Data Analytics Portfolio

Tamer Nas
Data Analyst

My Contacts

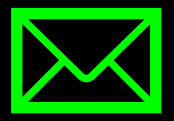

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Tableau

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 Market Price and Efficiency

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

TOOLS


Excel


PostgreSQL


tableau


DbVisualizer


python


jupyter


ChatGPT


Gemini

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

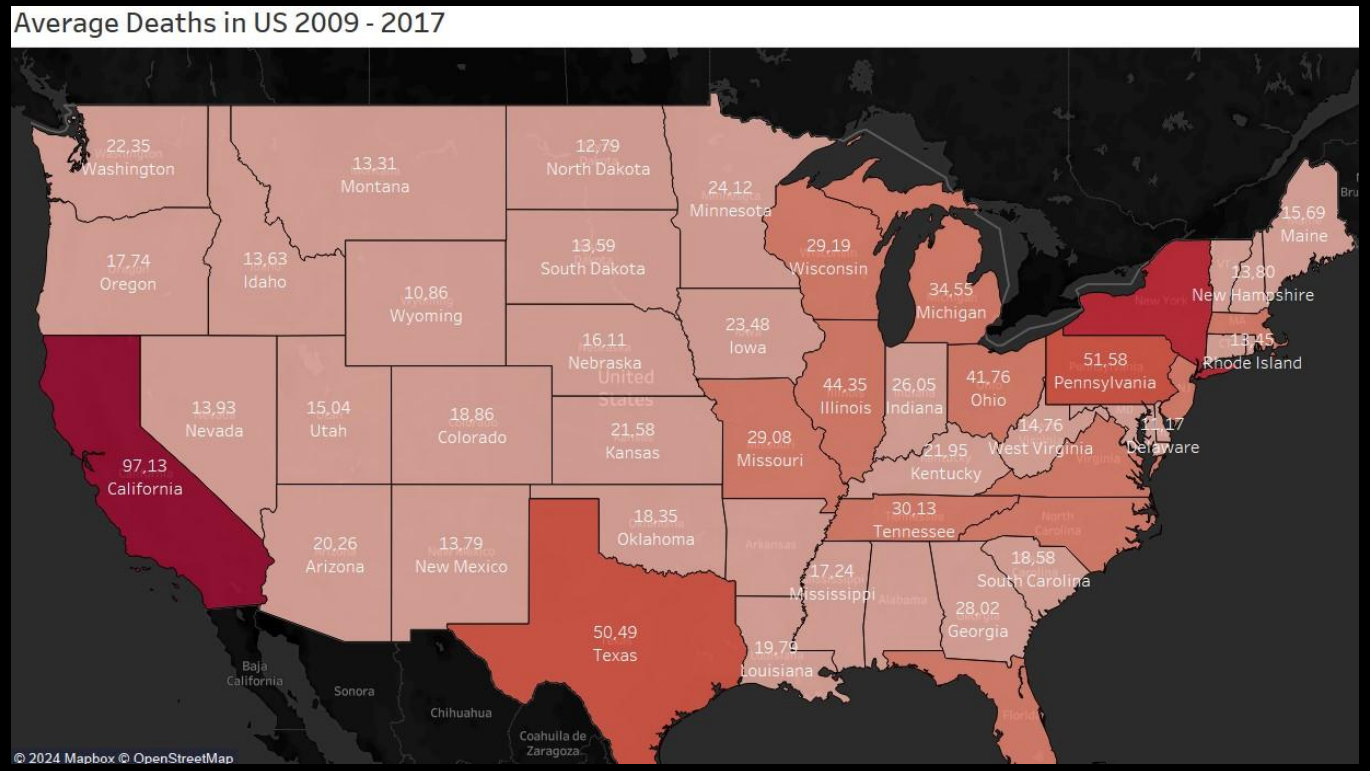
1. Influenza deaths by geography
Source: CDC
2. Population data by geography, time, age, and gender
Source: US Census Bureau
3. Counts of influenza laboratory test results by state (survey)
Source: CDC (Fluview)
4. Survey of flu shot rates in children
Source: CDC

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

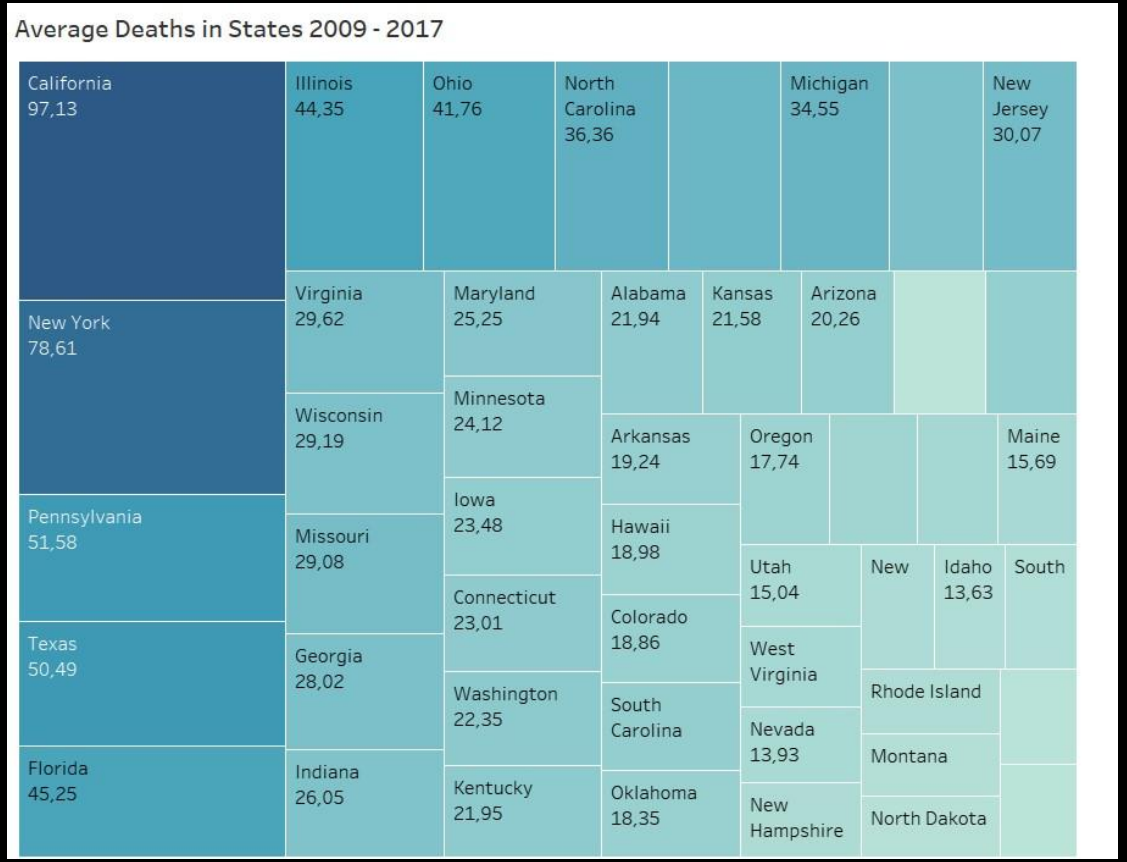
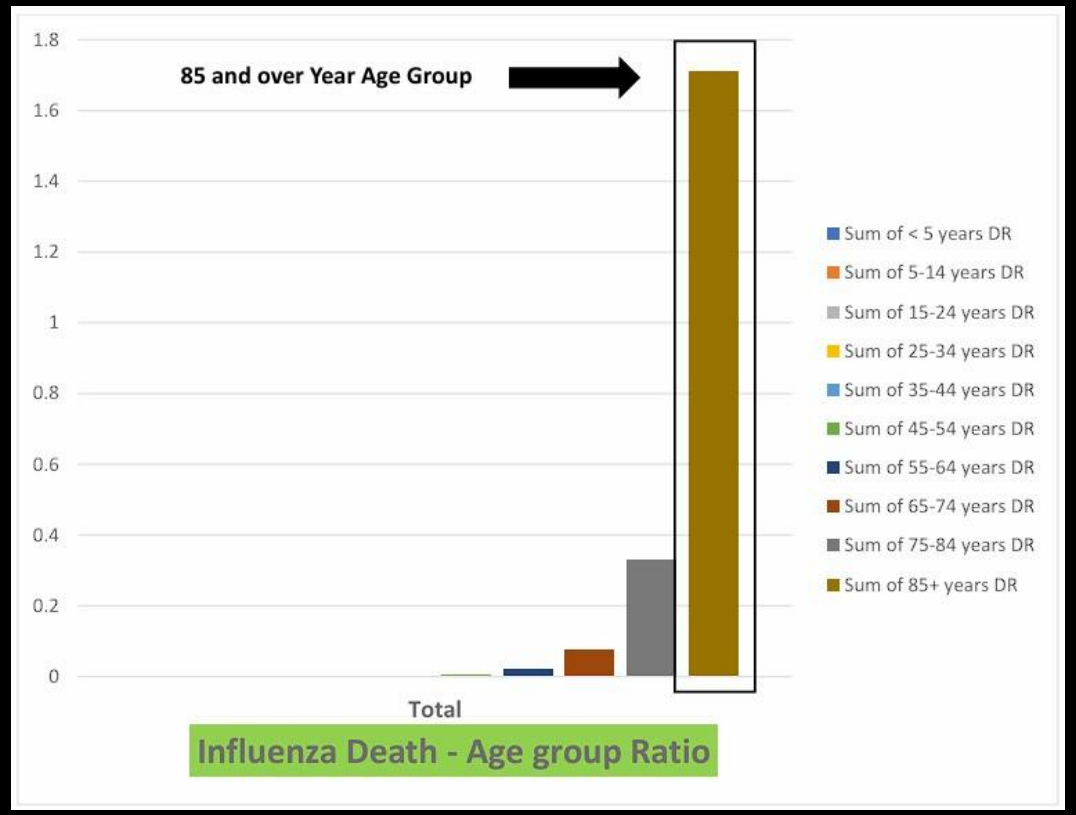


Tableau story link Influenza Shield

Video Link for Presentation Influenza Shield Presentation

ANALYSES

High Risk Age Groups



Forecasting for upcoming 2 years

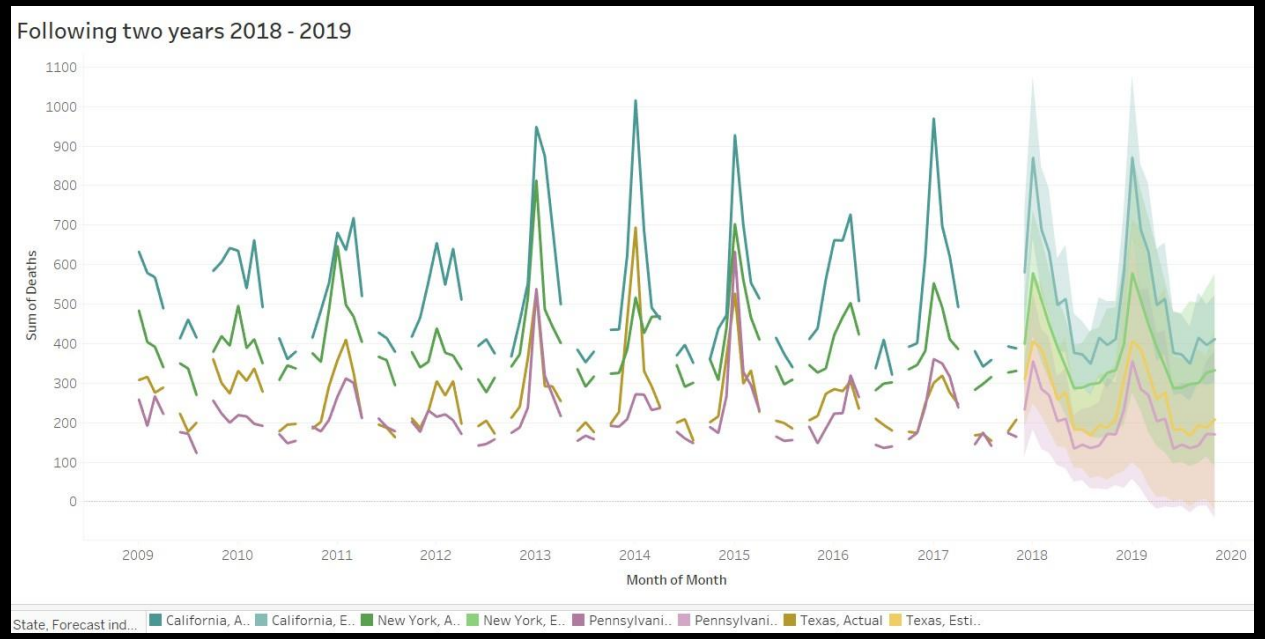


Tableau story link Influenza Shield

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.

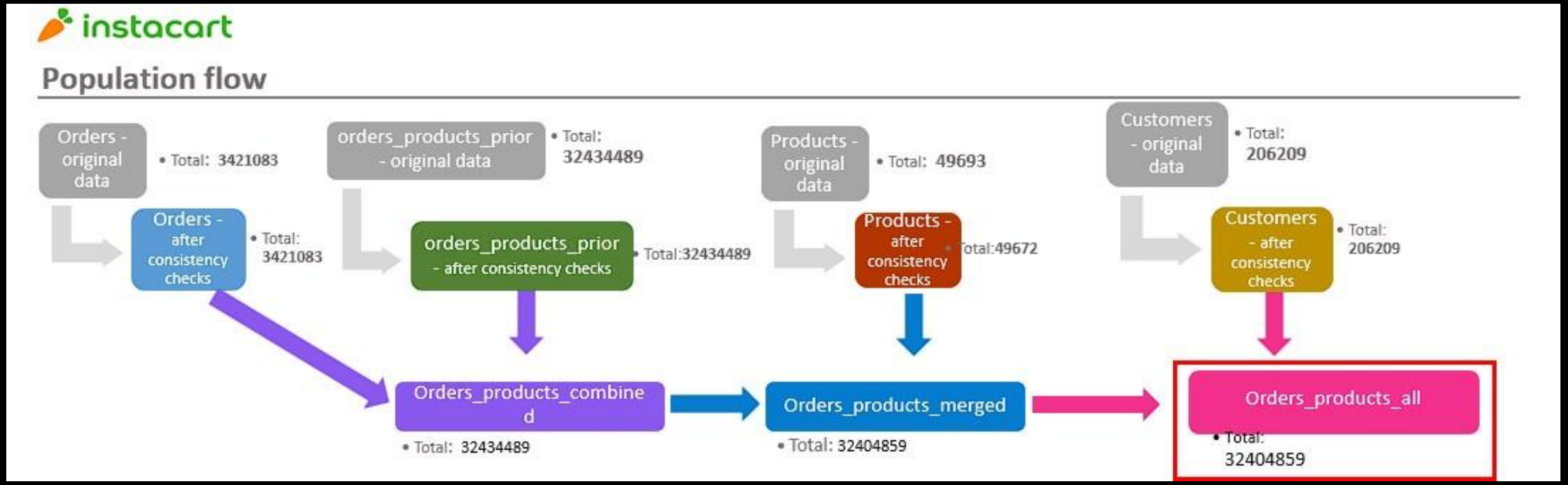
Each dataset contains distinct types of information but includes a common identifier to facilitate integration and analysis.

METHODS & TOOLS

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

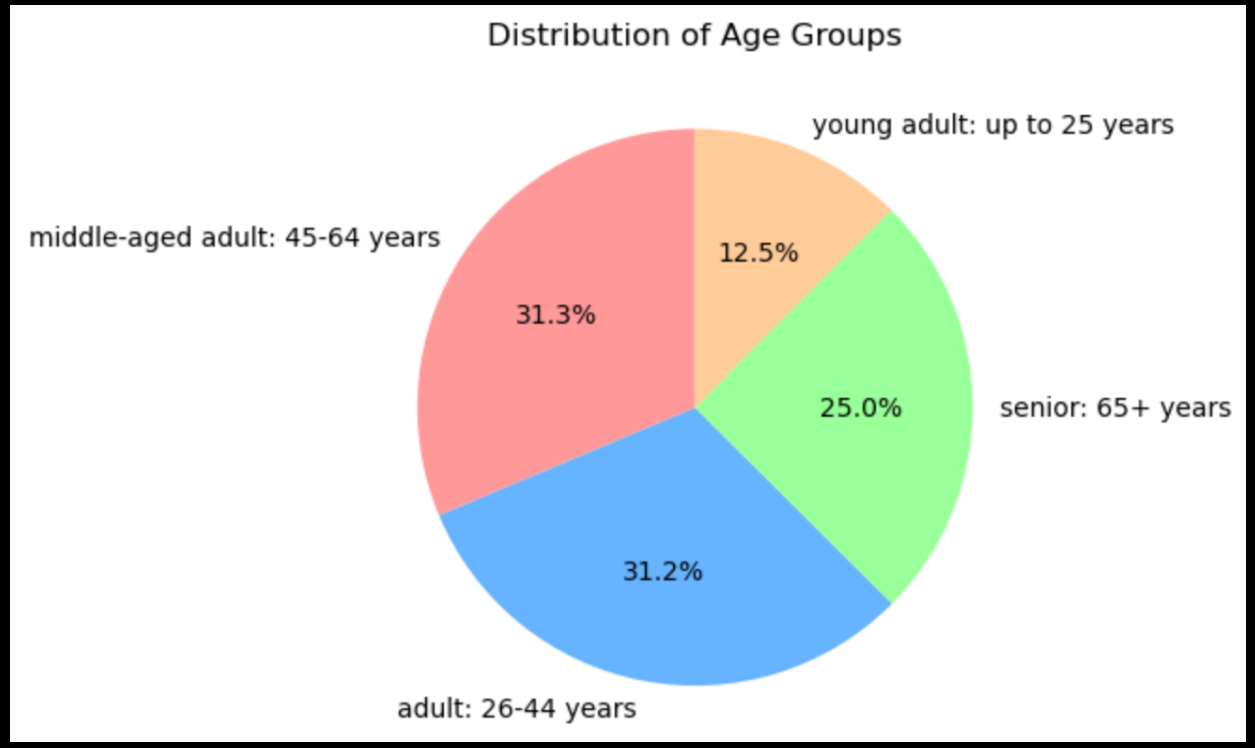
ANALYSES

Population Flow

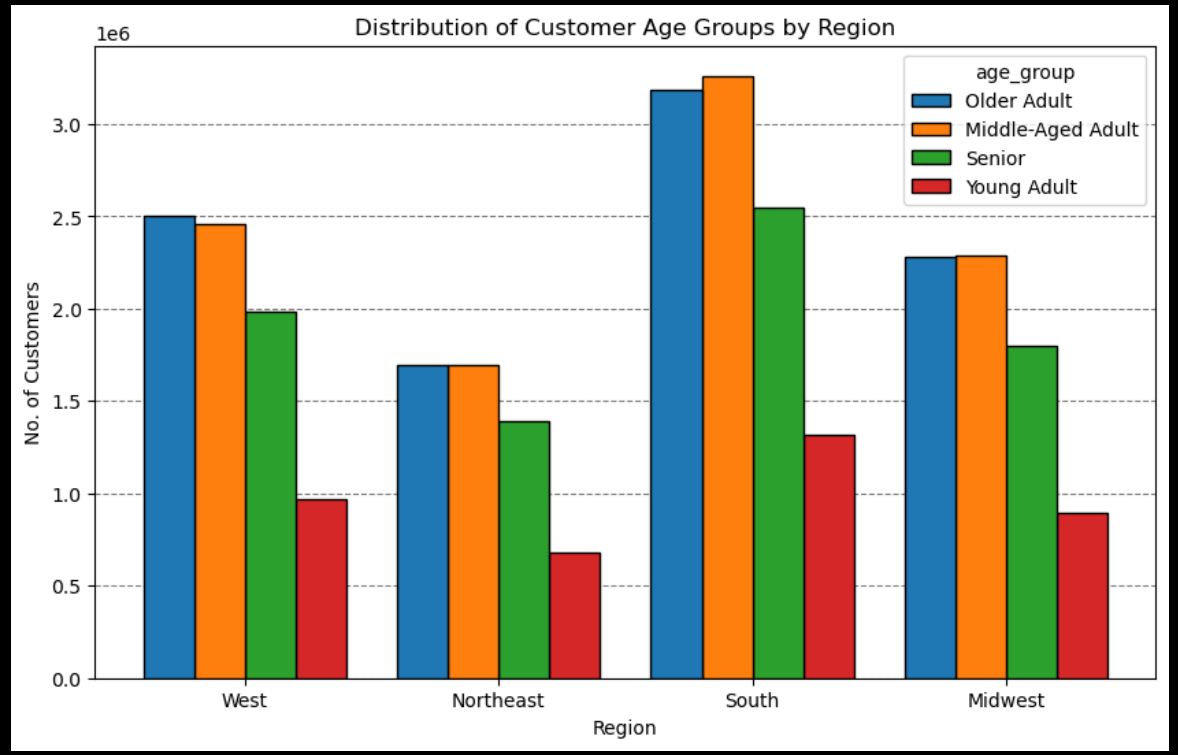


ANALYSES

Age Group

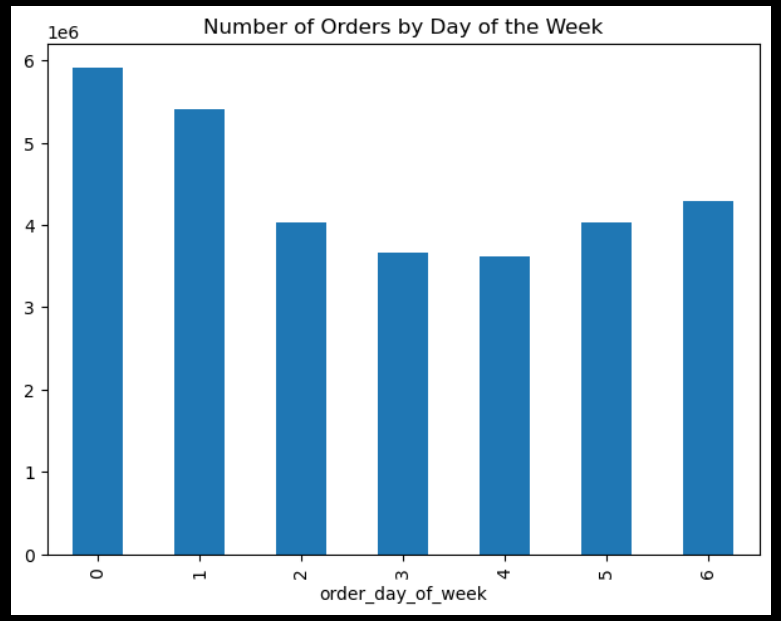


Age Groups by Region



ANALYSES

Number of Orders by Day of the Week

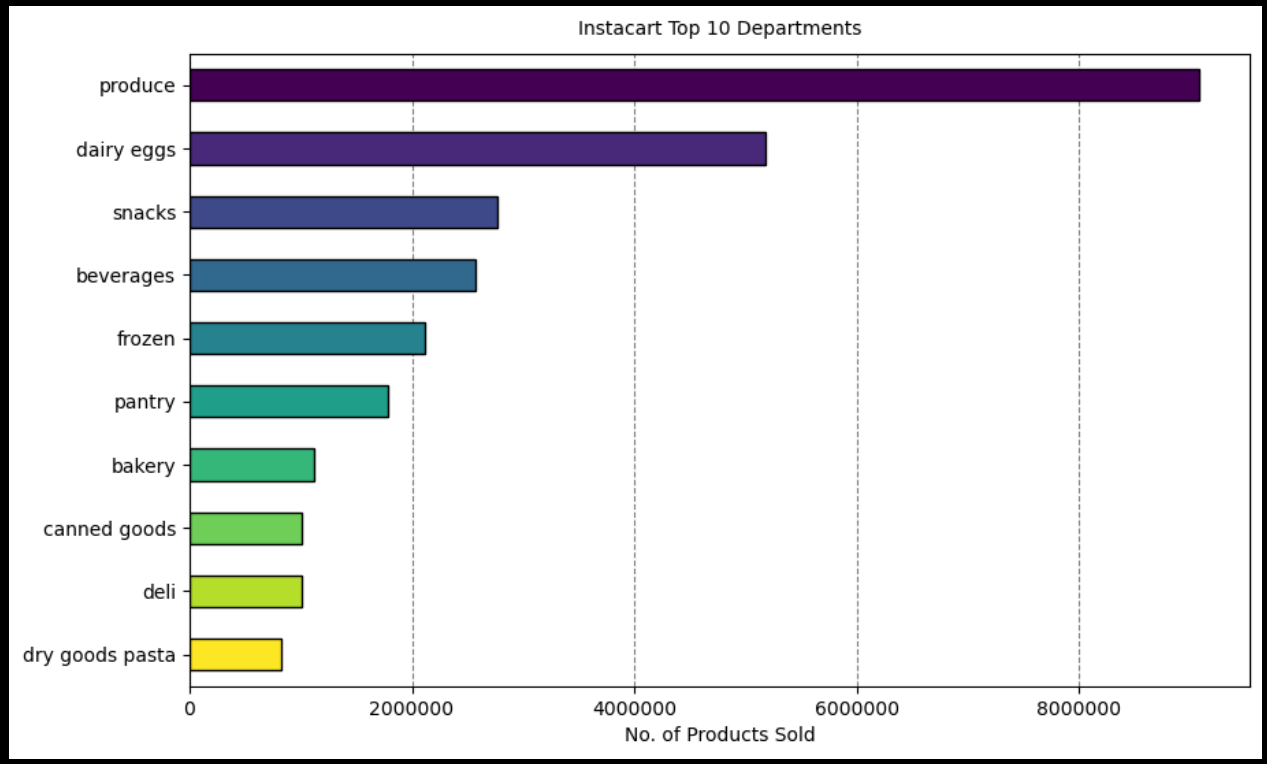


Note on Instacart "orders_dow" Variable

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.

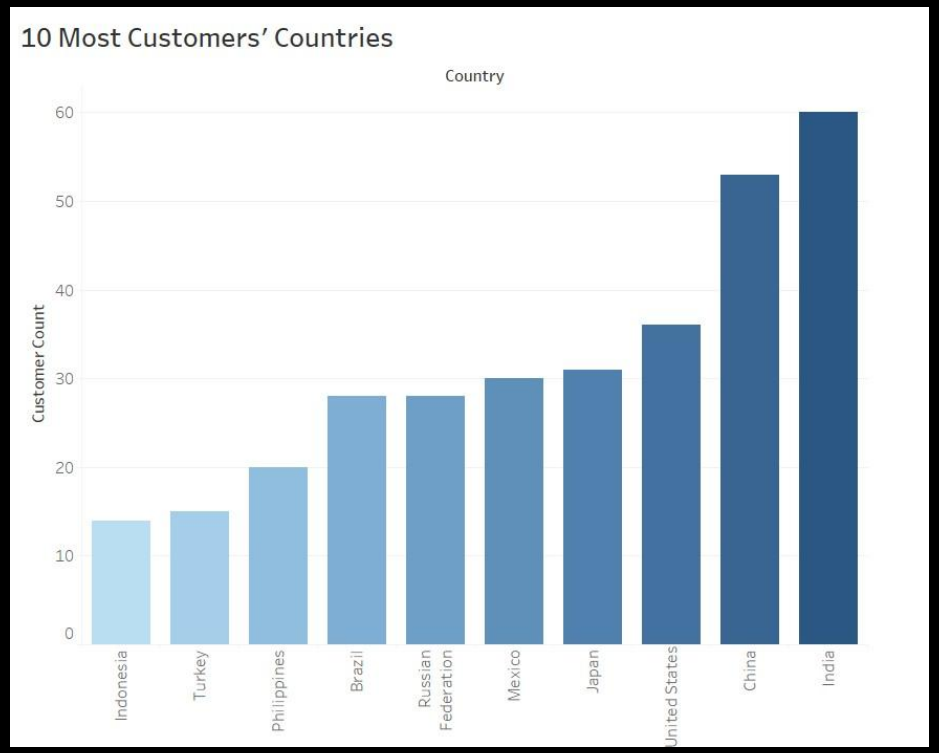
METHODS & TOOLS

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

ANALYSES

Geographical Analysis

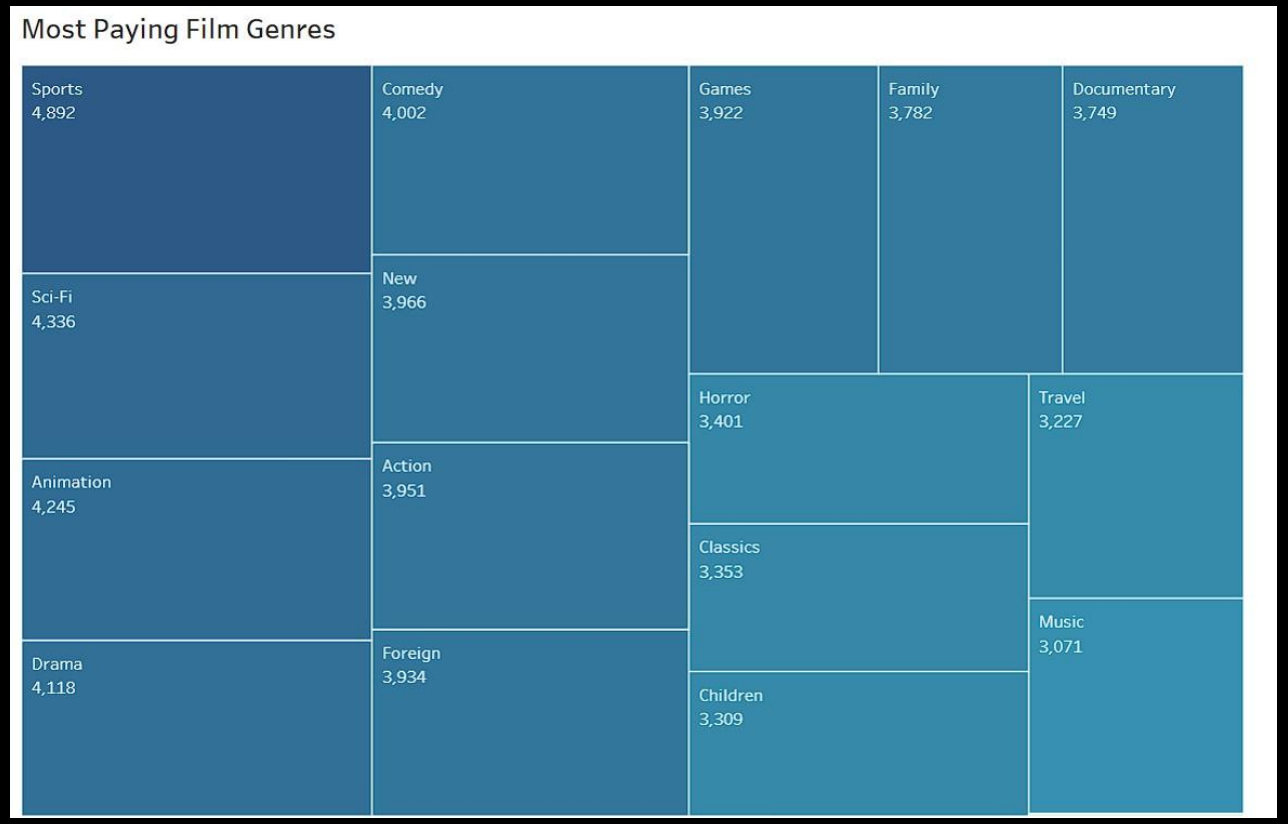
Customer Population Country wise, first two countries are India and China



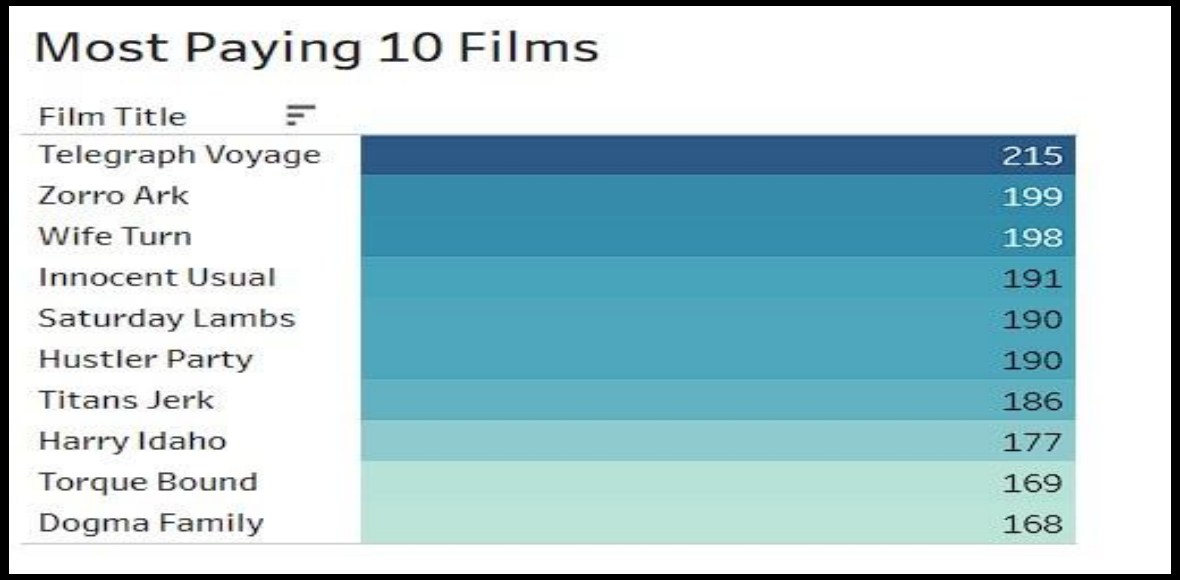
RB WORLD Tableau

ANALYSES

Film Genres Popularity

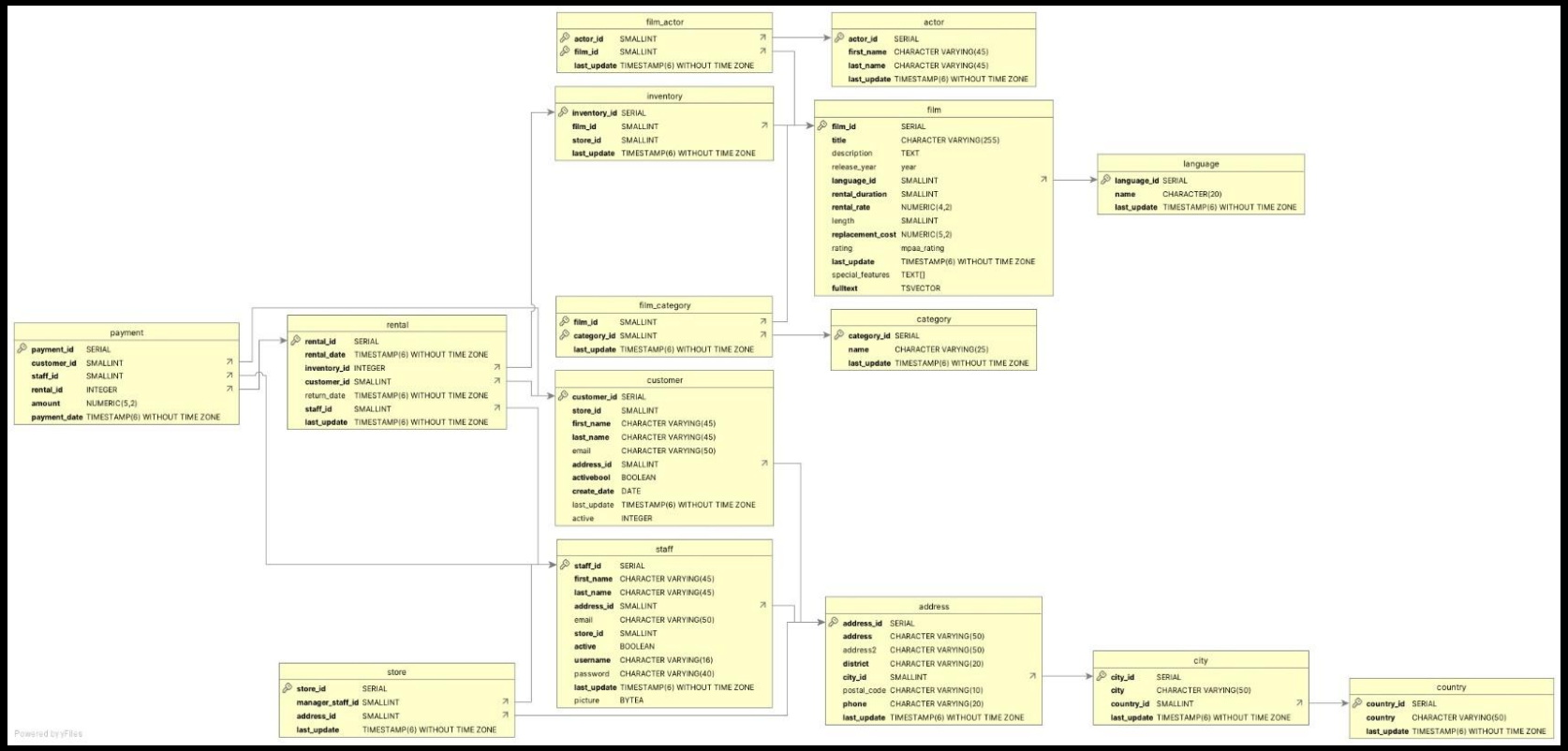


Most In-demand Films



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.

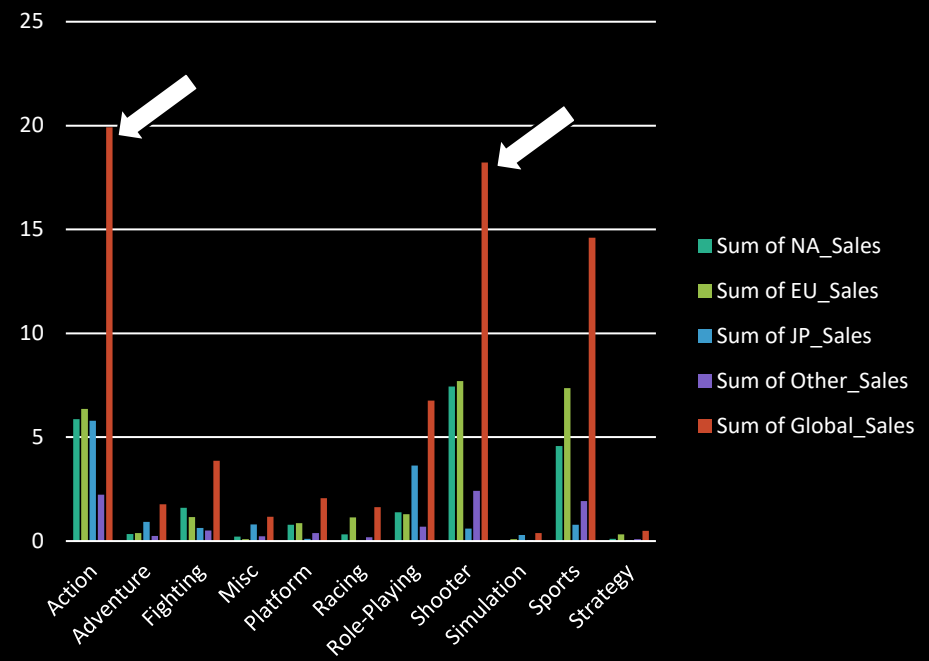
METHODS & TOOLS

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

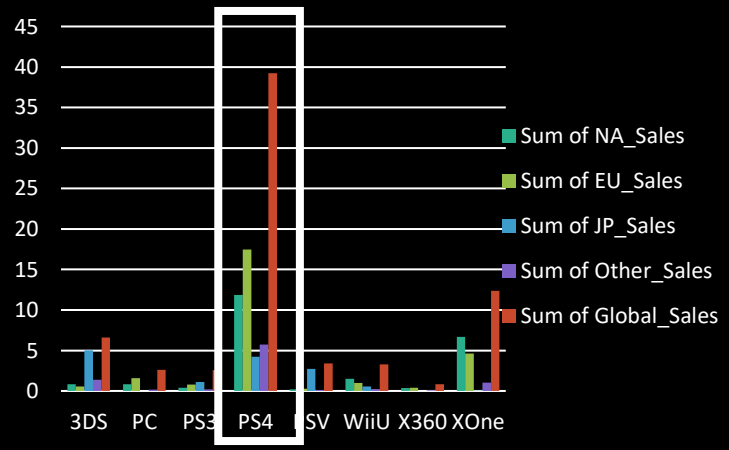
ANALYSES

Genre

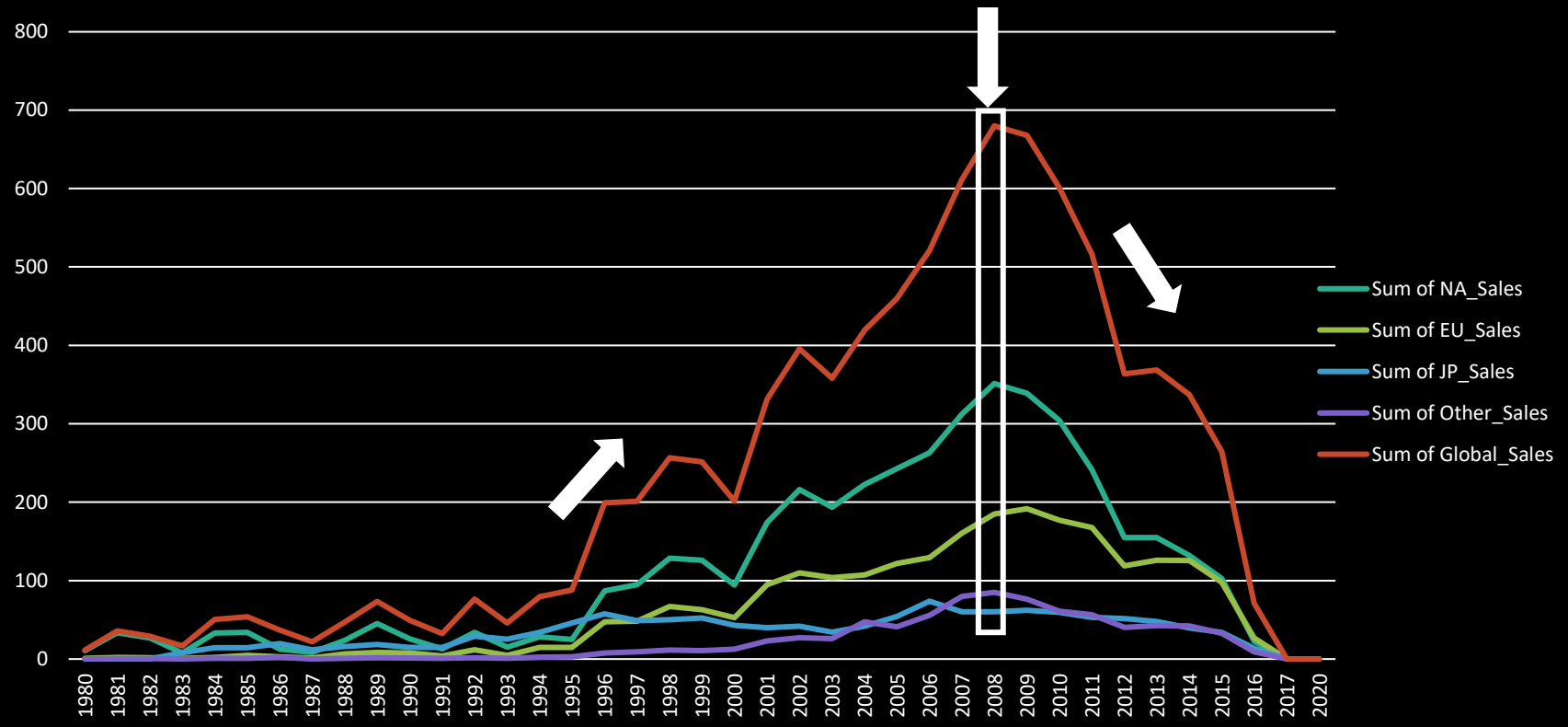
- The highest global sales genre **Action**
- in NA the highest sales genre **Shooter**
- in EU the highest sales genre **Shooter**
- in JP the highest sales genre **Action**
- in Other the highest sales genre **Shooter**



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**

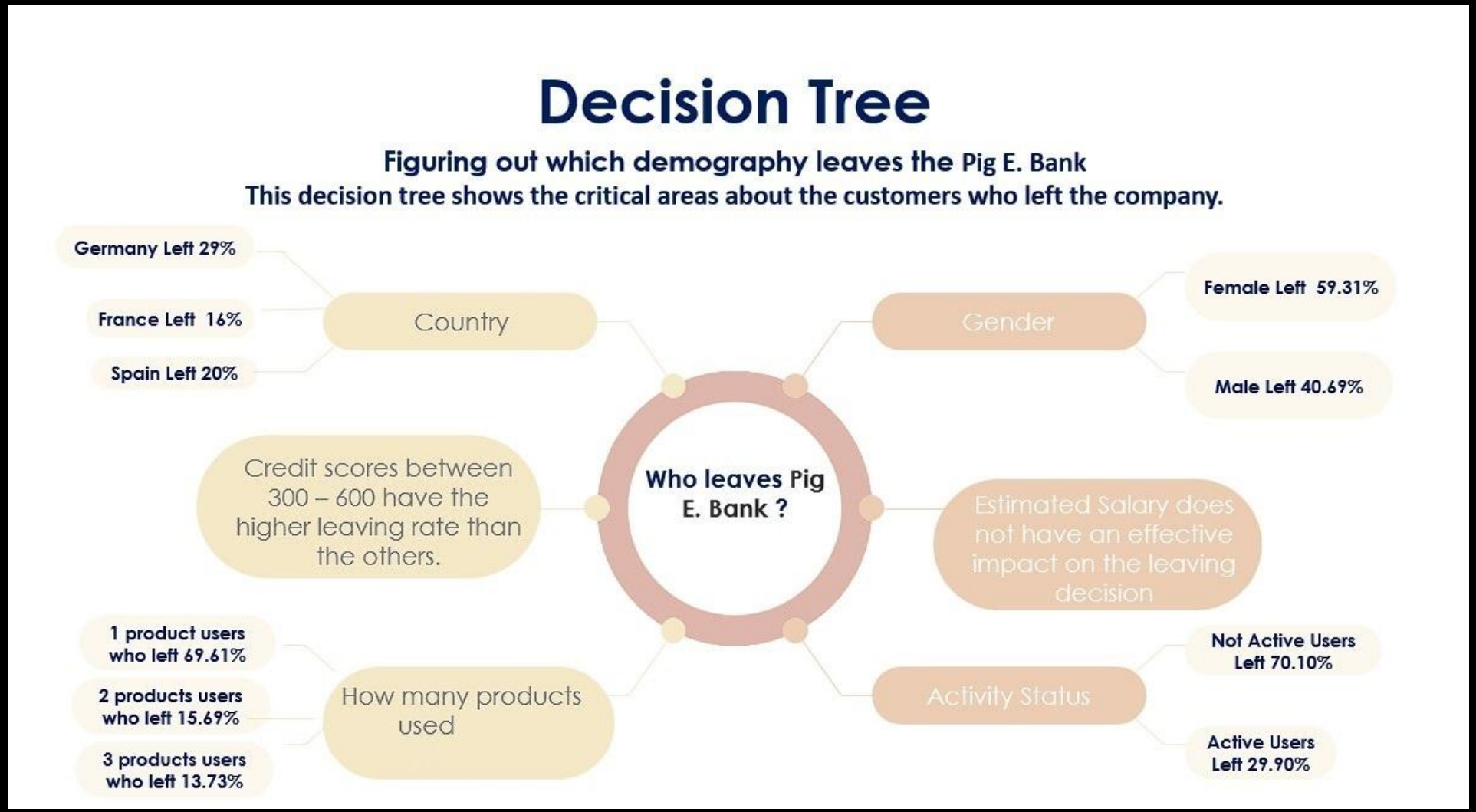
Comparison by Age				
Count of Customer_ID	Column Labels			
Row Labels	Loyal	Exited	Grand Total	
<20 or (blank)	0,38%	0,00%	0,30%	
20-24	5,22%	1,47%	4,44%	
25-29	13,23%	3,92%	11,31%	
30-34	22,39%	7,84%	19,39%	
35-39	26,72%	16,18%	24,55%	
40-44	15,65%	19,12%	16,36%	
45-49	6,87%	22,55%	10,10%	
50-54	2,80%	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 Kaggle, 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

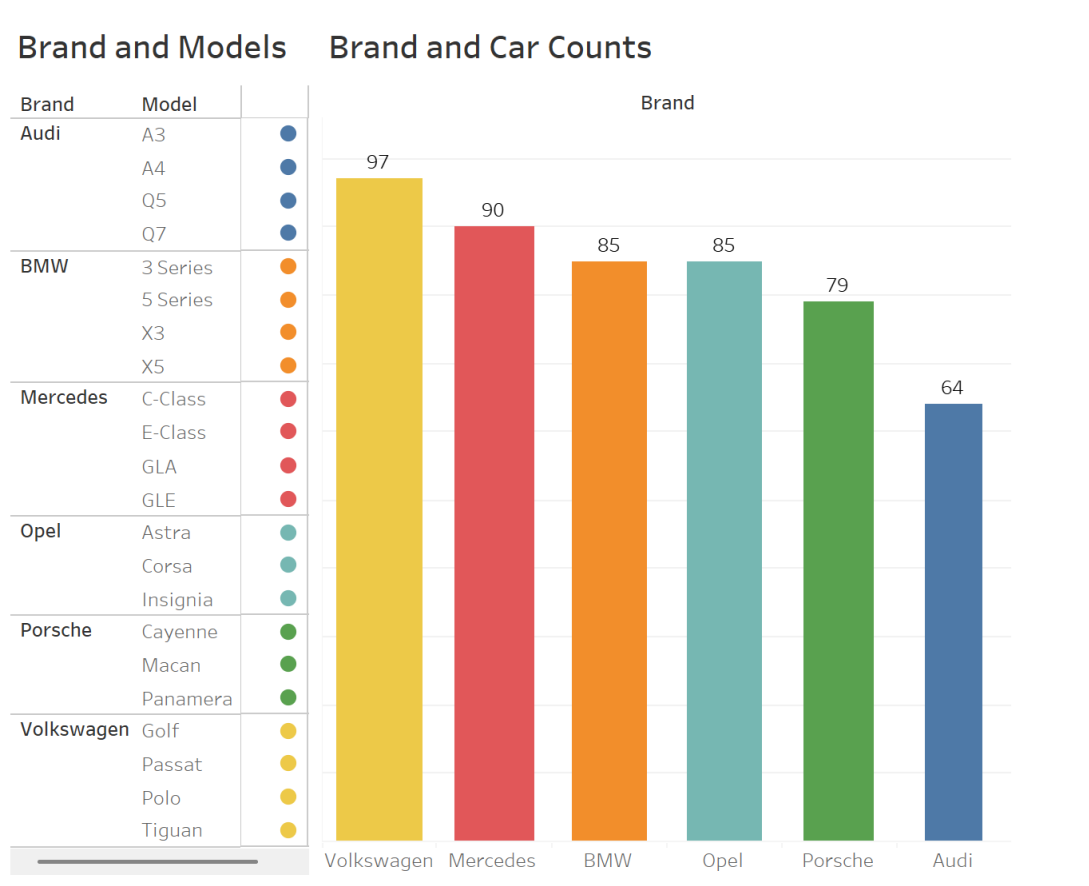
This dataset, derived from Kaggle, consists of 500 records detailing key attributes of cars in the German automotive market. It is structured to represent common vehicle characteristics in Germany, offering a valuable resource for analyzing pricing trends, fuel efficiency, and other essential aspects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

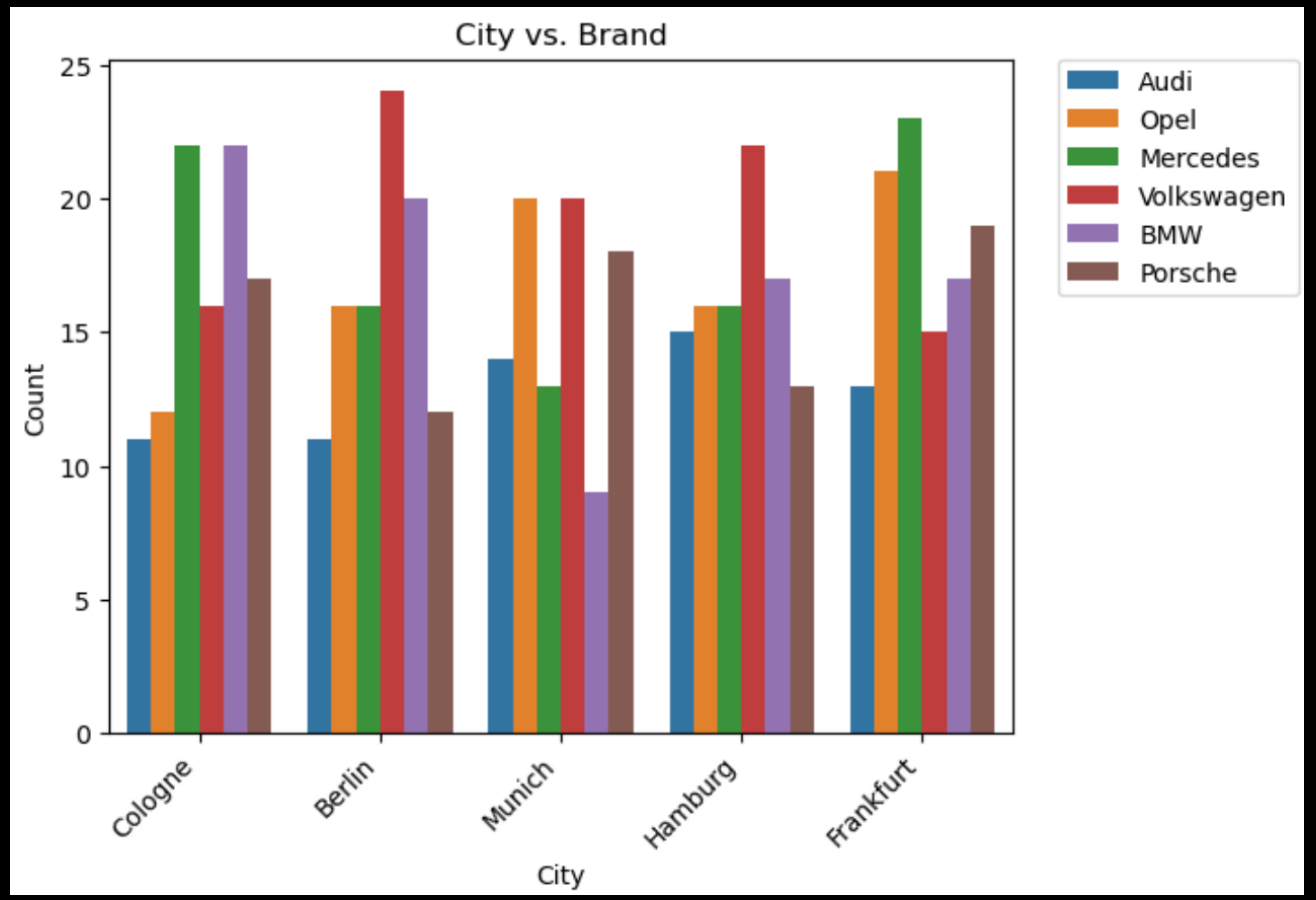
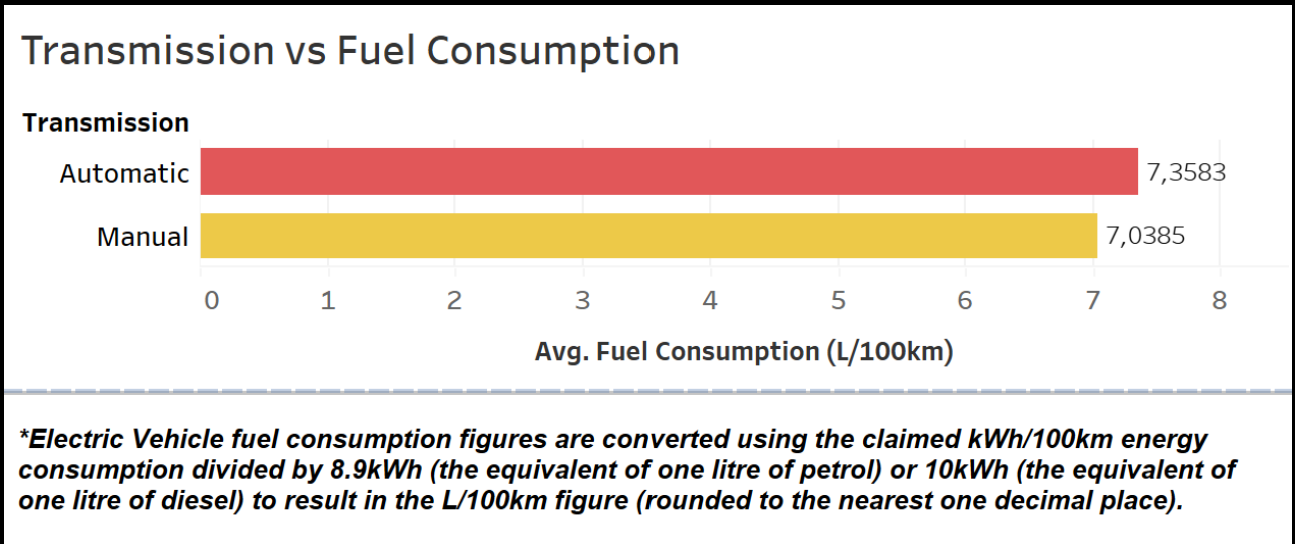


Tableau story link [German Cars Price and Efficiency]

ANALYSES

Transmission vs Fuel Consumption



Electric Vehicle fuel consumption figures are converted using the claimed kWh/100km energy consumption divided by 8.9kWh (the equivalent of one litre of petrol) or 10kWh (the equivalent of one litre of diesel) to result in the L/100km figure (rounded to the nearest one decimal place).

Formula for converting electric vehicle energy consumption (kWh) to equivalent fuel consumption (liters).

Fuel Type vs Fuel Consumption

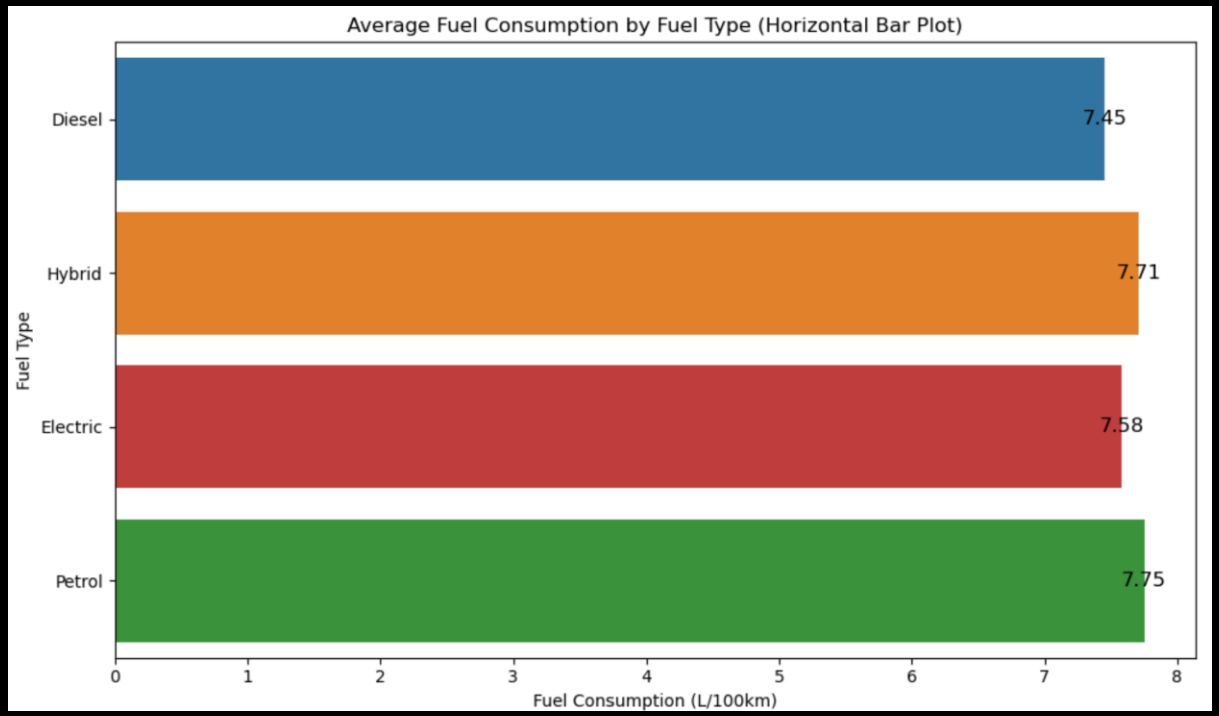


Tableau story link German Cars Price and Efficiency

ANALYSES

Average Fuel Consumption by Brand and Model

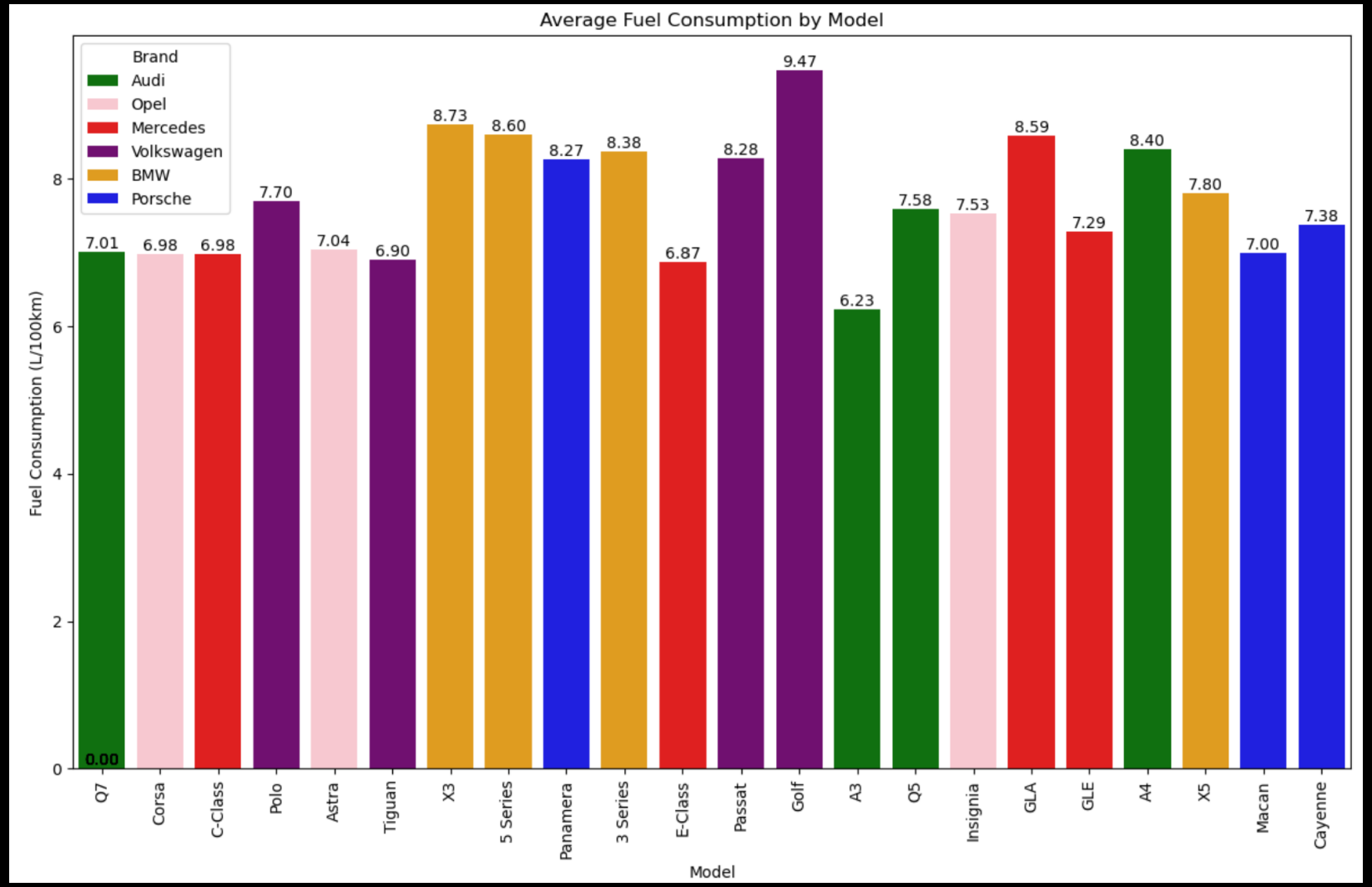
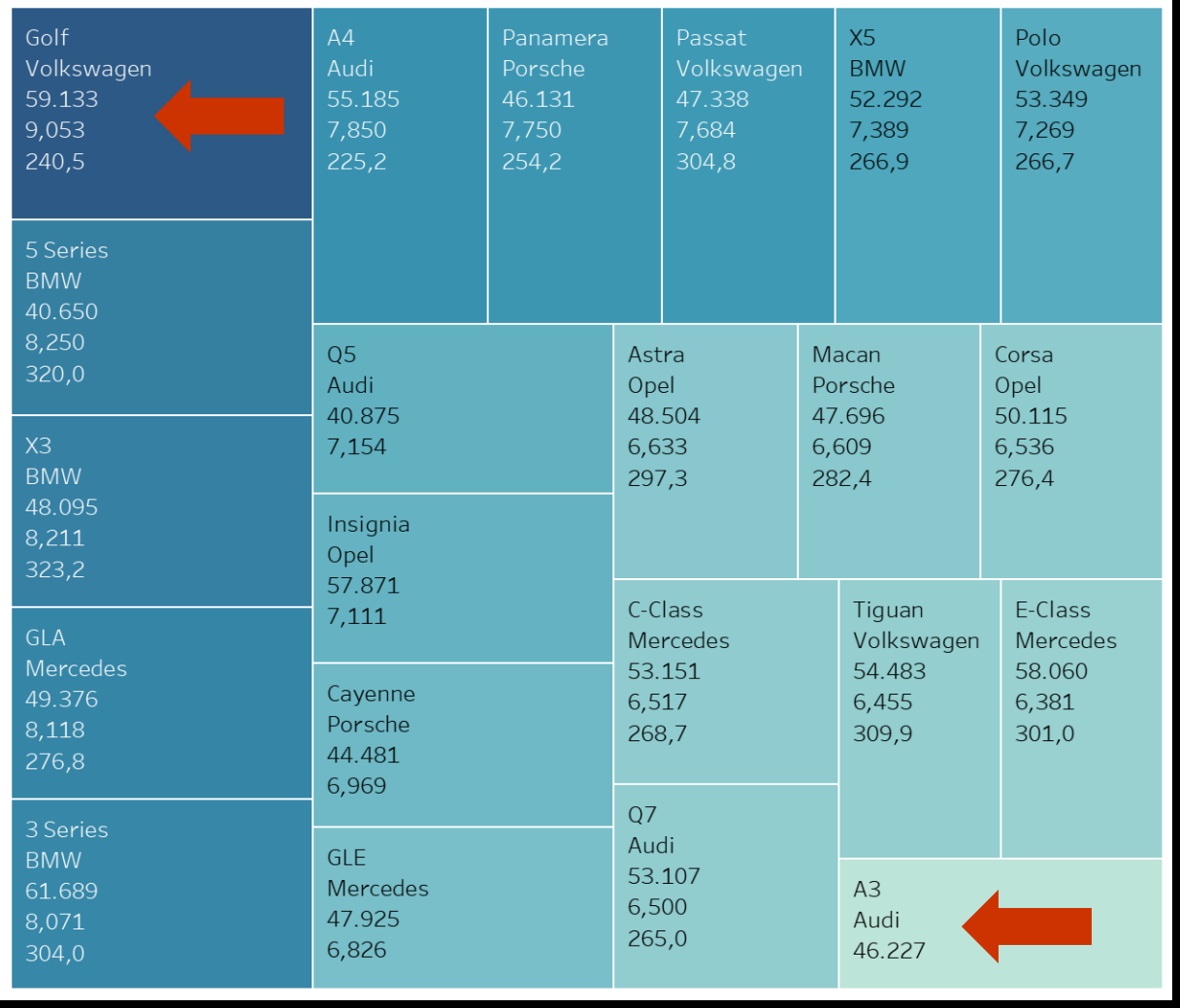


Tableau story link [German Cars Price and Efficiency]

ANALYSES

Average Fuel Consumption - Brand - Model - Price



Brand - Model - Average Price

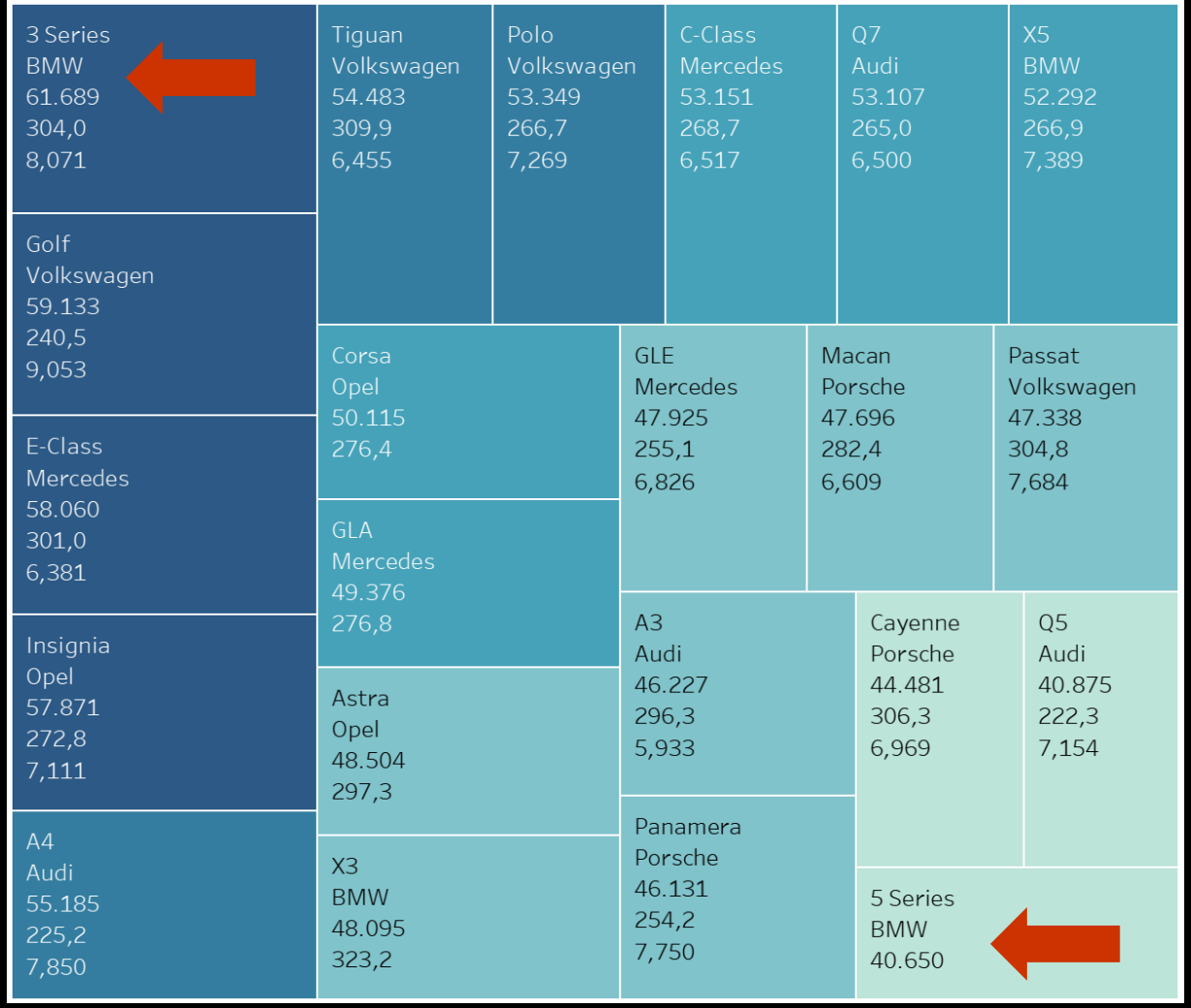
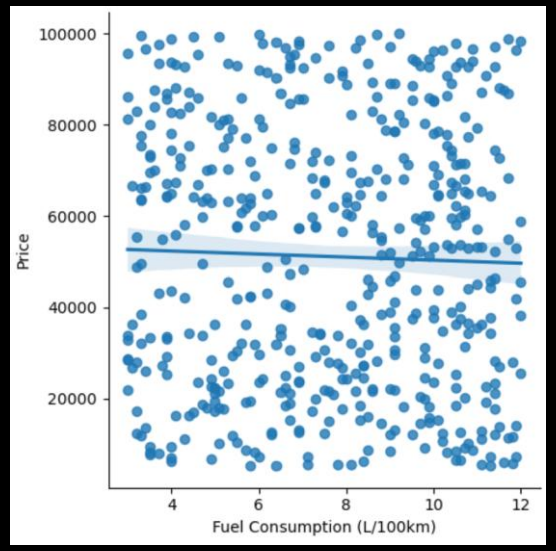


Tableau story link German Cars Price and Efficiency

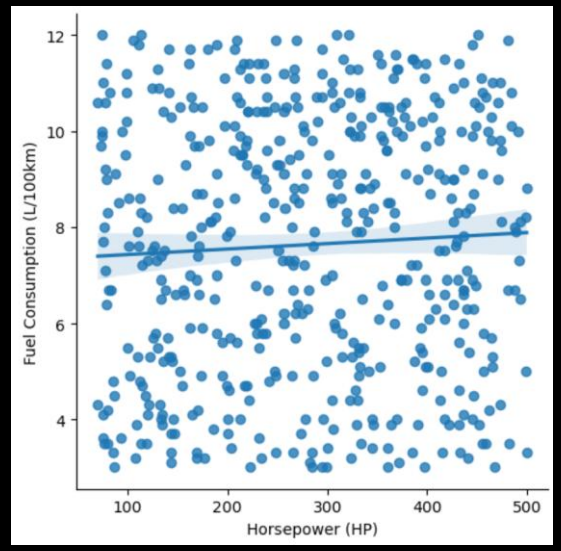
ANALYSES

Fuel Consumption vs Price



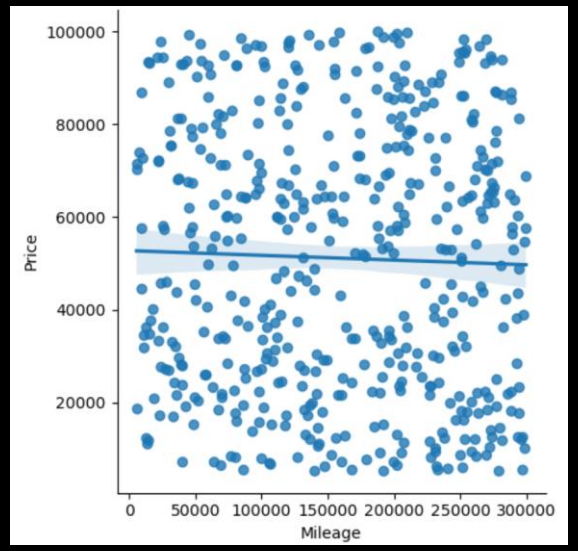
When fuel consumption increases, the price declines.

Horsepower vs Fuel Consumption



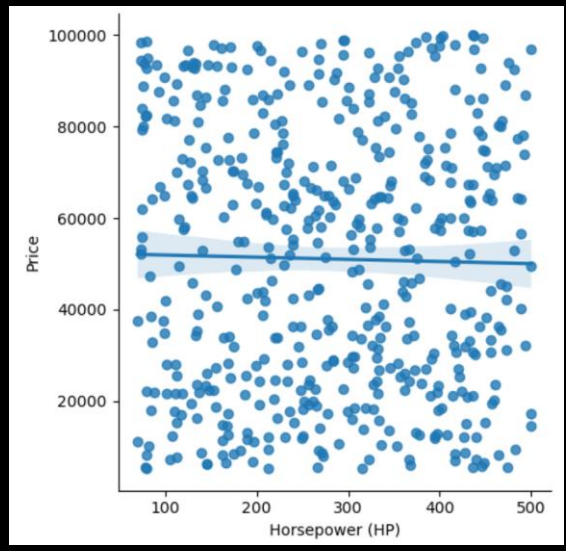
When horsepower increases, the fuel consumption also increases.

Mileage vs Price



When mileage increase, price declines.

Horsepower vs Price



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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