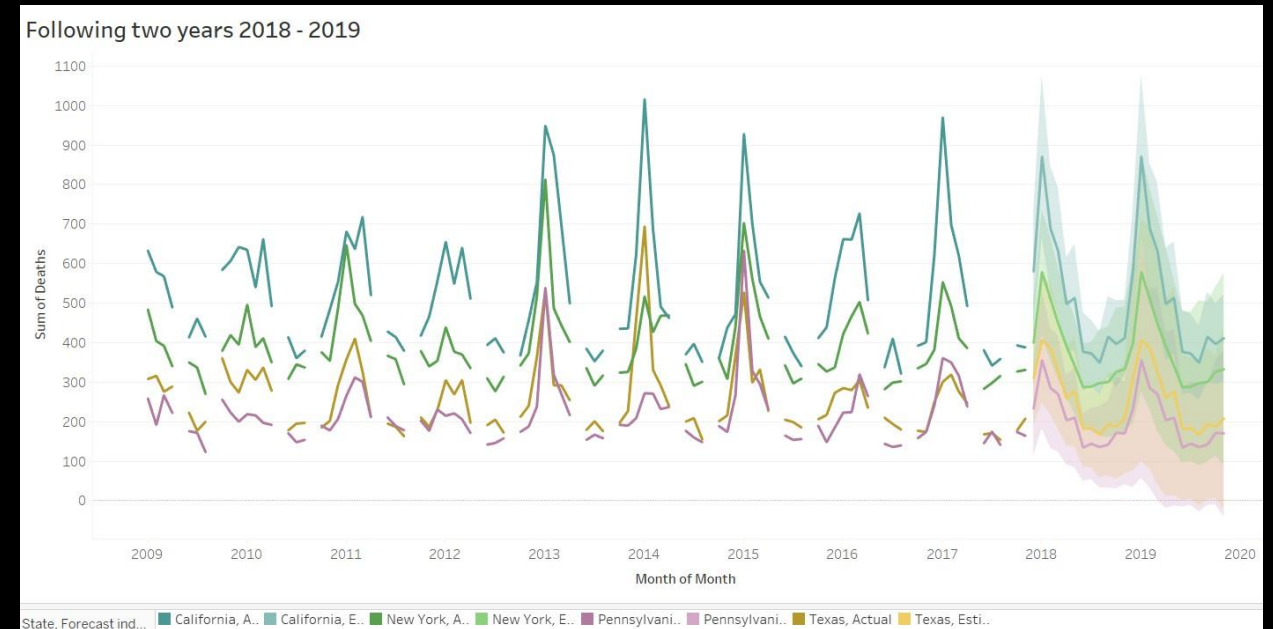**High Risk Age Groups**
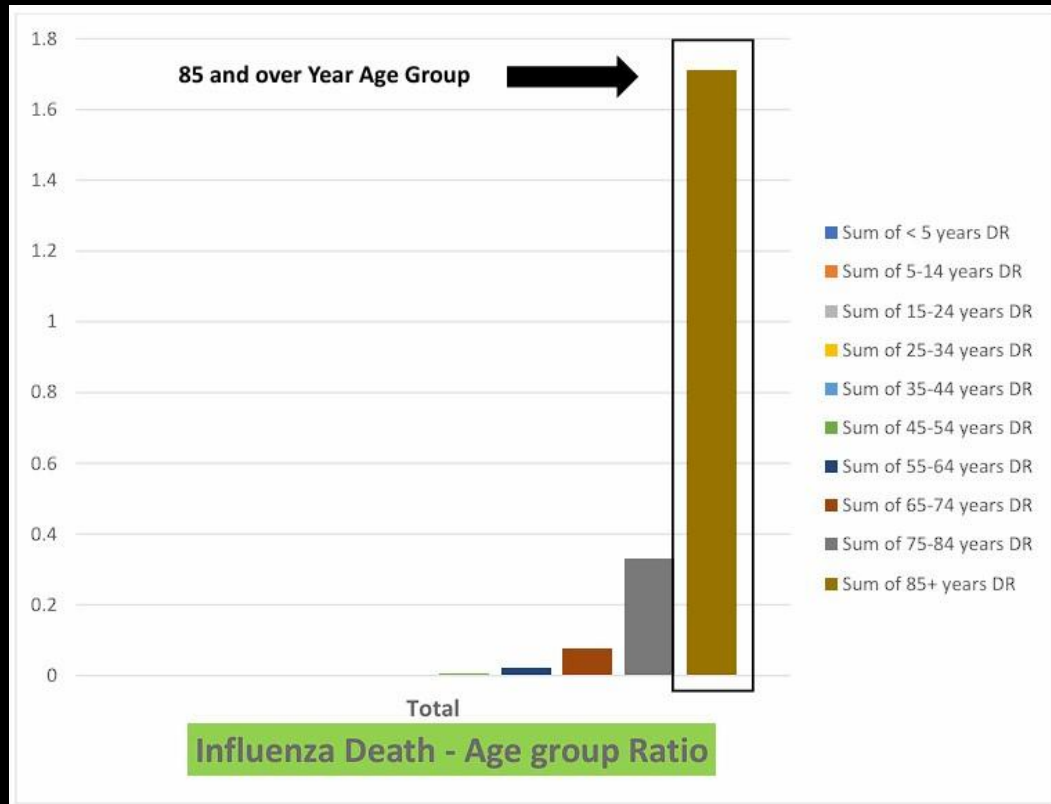
Forecasting for upcoming 2 years

Tableau story link Influenza Shield
Video Link for Presentation Influenza Shield Presentation

INSIGHTS & RECOMMENDATIONS 📊

- Influenza deaths highlights the importance of prioritizing medical staff deployment to states with the highest flu mortality rates during flu season.

- 85 year and older age group population are the highest at risk.

- The highest deaths occurred in California, New York, Pennsylvania and Texas.

- Therefore, deploying our medical supplies and personnel accordingly to these states, before the influenza season (starting in October and ending in May with the peak in the months of January and February) will get us a chance to manage this crisis better, and may help us to reduce the influenza deaths.

Instacart Grocery Basket 🛒

This project involves an initial data exploration and analysis of Instacart's sales data, aimed at uncovering deeper insights into sales patterns.

OBJECTIVES

The objective is to identify actionable strategies for improved customer segmentation, contributing to more targeted marketing efforts and enhanced operational efficiency.

DATA

Open-source datasets from Instacart, along with a custom customer dataset created specifically for this analysis.

Each dataset contains distinct types of information but includes a common identifier to facilitate integration and analysis.

METHODS & TOOLS

- Python
- Data wrangling
- Data merging
- Deriving variables
- Grouping data
- Aggregating data
- Reporting in Excel
- Population flows

ANALYSES ⚛

Population Flow

ANALYSES ⚛

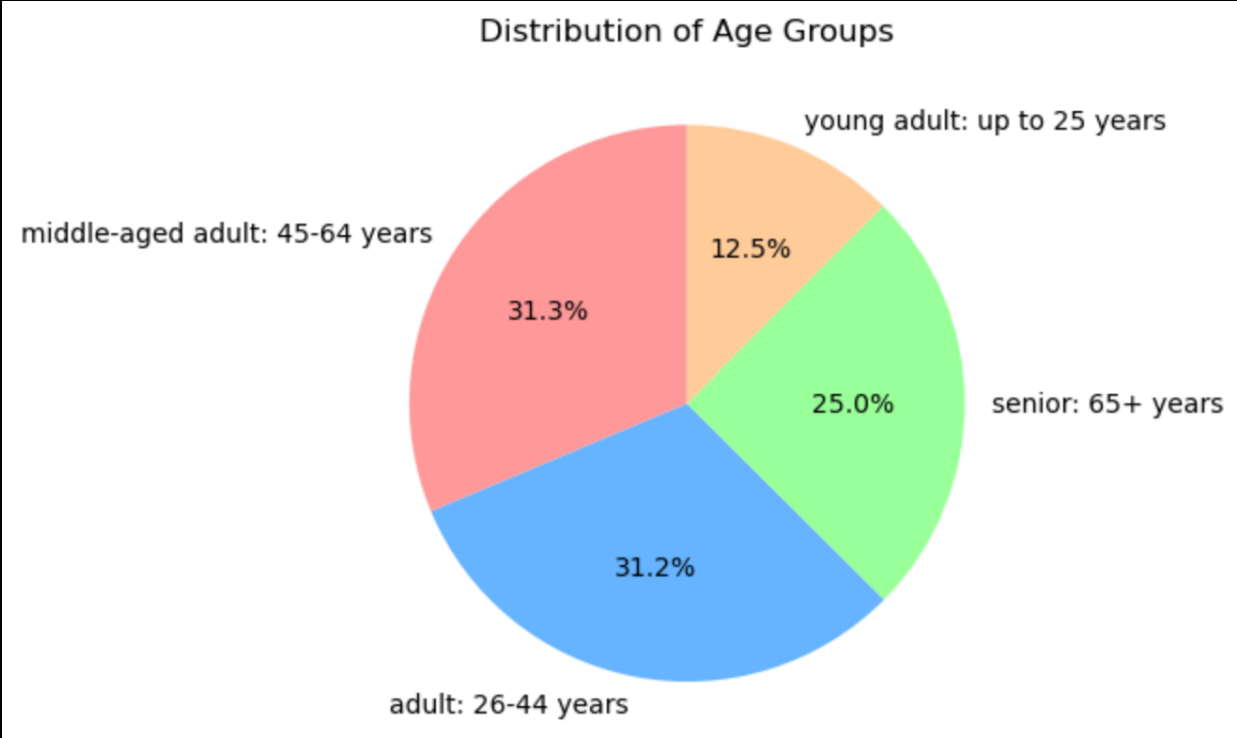## Age Group

Distribution of Age Groups

- young adult: up to 25 years — 12.5%
- senior: 65+ years — 25.0%
- adult: 26-44 years — 31.2%
- middle-aged adult: 45-64 years — 31.3%

Age Groups by Region
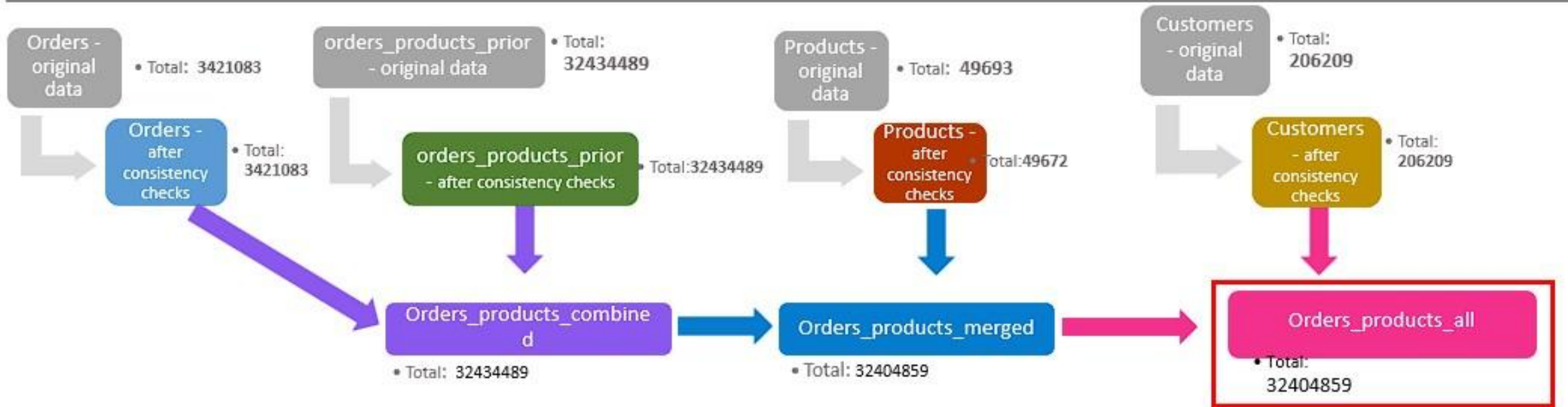
Distribution of Customer Age Groups by Region
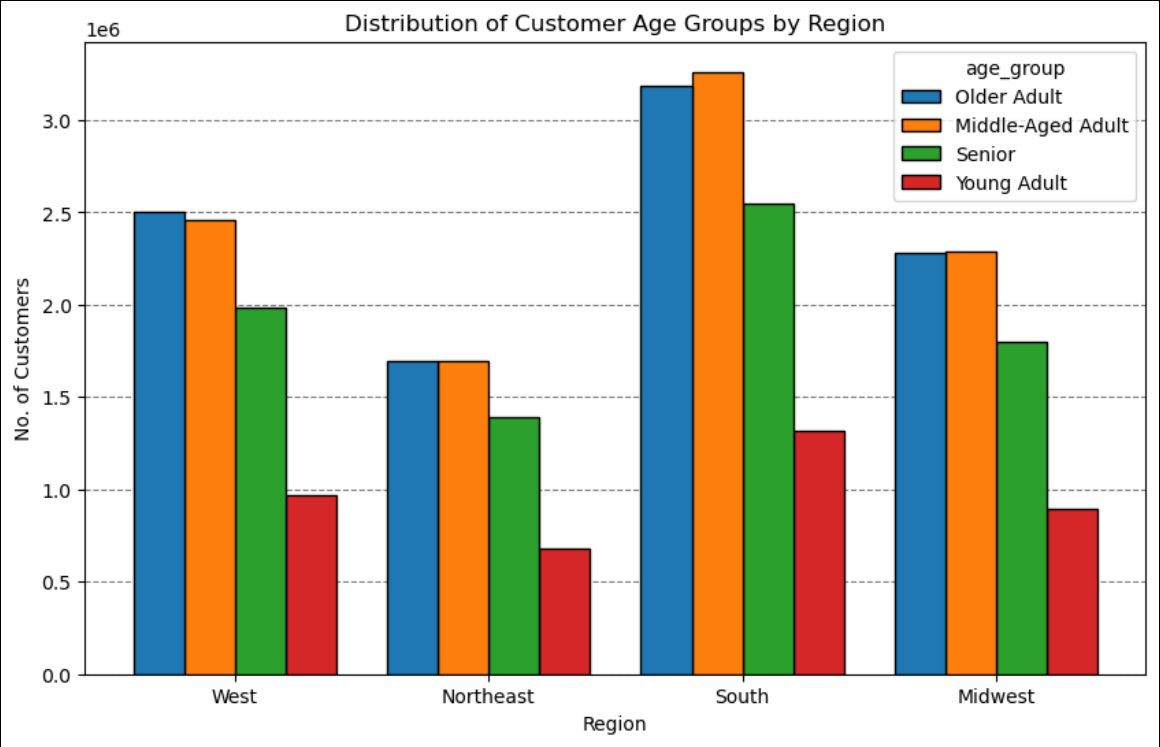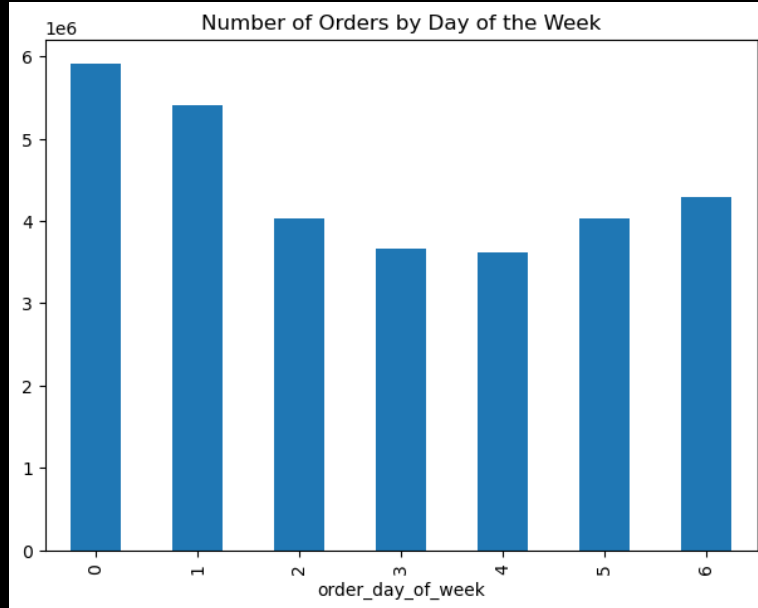
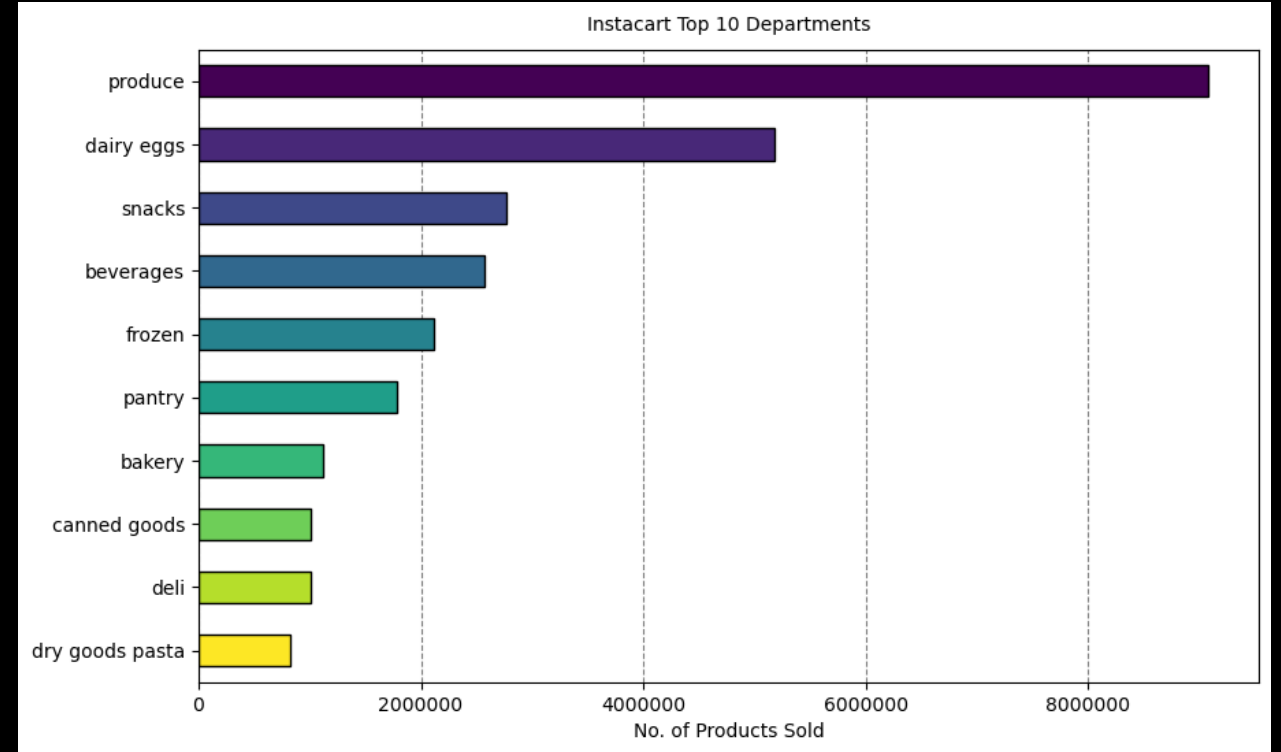# ANALYSES ⚛

Number of Orders by Day of the Week

Note on Instacart "orders_dow" Variable

One of the variables in the data is "orders_dow", with "dow" meaning "days of the week".
Each day corresponds to a number, as follows:
- 0 = Saturday
- 1 = Sunday
- 2 = Monday
- 3 = Tuesday
- 4 = Wednesday
- 5 = Thursday
- 6 = Friday

Top 10 Instacart Departments

INSIGHTS & RECOMMENDATIONS 📊

- Saturday and Sunday are the busiest days between the hours of 8 am to 4 pm. Especially after 10 am. Instacart can come up with morning shopping campaigns.

- Produce, dairy and eggs, snacks, beverages and frozen food are the top products. Instacart should make a cross promotion with these products and less demanding products to increase the sales of the less selling products.

- New Customers shop the minimum. Instacart should find new marketing strategies to ignite the new customers behaviours. For example, instacart can offer a 10% welcome discount on their first and second shopping.

- To sustain customers' loyalty, instacart should offer weekly special promotion at some certain shopping limits, such as spend 75 euro and get 10 euro off.

Rockbuster Stealth 🎥

Rockbuster Stealth is a movie rental company that is facing stiff competition from streaming services such as Netflix and Amazon Prime. The management team is planning to use its existing movie licenses to launch an online video rental service in order to stay competitive.

OBJECTIVES

- Which movies contributed the most/least to revenue gain?
- What was the average rental duration for all videos?
- Which countries are Rockbuster customers based in?
- Where are customers with a high lifetime value based?
- Do sales figures vary between geographic regions?

DATA

- Contains information about Rockbuster's film inventory, customers, and payments, among other things.
- The data is extracted from the RDBMS using SQL and subsequently processed for analysis.
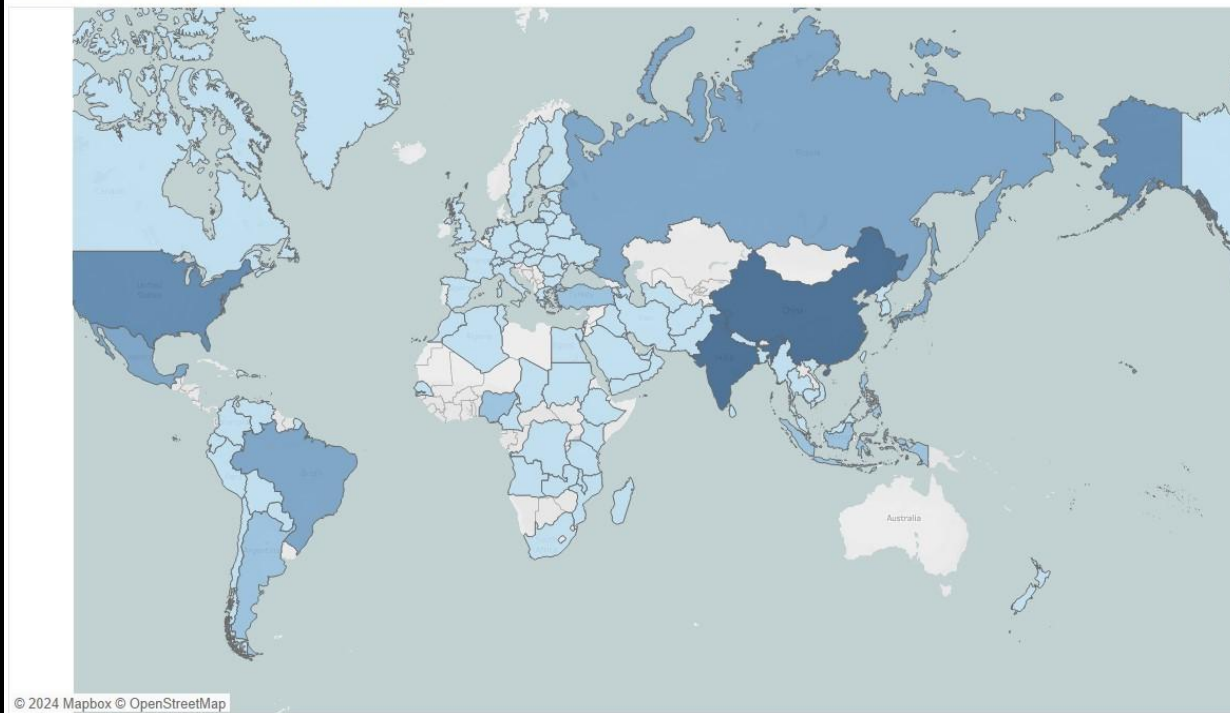
METHODS & TOOLS

- SQL
- Filtering
- Cleaning and summarizing
- Joining tables
- Subqueries
- Common Table Expressions (CTE)

ANALYSES ⚛

Geographical Analysis

Customer Population Country wise, first two countries are India and China
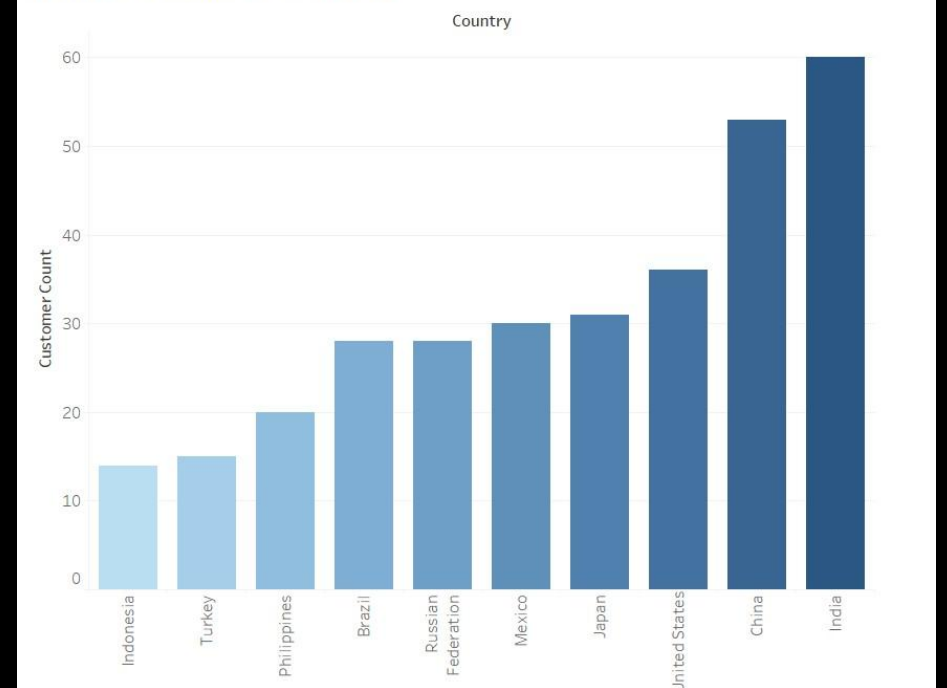
RB WORLD Tableau

ANALYSES ⚛

Film Genres Popularity

Most In-demand Films

Most Paying Film Genres

Sports 4,892	Comedy 4,002	Games 3,922	Family 3,782	Documentary 3,749
Sci-Fi 4,336	New 3,966	Horror 3,401	Travel 3,227	
Animation 4,245	Action 3,951	Classics 3,353	Music 3,071	
Drama 4,118	Foreign 3,934	Children 3,309		

Most Paying 10 Films

Film Title	
Telegraph Voyage	215
Zorro Ark	199
Wife Turn	198
Innocent Usual	191
Saturday Lambs	190
Hustler Party	190
Titans Jerk	186
Harry Idaho	177
Torque Bound	169
Dogma Family	168

RB WORLD Tableau

ERD & STATISTICS
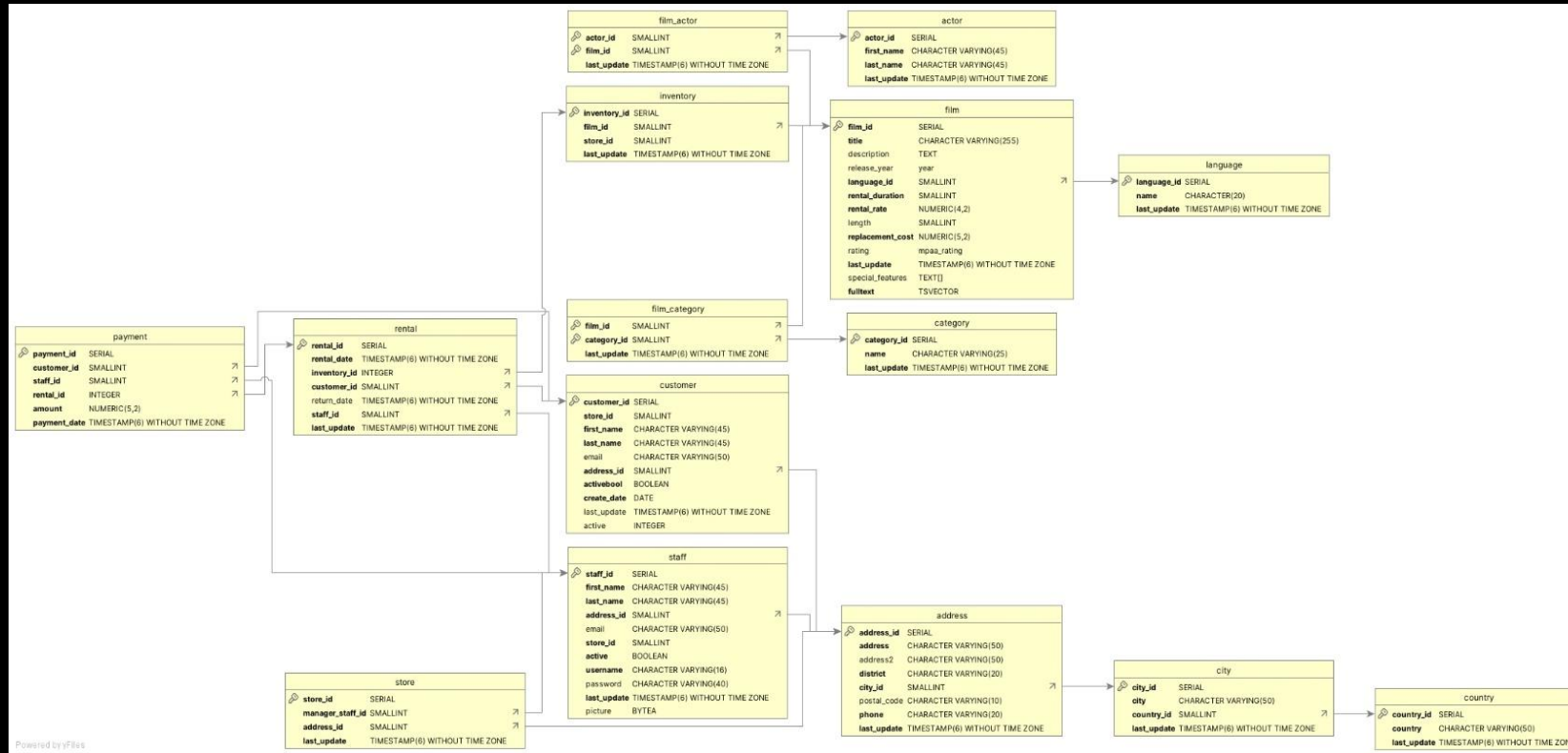
Rental Duration – Rental Rate

Total Films 1000	Average	Minimum	Maximum
Rental Duration	4.985	3	7
Rental Rate	2.98	0.99	4.99

INSIGHTS & RECOMMENDATIONS 📊

- Sports, sci-fi, animation and drama genres bring in the most revenue gain. Enriching these genres will provide more revenue generating.

- Bringing more variety to the current portfolio of these genres can increase the revenue.

- Rockbuster should do more marketing research to increase their sales in the regions that have fewer customers, continuing with the regions they currently do not have any sales.

- Offering a customer loyalty program can ignite the customer satisfaction and so do the sales, such as 10 rentals gives a free rental.

GameCo

GameCo is an online video game company that wants to use data to inform the development of new games. A descriptive analysis of a video game dataset to foster a better understanding of how GameCo's new games might fare in the market.

OBJECTIVES

- Are certain types of games more popular than others?
- What other publishers will likely be the main competitors in certain markets?
- Have any games decreased or increased in popularity over time?
- How have their sales figures varied between geographic regions over time?

DATA

The dataset covers historical sales of video games (for games that sold more than 10,000 copies) spanning different platforms, genres, and publishing studios. This data was drawn from the website VGChartz.

METHODS & TOOLS

- Excel
- Grouping data
- Summarizing data
- Descriptive analysis
- Visualization
- Presenting results via Storytelling

ANALYSES ⚛

Genre

- The highest global sales genre **Action**
- in NA the highest sales genre **Shooter**
- in EU the highest sales genre **Shooter**
- in JP the highest sales genre **Action**
- in Other the highest sales genre **Shooter**
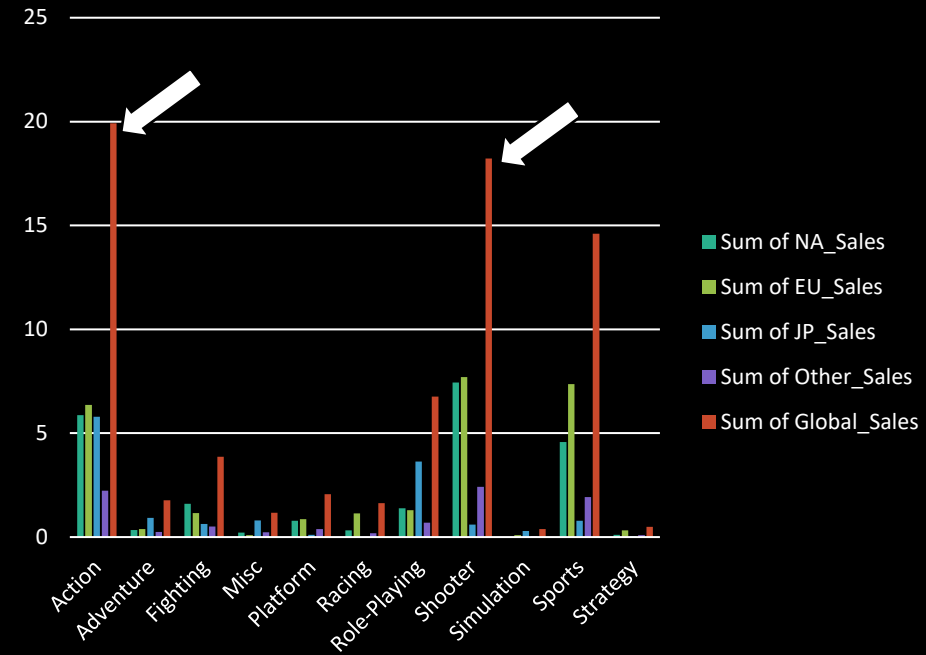
Most preferred platform for video games was **PS4**.
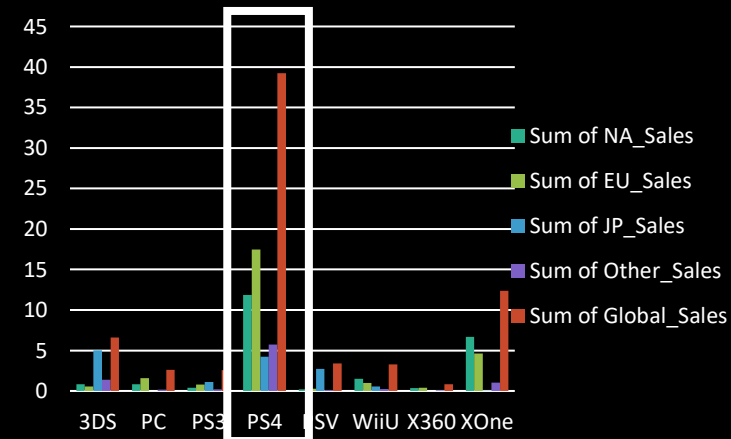
ANALYSES ⚛
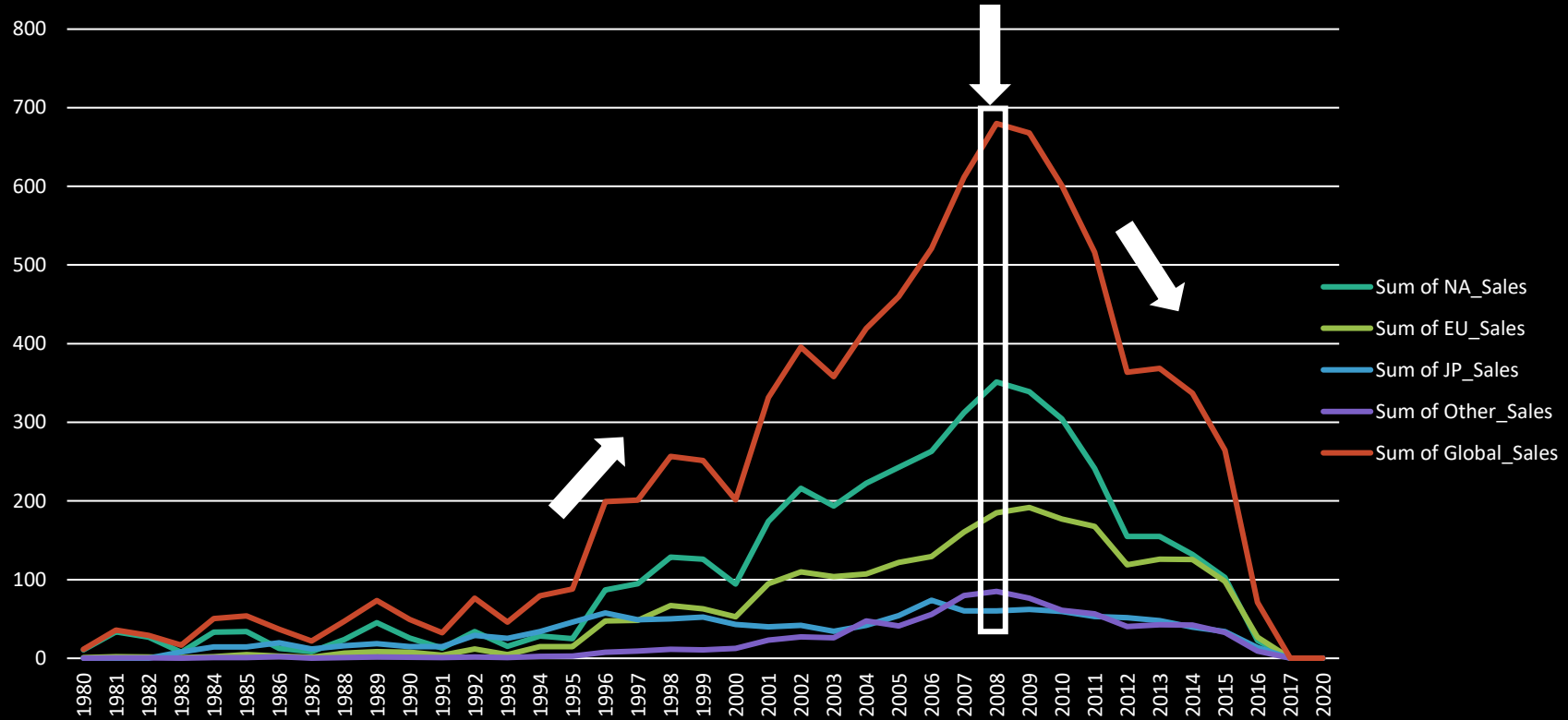
The Video Games Sales per year

- In general, all of the sales started to increase after 1995
- The peek point was in 2008
- However, after this year all the sales started to decrease

INSIGHTS & RECOMMENDATIONS 📊

- Between 2015 and 2016, video game sales in North America declined, whereas Europe and Japan experienced consistent growth during that time.

- Redirecting the marketing budget to prioritize greater investment in Europe, where growth potential is strong, while reevaluating the approach in North America to tackle the decreasing market share.

- In Europe and North America, the focus should be on Shooter and Action games, while in Japan, emphasis should be placed on Role-Playing and Strategy games.

- GameCo can concentrate on the Japan and other markets to increase the sales in these regions to increase the overall global sales.

PIG E. BANK 🏛

Pig E. Bank, a prominent global financial institution with a dedicated anti-money laundering compliance team, undertook a project focused on analyzing customer satisfaction data.

OBJECTIVES

- The objective was to identify the primary factors influencing customer attrition and to devise targeted strategies aimed at improving customer retention.

DATA

- Customer database consist of 1000 data points including customer credit score, demographics, active product usage, customer status (still with the bank or left)

METHODS & TOOLS

- GitHub
- Big data
- Data ethics
- Data mining
- Predictive analysis
- Time series analysis and forecasting

ANALYSES ⚛

LOYAL CLIENTS

	Credit Score	Age	Tenure	Balance	NumOfProducts	HasCrCard?	IsActiveMember	Estimated Salary
MIN	411	18	0	$0	1	0	0	$ 371,05
MAX	850	82	10	$197.041,80	3	1	1	$ 199.661,50
MEAN	649	39	5	$ 78.040,86	2	1	1	$ 98.536,75

EXITED CLIENTS

	Credit Score	Age	Tenure	Balance	NumOfProducts	HasCrCard?	IsActiveMember	Estimated Salary
MIN	376	20	0	$0	1	0	0	$ 417,41
MAX	850	69	10	$213.146,20	4	1	1	$ 199.725,39
MEAN	649	39	5	$ 77.946,67	1	1	0	$ 97.155,20

Comparison by Age

Count of Customer_ID — Column Labels

Row Labels	Loyal	Exited	Grand Total	
<20 or (blank)	0,38%	0,00%	0,30%	
20-24	5,22%	1,47%	4,44%	
25-29	13,23%	3,92%	11,31%	
30-34	22,39%	7,84%	19,39%	
35-39	26,72%	16,18%	24,55%	
40-44	15,65%	19,12%	16,36%	
45-49	6,87%	22,55%	10,10%	
50-54	2,80%	10,78%	4,44%	←
55-59	2,80%	7,84%	3,84%	Started a declination
60-64	1,15%	7,84%	2,53%	
65-69	1,40%	2,45%	1,62%	
70-74	0,76%	0,00%	0,61%	
75-79	0,38%	0,00%	0,30%	
80-84	0,25%	0,00%	0,20%	
Grand Total	100,00%	100,00%	100,00%	

Comparison by Country — Percentatge

Count of Country — Column Labels

Row Labels	Loyal	Exited	Grand Total	Loyal	Exited
France	403	77	480	84%	16%
Germany	181	75	256	71%	29%
Spain	202	52	254	80%	20%
Grand Total	786	204	990	79%	21%

Comparison by Gender

Count of Row_Number — Column Labels

Row Labels	Loyal	Exited	Grand Total	
⊟ Female	43,44%	59,31%	46,71%	←
France	20,89%	25,00%	21,74%	
Germany	10,83%	19,12%	12,54%	
Spain	11,72%	15,20%	12,44%	
⊟ Male	56,56%	40,69%	53,29%	←
France	30,45%	12,75%	26,79%	
Germany	12,23%	17,65%	13,35%	
Spain	13,89%	10,29%	13,14%	
Grand Total	100,00%	100,00%	100,00%	

Comparison by Activity

Count of IsActiveMemb — Column Labels

Row Labels	Loyal	Exited	Grand Total	
Not Active	43,77%	70,10%	49,19%	←
Active	56,23%	29,90%	50,81%	
Grand Total	100,00%	100,00%	100,00%	

Decision Tree ✳
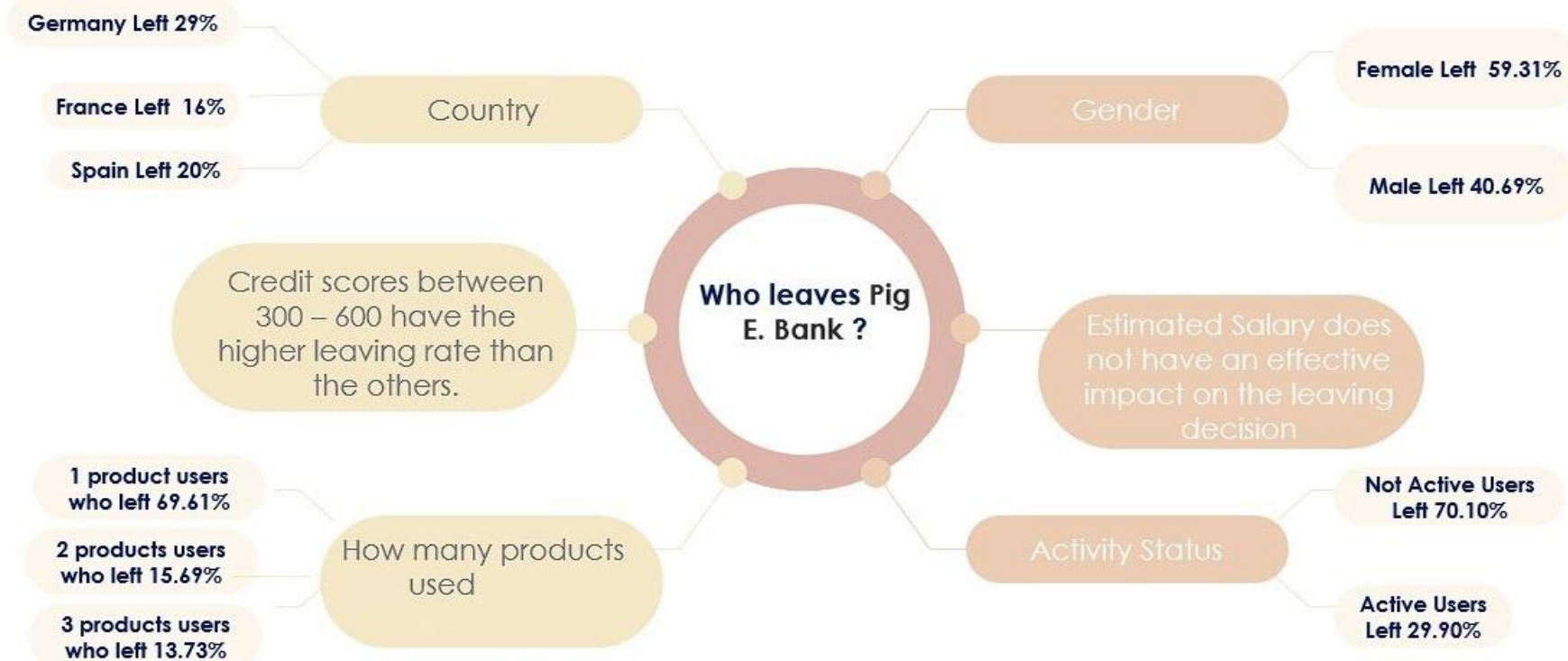
INSIGHTS & RECOMMENDATIONS 📊

- Clients that use more products are less inclined to leave the bank.

- Age group 45+ is more inclined to leave the bank.

- Female clients have the higher percentage of leaving the bank.

- Non – active clients left the bank are higher in number.

- Germany has the highest number clients leaving the bank.

- Pig E. Bank should encourage its clients to use more of its products for customer retention.

- Special promotions should be offered to female clients and the clients over 50.

- The bank should take measures to keep its clients more active.

- Conduct market analyses and user behaviour analyses for Germany to understand the reasons for leaving the bank.

German Cars Price and Efficiency 🚗

This dataset, derived from <u>Kaggle</u>, consists of 500 records detailing key attributes of cars in the German automotive market. It is structured to represent common vehicle characteristics in Germany, offering a valuable resource for analyzing pricing trends, fuel efficiency, and other essential aspects of the market.

OBJECTIVES

- Do certain brands and models exhibit higher fuel consumption?
- How do fuel type, horsepower, and transmission influence fuel consumption?
- To what extent do fuel consumption, horsepower, and mileage impact vehicle pricing?

DATA

This dataset, derived from <u>Kaggle</u>, consists of 500 records detailing key attributes of cars in the German automotive market. It is structured to represent common vehicle characteristics in Germany, offering a valuable resource for analyzing pricing trends, fuel efficiency, and other essential aspects of the market.
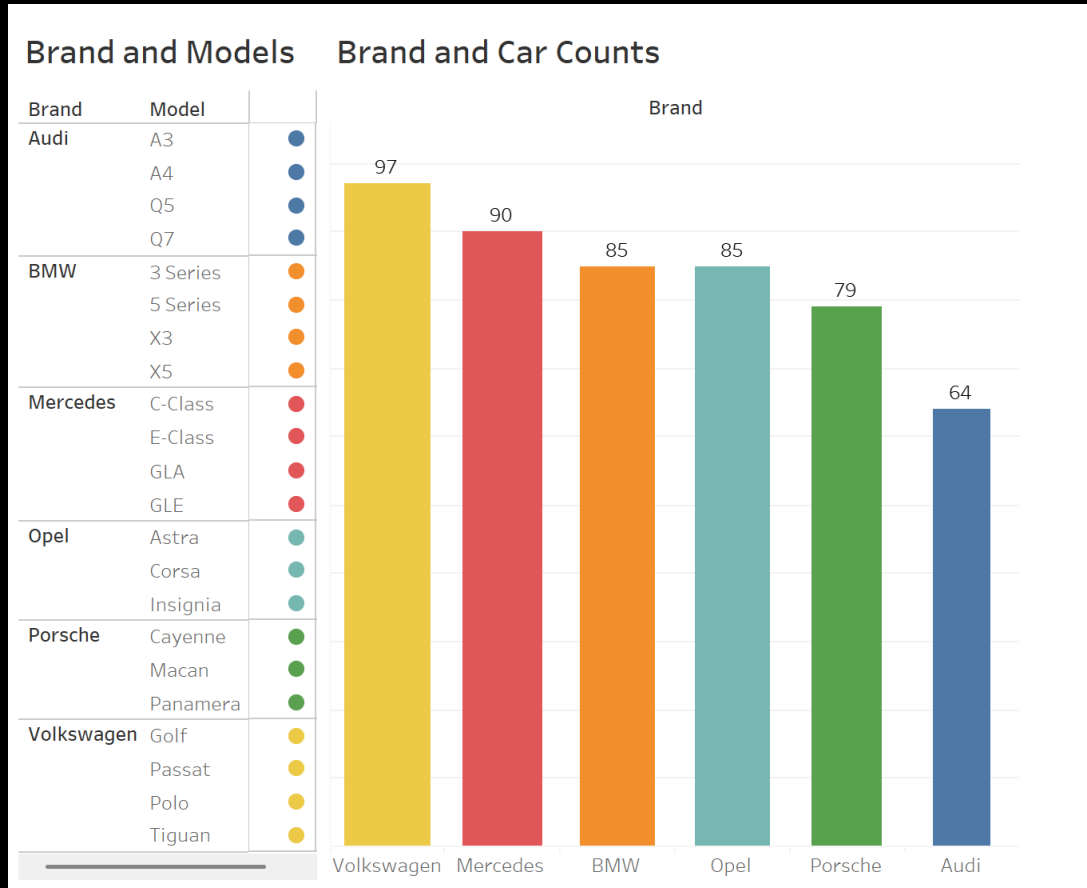
METHODS & TOOLS

- Python
- Tableau
- Data wrangling
- Data merging
- Deriving variables
- Grouping data
- Aggregating data
- Summarizing data
- Descriptive analysis
- Visualization
- Presenting results via Storytelling

ANALYSES ⚛
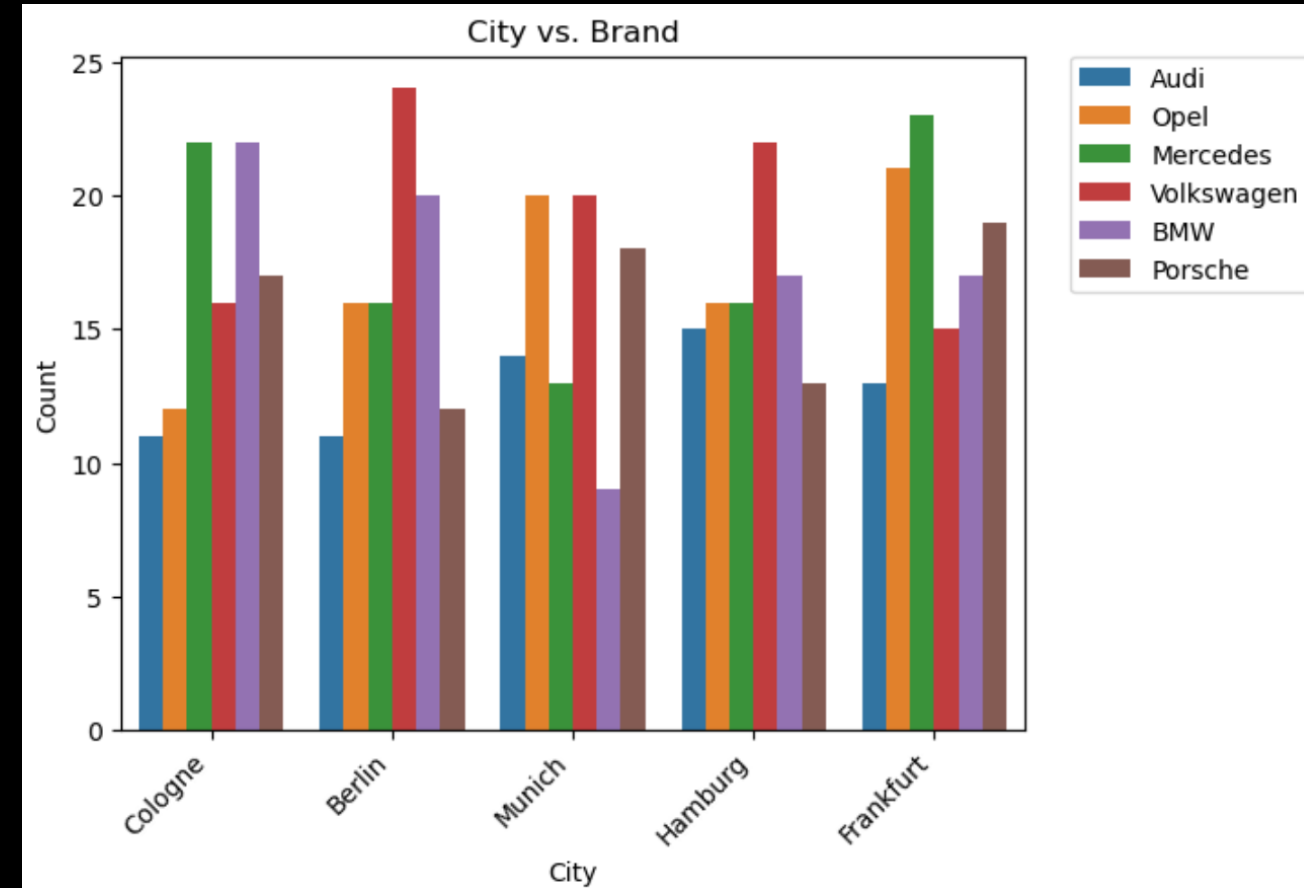
Sample Unit Brand Distribution

Brand and Models

Brand	Model
Audi	A3 •
	A4 •
	Q5 •
	Q7 •
BMW	3 Series •
	5 Series •
	X3 •
	X5 •
Mercedes	C-Class •
	E-Class •
	GLA •
	GLE •
Opel	Astra •
	Corsa •
	Insignia •
Porsche	Cayenne •
	Macan •
	Panamera •
Volkswagen	Golf •
	Passat •
	Polo •
	Tiguan •

Brand and Car Counts

Brand

Volkswagen	Mercedes	BMW	Opel	Porsche	Audi
97	90	85	85	79	64

Brand Preference of Cities

City vs. Brand

Legend: Audi, Opel, Mercedes, Volkswagen, BMW, Porsche

X-axis: Cologne, Berlin, Munich, Hamburg, Frankfurt — City

Y-axis: Count (0–25)

Tableau story link German Cars Price and Efficiency

ANALYSES ⚛

Transmission vs Fuel Consumption
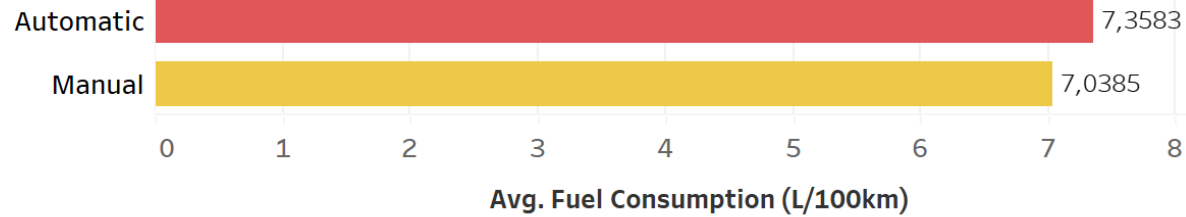
Formula for converting electric vehicle energy consumption (kWh) to equivalent fuel consumption (liters).

Fuel Type vs Fuel Consumption
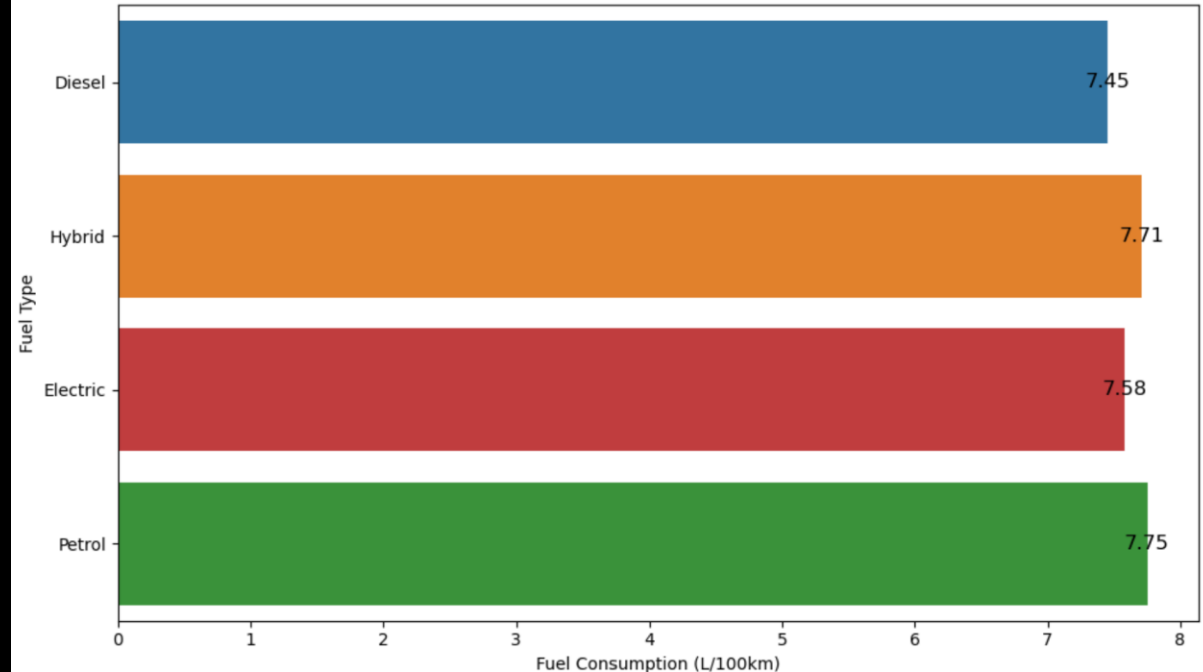
Tableau story link German Cars Price and Efficiency

ANALYSES ⚛

Average Fuel Consumption by Brand and Model

Tableau story link German Cars Price and Efficiency
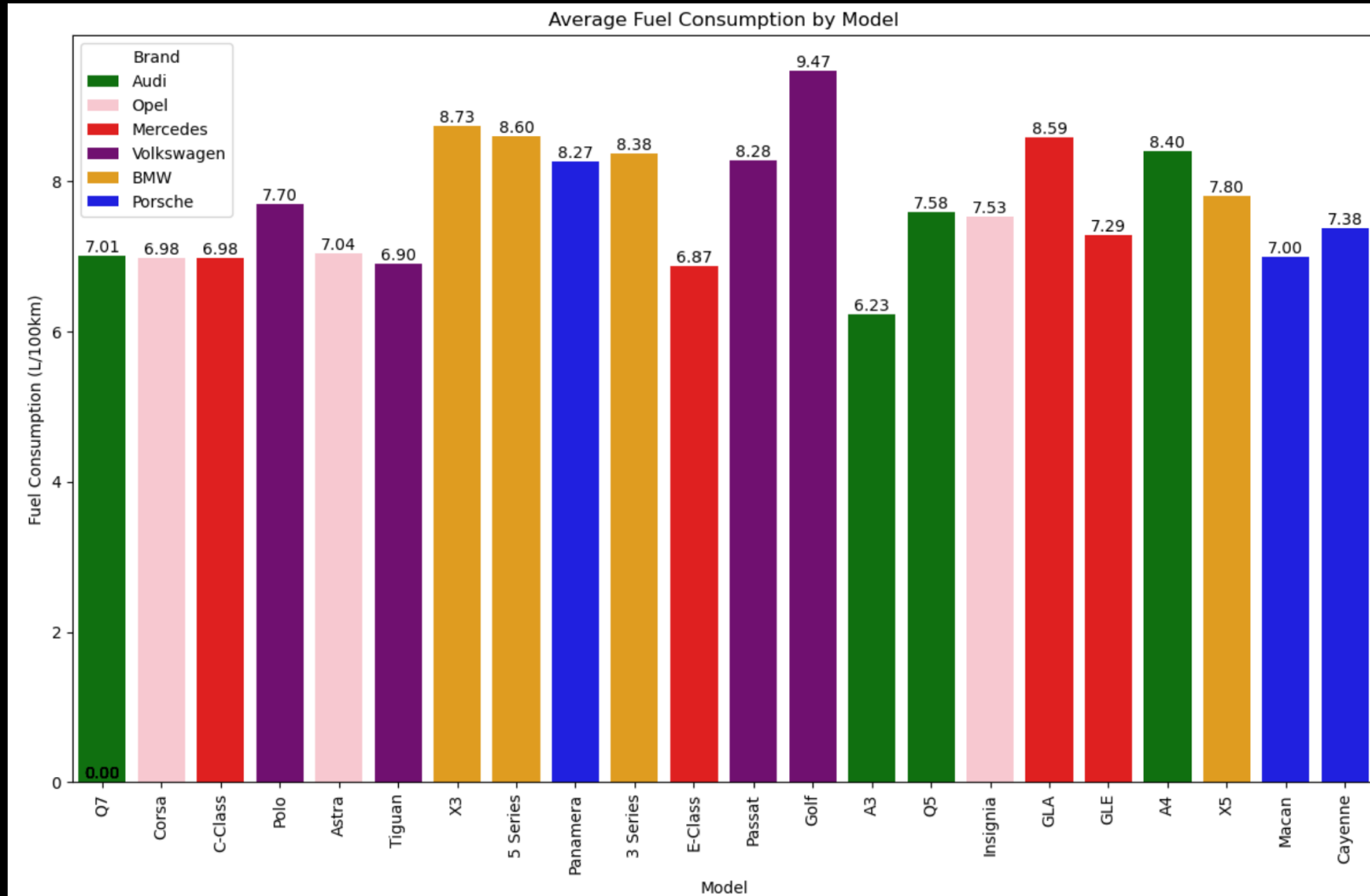
ANALYSES ⚛

## Average Fuel Consumption - Brand - Model - Price

| Golf
Volkswagen
59.133
9,053
240,5 | A4
Audi
55.185
7,850
225,2 | Panamera
Porsche
46.131
7,750
254,2 | Passat
Volkswagen
47.338
7,684
304,8 | X5
BMW
52.292
7,389
266,9 | Polo
Volkswagen
53.349
7,269
266,7 |

| 5 Series
BMW
40.650
8,250
320,0 | Q5
Audi
40.875
7,154 | Astra
Opel
48.504
6,633
297,3 | Macan
Porsche
47.696
6,609
282,4 | Corsa
Opel
50.115
6,536
276,4 |

X3
BMW
48.095
8,211
323,2

Insignia
Opel
57.871
7,111

C-Class
Mercedes
53.151
6,517
268,7

Tiguan
Volkswagen
54.483
6,455
309,9

E-Class
Mercedes
58.060
6,381
301,0

GLA
Mercedes
49.376
8,118
276,8

Cayenne
Porsche
44.481
6,969

Q7
Audi
53.107
6,500
265,0

A3
Audi
46.227

3 Series
BMW
61.689
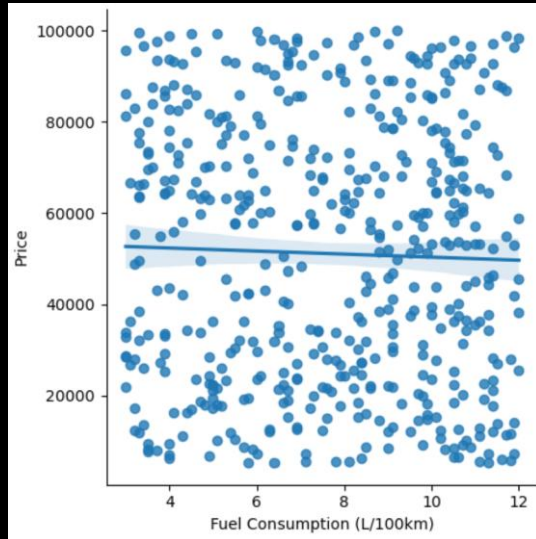8,071
304,0

GLE
Mercedes
47.925
6,826

Brand - Model - Average Price

3 Series
BMW
61.689
304,0
8,071

Tiguan
Volkswagen
54.483
309,9
6,455

Polo
Volkswagen
53.349
266,7
7,269

C-Class
Mercedes
53.151
268,7
6,517

Q7
Audi
53.107
265,0
6,500

X5
BMW
52.292
266,9
7,389

Golf
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240,5
9,053

Corsa
Opel
50.115
276,4

GLE
Mercedes
47.925
255,1
6,826

Macan
Porsche
47.696
282,4
6,609

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E-Class
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GLA
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A3
Audi
46.227
296,3
5,933

Cayenne
Porsche
44.481
306,3
6,969

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Insignia
Opel
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Astra
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Panamera
Porsche
46.131
254,2
7,750

A4
Audi
55.185
225,2
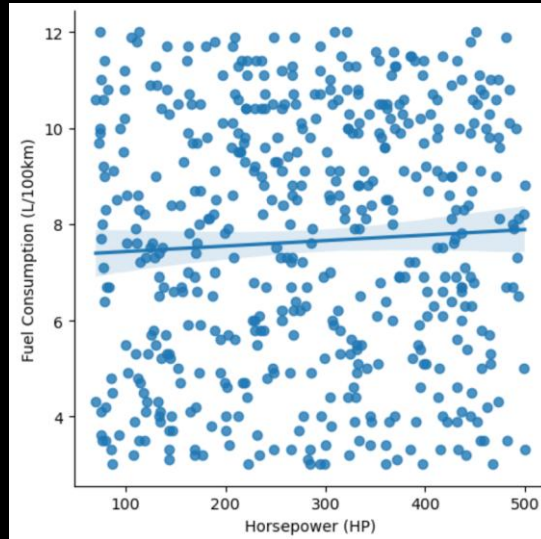7,850

X3
BMW
48.095
323,2
7,750

5 Series
BMW
40.650

Tableau story link German Cars Price and Efficiency

ANALYSES ⚛
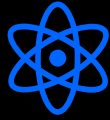
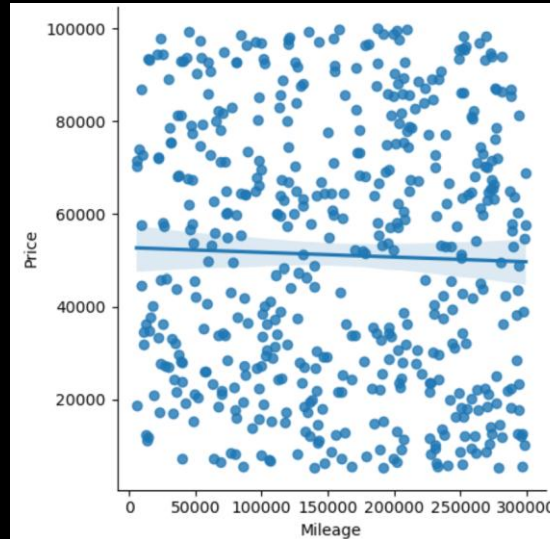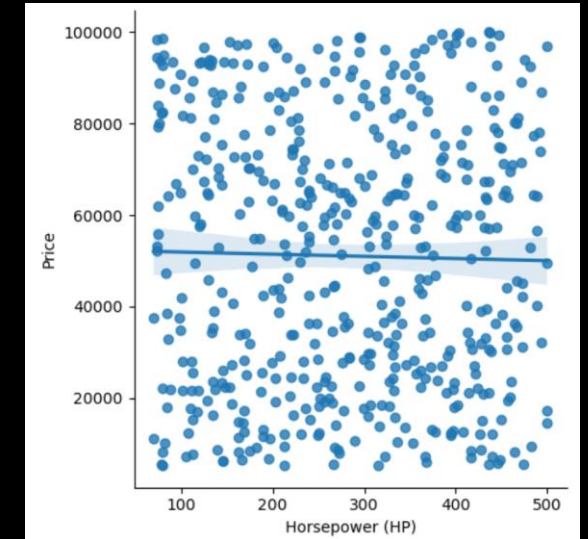| Fuel Consumption vs Price | Horsepower vs Fuel Consumption | Mileage vs Price | Horsepower vs Price |

When fuel consumption increases, the price declines.

When horsepower increases, the fuel consumption also increases.

When mileage increase, price declines.

When horse power increases, the price declines.
This finding contradicts widely accepted industry knowledge, highlighting the need for a deeper analysis of the graph to understand the discrepancy.

Tableau story link German Cars Price and Efficiency

INSIGHTS & RECOMMENDATIONS 📊

As a result of these analyses, it has been determined that:

- Automatic transmissions have a higher fuel consumption than manual transmissions.

- Among the fuel types, the highest fuel consumption belongs to the petrol fuel type, than in the following order, hybrid, electric, and diesel.

- Generally, among the brands BMW has the highest average fuel consumption, whereas Opel has the lowest.

- As for the models, Volkswagen Golf has the maximum fuel consumption, where as Audi A3 has the lowest average fuel consumption.

- In this dataset, BMW 3 series, among the other brands and models, came up as the most expensive average priced brand and model.

- As horsepower increases, fuel consumption also rises.

- As horsepower increases, the price declines.

  This finding contradicts widely accepted industry knowledge, highlighting the need for a deeper analysis of the graph to understand the discrepancy.

  Price Effecting parameters as follows;

- Higher fuel consumption leads to a decrease in price.

- Greater mileage results in a lower price.

Conclusions

- 6 Case Studies

- Diverse business sectors analyses
  - Health and Medical
  - Retail – Online Grocery Shopping
  - Media and Entertainment – Online Video Rental
  - Online Video Game
  - Global Financial Institution
  - Automotive Market (EV efficiency correlations)

- Tools
  - Python, SQL, Tableau, Excel, GitHub, DBVisualizer, ChatGPT, Gemini

The Matrix has you…

Follow the white rabbit.