

# Data Analytics Portfolio



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# About me

Welcome to my Data Analytics portfolio! I am a data analyst student who is passionate about storytelling and believes that words and data are the most powerful tools for changing the world. My expertise includes data analysis, visualization, and machine learning, which allows me to create informative narratives from difficult datasets.

I frequently work on end-to-end data analytics projects, beginning with data collecting and finishing with relevant business insights. My work combines programming and statistical analysis to solve problems and identify trends. Explore my portfolio to learn how I use data to create meaningful stories that drive strategic decisions.



[Resume Valentin Monnet](#)



<http://linkedin.com/in/valentin-monnet>



<https://github.com/valentinmonnet>



# Projects

1. **GameCo** : Historical Video Game Sales Analysis & Recommendations
2. **Influenza Season** : Preparation of Necessary Medical Staffing for Influenza Season
3. **Rockbuster Stealth** : Finding data-driven business insights for a lagging video rental company
4. **InstaCart** : Generating marketing strategies based on consumer segmentation and habits
5. **Pig.E Bank** : Exploratory Analysis into Driving Factors behind Customer Attrition for a Global Bank

# GameCo Project

## **Objective:**

Conduct a comprehensive descriptive analysis of video game data from 1980 to 2016. This analysis will guide GameCo's strategic planning for 2017, focusing on the development of new games and the overall expansion of the company.

## **Data & Limitations:**

•**Data Source:** VGChartz dataset, covering historical sales data for video games across various platforms, genres, and publishers from 1980 to 2016.

•**Limitations:**

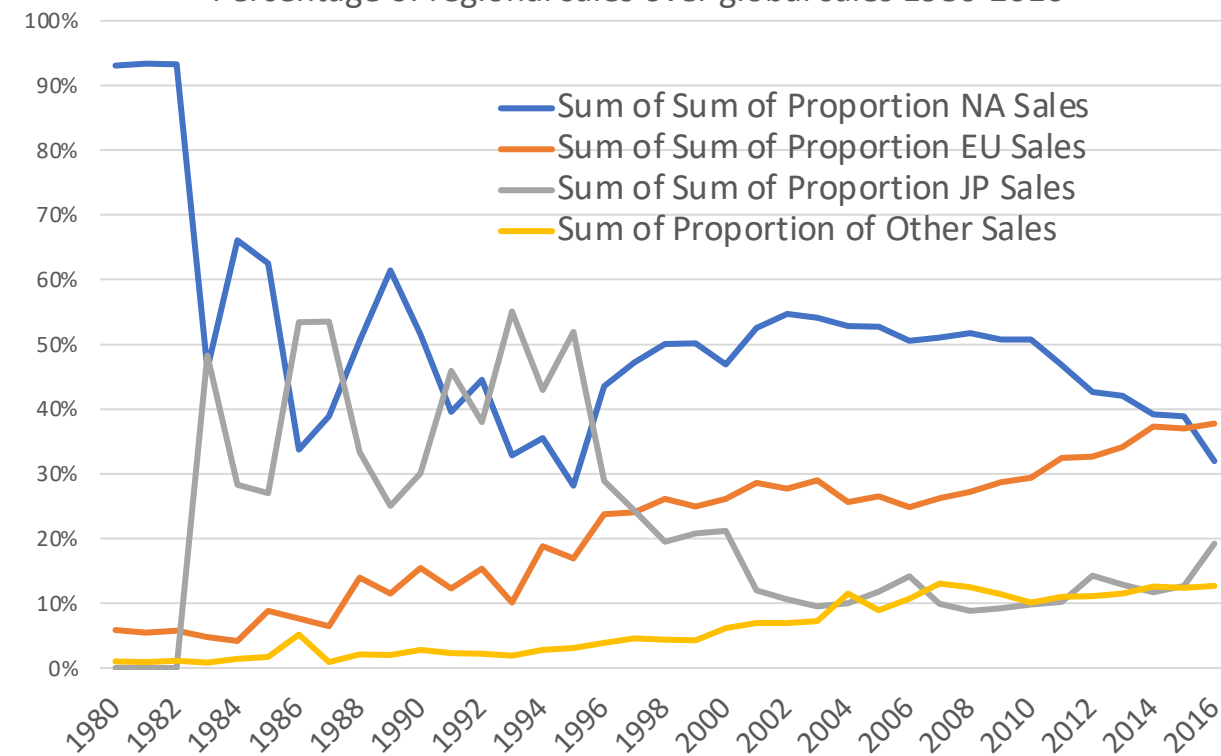
- Data represents units shipped, not units sold, which may not accurately reflect financial performance.
- Incomplete data collection for the year 2016, which may affect recent trend analysis.

## **Skills:**

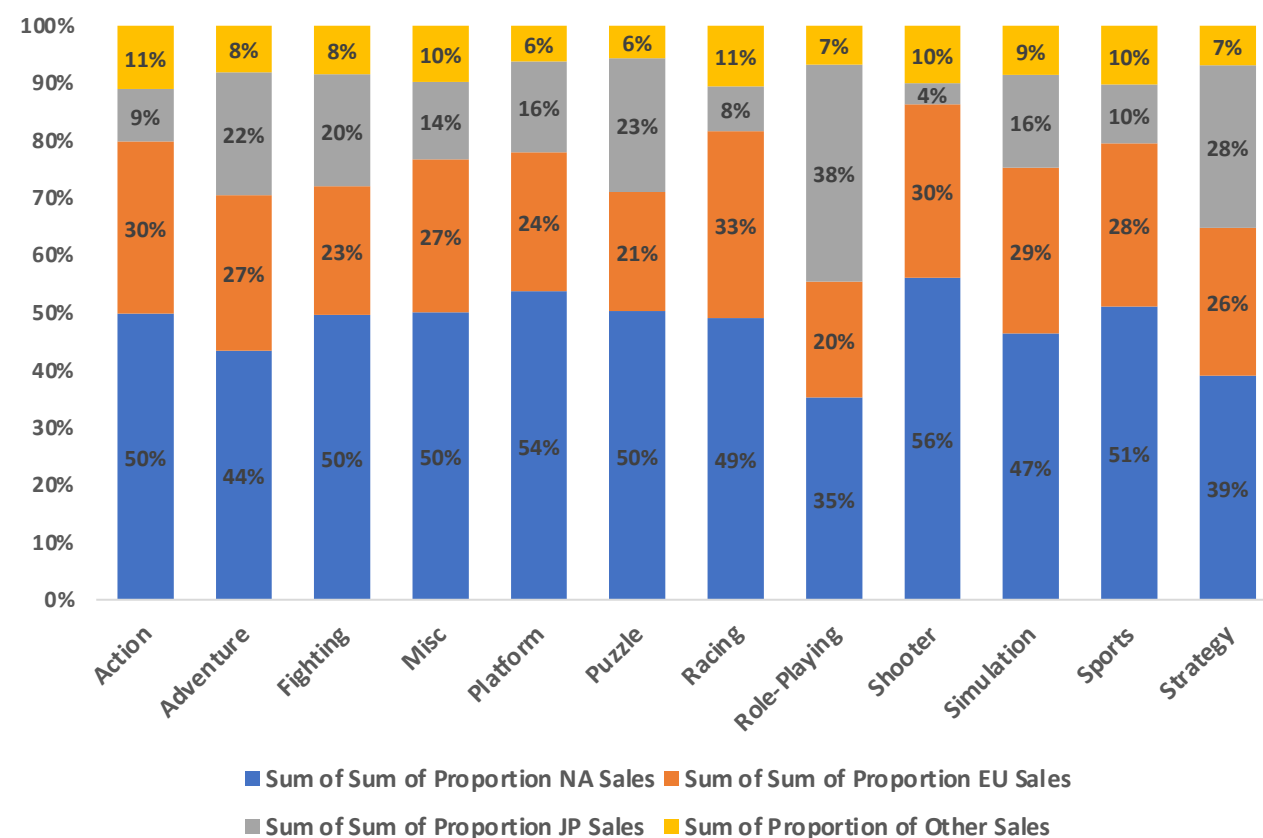
Data cleaning/grouping | Pivot tables | Descriptive Analysis | Excel/ PowerPoint

# Analysis Findings

Percentage of regional sales over global sales 1980-2016



- Sales in North America have been declining over recent years.
- Sales in the European Union and Japan have increased.
- The European Union and Japan now account for a larger proportion of global sales.
- Sales trends have stabilised compared to the fluctuating patterns observed from 1980 to 2000.



- Since 2010, North America has maintained its leadership in global sales for most video game genres, except for role-playing games.
- North America has seen a decreasing trend in overall sales.
- Europe has experienced a significant increase in its market share.
- The increase in Europe is particularly notable in racing, shooter, and sports genres.
- The rise in European market share is largely due to the decline in sales in North America.

## **Revamping Marketing Strategies for Targeted Growth:**

To combat profit declines in North America, it is essential to bolster marketing investments with a focus on PS4 and Xbox One platforms. Prioritise the Shooter, Action, and Sports genres to align with market preferences. Concurrently, enhance marketing efforts in Europe, where the PC platform is predominant, by leveraging the region's robust internet infrastructure to support sustained growth.

### **Exploring New Markets and Utilizing Data-Driven Insights:**

Expanding into emerging global markets should be a priority, aiming to boost market share by 10% in secondary regions. This strategy will facilitate deeper market penetration and the ability to engage diverse customer segments. Utilising detailed data analytics will be crucial for identifying market trends and drivers, enabling the formulation of tailored strategies that foster both internal and external business growth.



### **Strategic Resource Allocation Across Markets:**

In North America, shift resources from platform and puzzle games to strengthen support for Shooter and Sports genres, in line with current market demands and to enhance returns. Additionally, reallocate resources to increase capacity for European market ventures, capitalising on a larger consumer base and tapping into emerging opportunities.

# Influenza Seasons Project

## **Objective:**

Investigate historical patterns of influenza incidents across the United States to guide the strategic forecasting of staffing needs. This analysis aims to enable a medical staffing agency to efficiently allocate temporary healthcare personnel for the upcoming flu season.

## **Data & Limitations:**

### **•Data Sources:**

- Influenza mortality data (2009-2017) from the CDC, categorized by location, timeframe, age, and gender.
- Population demographics by geographic area from the US Census Bureau.

### **•Limitations:**

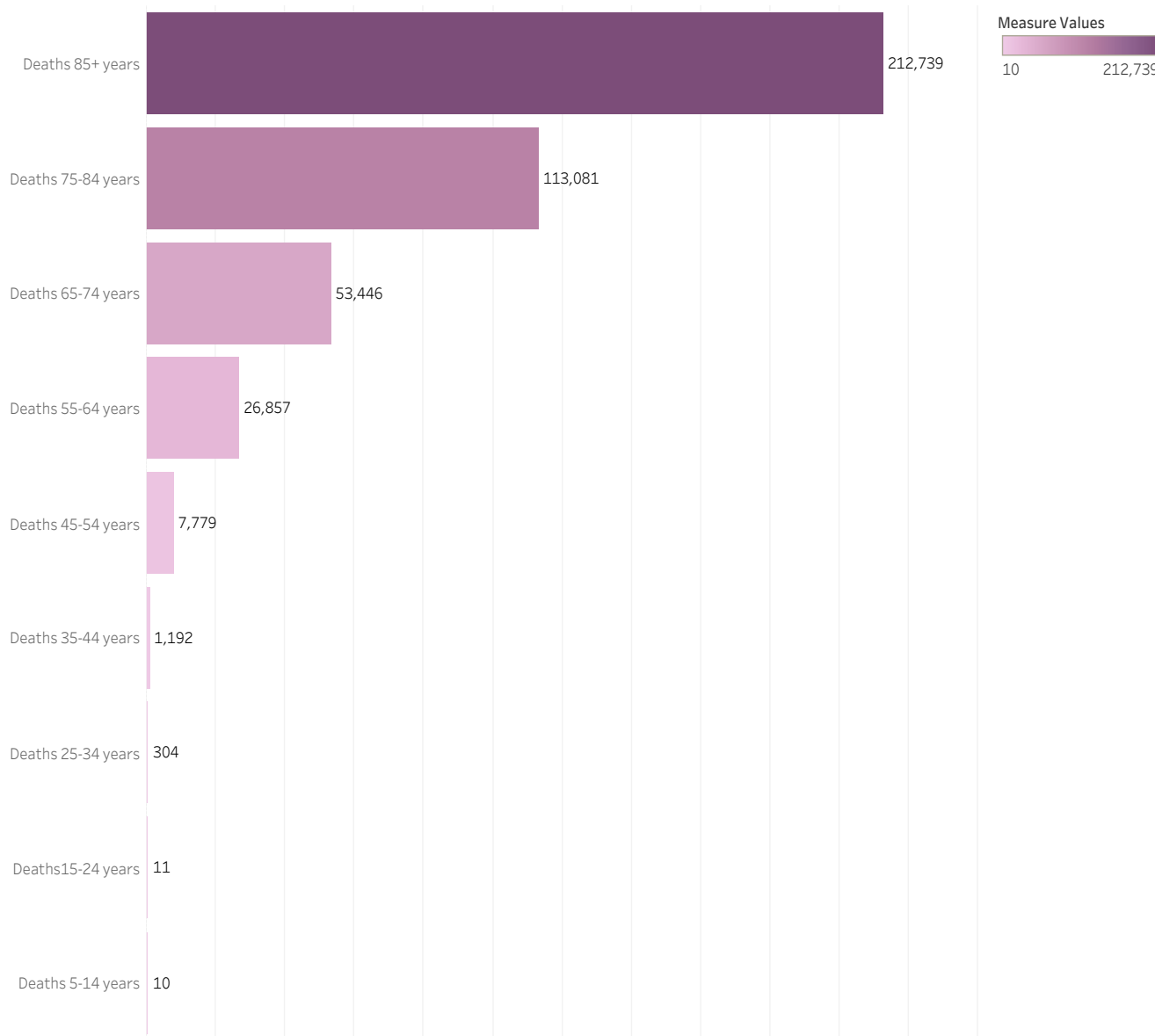
- Confidentiality requirements have led to the suppression of 82% of the entries.
- Death records include only a single cause of death, potentially underestimating influenza-related fatalities.
- Data scope is limited to clinics and hospitals that reported between 2009 and 2017.

## **Skills:**

Data cleaning | Data integration | Statistical Hypothesis Testing | Tableau  
Visualizations & Storytelling

# Analysis Findings

## Recognising At-Risk Groups



- More than 95% of all influenza-related deaths occur in individuals aged 65 and older.

- This demographic is identified as the most susceptible to the illness.

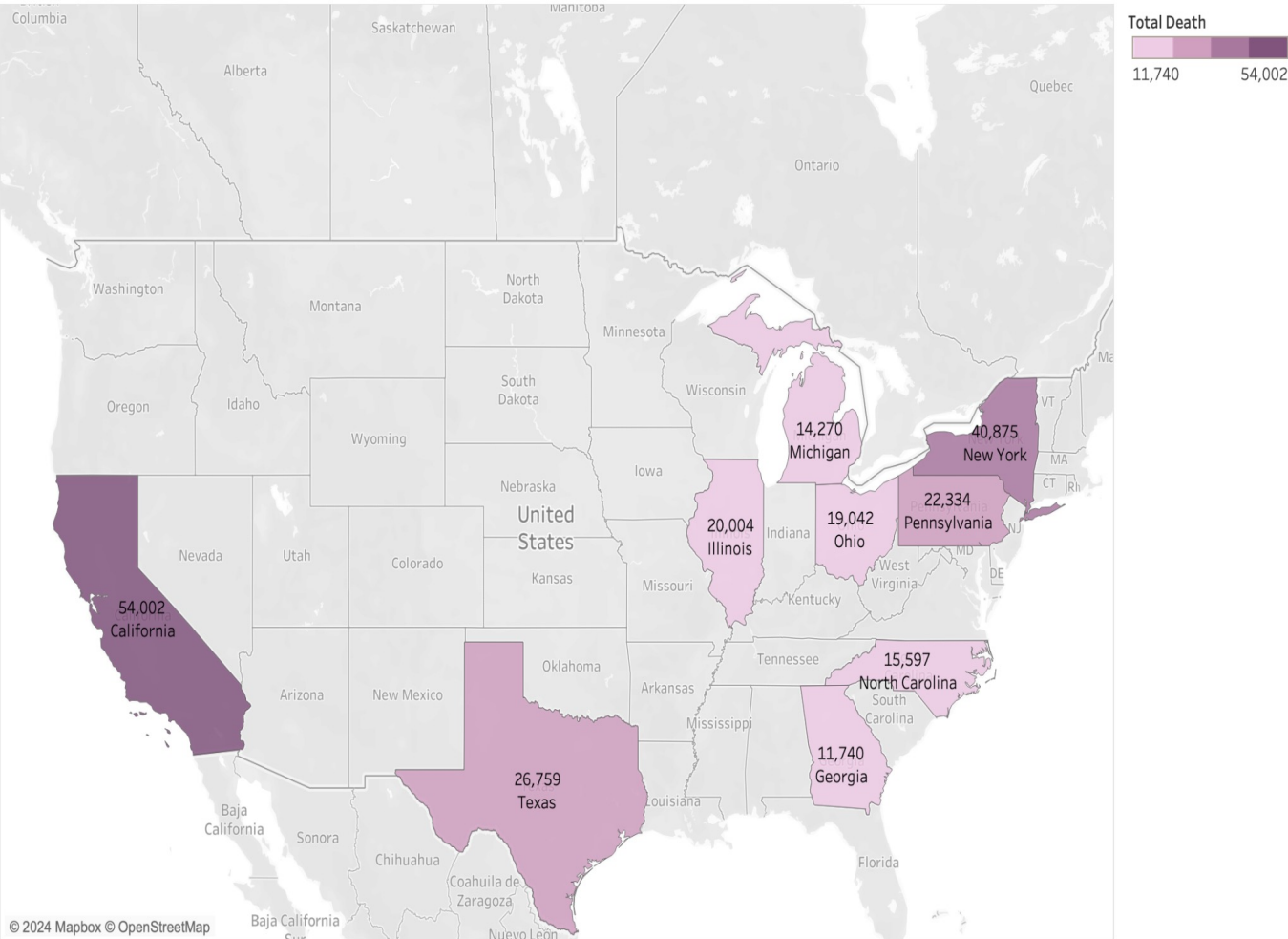
- Consequently, healthcare efforts and resources should be prioritised towards supporting this vulnerable age group.

- Redirect resources specifically to address the needs of individuals aged 65 and older during influenza season.



# Analysis Findings

## Tailoring Staffing Levels Across States to Meet Healthcare Demands



- This map visualises the distribution of total deaths across various states in the United States, likely related to healthcare demands during an influenza season.
- Each state is shaded in different intensities of purple:
  - Darker shades represent higher numbers of deaths.
  - Lighter shades indicate fewer deaths.
- Key data points shown include:
  - California with the highest number of deaths at 54,002.
  - New York follows with 40,875 deaths.
  - Texas shows 26,759 deaths.
  - Pennsylvania shows 22,334 deaths.
- The purpose of the map is to assist in tailoring staffing levels across states to meet healthcare demands effectively.
- The map suggests regions that may require more intensive healthcare resources and personnel deployment based on the mortality rates depicted.

## **Prioritising Healthcare for High-Risk Groups**

Given the significant number of influenza-related fatalities among individuals aged 65 and older, it is crucial to prioritise and focus healthcare resources on this vulnerable age group. This strategy should encompass targeted healthcare campaigns, increased availability of vaccinations, and tailored medical services that specifically address the needs of the elderly.

### **Tailoring Staffing Levels to Meet Regional Demands**

The distribution of influenza-related deaths across the United States necessitates a strategic approach in adjusting healthcare staffing levels. States like California, New York, Texas, and Pennsylvania, which report higher mortality figures, should receive prioritised healthcare support. This effort should concentrate on mobilising additional healthcare personnel and resources to these high-demand areas to effectively manage and mitigate the effects of influenza.



### **Enhancing Healthcare Infrastructure and Education**

Efforts should be made to expand healthcare infrastructure and resources in high-risk areas. This includes increasing the availability of hospital beds and medical supplies tailored to treat influenza. Additionally, enhancing training for healthcare personnel on managing influenza outbreaks and ensuring the implementation of preventive measures can further strengthen the healthcare system's responsiveness. The goal is to ensure that all states, especially those with high mortality rates, have the necessary support to effectively manage and mitigate the impacts of influenza.

# Rockbuster Project

## **Objective:**

Utilise detailed data analysis to inform the company's 2020 strategy for launching online video services and improving its market position. By extracting actionable insights from the data, the strategy will aim to optimise service offerings, target the appropriate consumer segments, and enhance overall business performance. This data-driven approach will ensure that the launch is aligned with consumer preferences and market trends, positioning the company for successful expansion in the digital landscape.

## **Data Overview & Limitations:**

### **•Data Sources:**

- The relational database includes 15 detailed tables covering customers, film inventory, movie rentals, store operations, and payments.
- The dataset is accompanied by a comprehensive data dictionary.

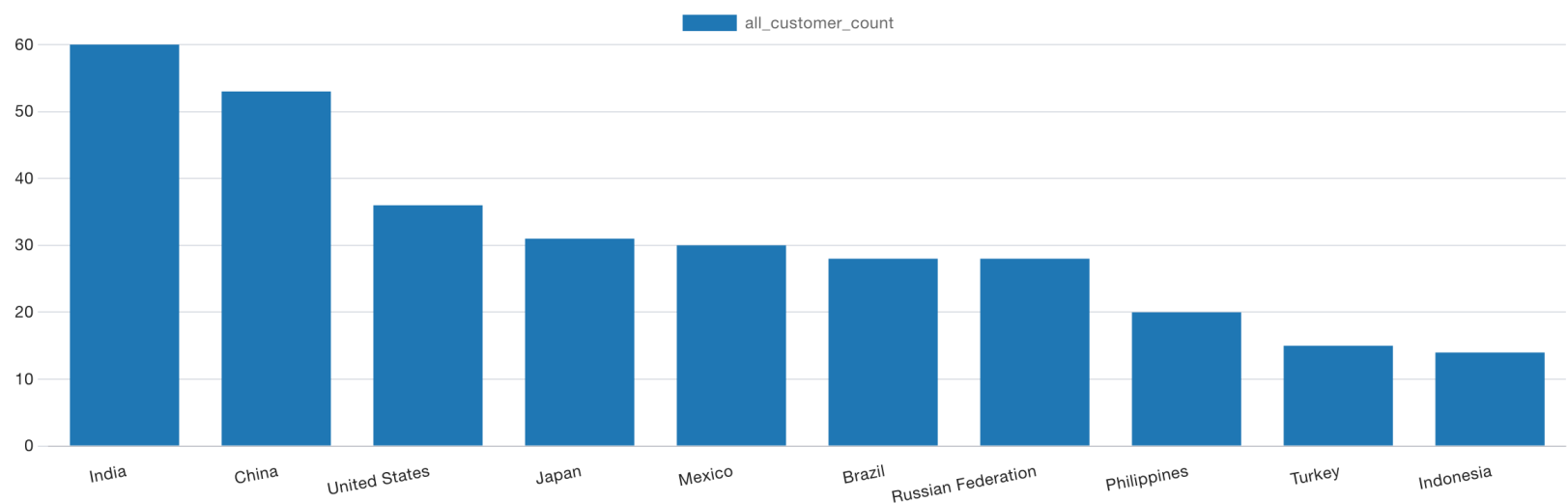
### **•Limitations:**

- The dataset focuses on internal records, which may require updates to accurately reflect external market conditions and customer interactions.

## **Skills:**

Data Cleaning/Filtering | Database Manipulation | SQL Joins | Visualizations and Storytelling

# Analysis Findings

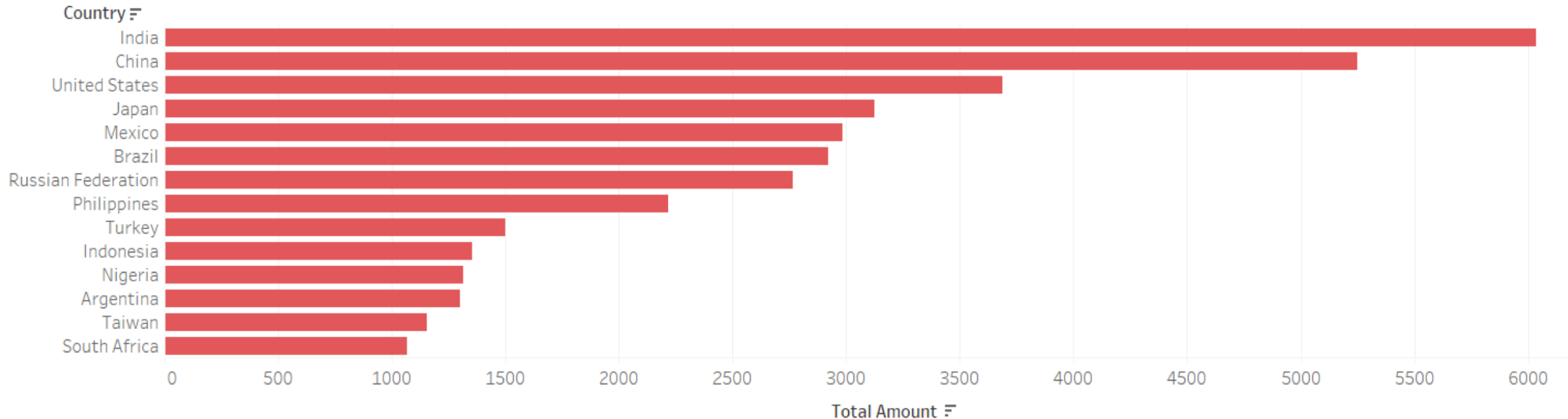


	country character varying (50) 🔒	all_customer_count bigint 🔒	top_customer_count bigint 🔒
1	India	60	2
2	China	53	0
3	United States	36	2
4	Japan	31	0
5	Mexico	30	0
6	Brazil	28	1
7	Russian Federation	28	0
8	Philippines	20	0
9	Turkey	15	0
10	Indonesia	14	0

- Rockbuster Stealth has established a substantial global footprint.
- The company serves customers in 108 countries.
- Rockbuster Stealth has 599 customers, with 584 being active customers.
- The company offers a library of 1,000 movies.
- Revenue stands at \$61,312.
- The movie selection spans 20 genres.
- This presence underscores its broad international reach.

# Analysis Findings

- The graph displays influenza-related deaths across various U.S. states.
- California reports the highest number of deaths at 54,002.
- New York follows with 40,875 deaths.
- The data aids in strategising healthcare resource allocation.
- States like Texas and Pennsylvania also require significant attention due to their high mortality rates.
- The visual underscores the need for targeted healthcare staffing to effectively manage regional demands during influenza peaks.



## Optimised Content Strategy and Promotional Activities

### •Content Library Curation:

- Discontinue titles that perform poorly to maintain a high-quality content library.
- Ensure the availability of movies that resonate with a global audience.

### •Customer Engagement and Loyalty:

- Strategically promote and offer discounts on the most popular movies.
- Focus on key markets like India, China, and the U.S. to enhance customer engagement.

## Targeted Marketing and Customer Retention Efforts

### •Personalised Signup Incentives:

- Offer discounts and coupons specifically targeted at top-performing countries to attract new users.
- Maintain the loyalty of existing customers through tailored incentives.

### •High Lifetime Value Customers (HLVC):

- Develop a tailored pricing strategy for HLVC to improve retention rates.
- Optimise revenue generation by focusing on high-value customers.

**Recommendations  
for Rockbuster  
Stealth's Strategic  
Growth**

## Expansion and Diversification Tactics

### •Language Options:

- Broaden the range of language options available in the content library, including Spanish, Chinese, and Hindi.
- Better serve the linguistic preferences of diverse audiences in top markets.

### •Content Library Expansion:

- Incorporate popular genres and conduct analyses to identify potential new additions in drama, games, and sports categories.
- Align new content with customer interests and market trends.



# Instacart Project

## Objective:

Conduct an exploratory analysis to gain insights into customer behaviour and sales trends for an online grocery retailer. The analysis aims to derive actionable insights that will enhance marketing strategies, refine sales segmentation, and improve customer profiling techniques.

## Data Overview & Limitations:

### •Data Composition:

- The dataset exclusively contains records from the year 2017.
- Customer demographics include limited data on income, age, family size, and marital status.

### •Sources and Scope of Data:

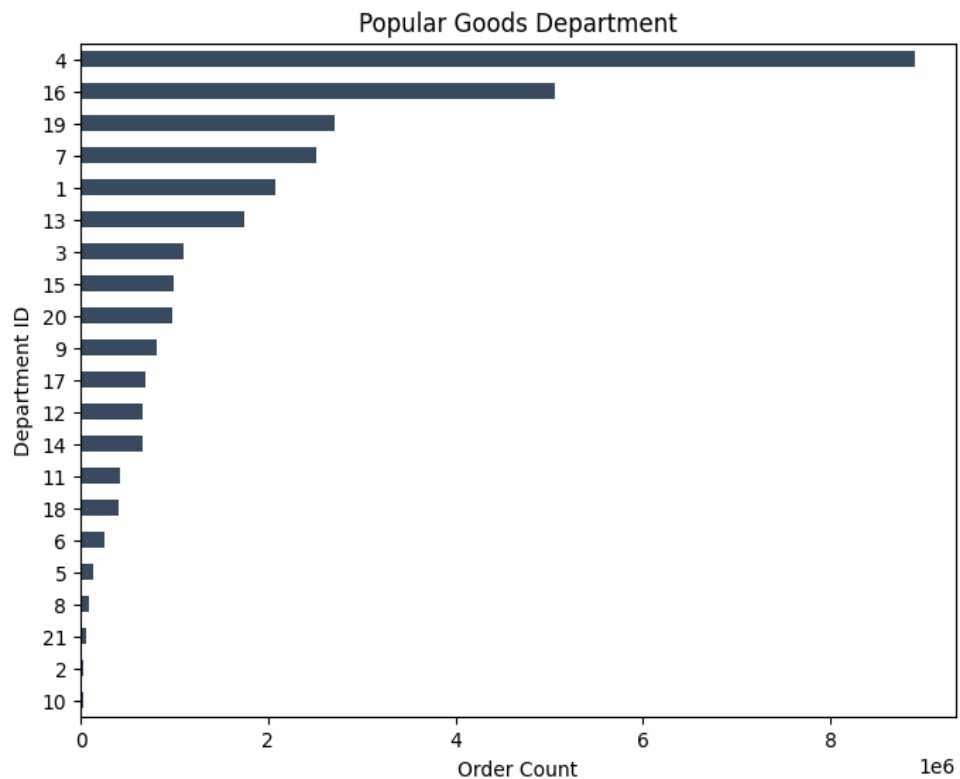
- The datasets encompass details on orders, products, and departments.
- Data is sourced from actual 2017 Instacart records available on Kaggle, complemented by fictitious customer data provided by Career Foundry.

### •Limitations:

- The scope of customer demographics may restrict the depth of analysis possible in areas such as behavioural segmentation and personalised marketing tactics.
- As the data is confined to a single year, it may not capture long-term trends or seasonal variations effectively.

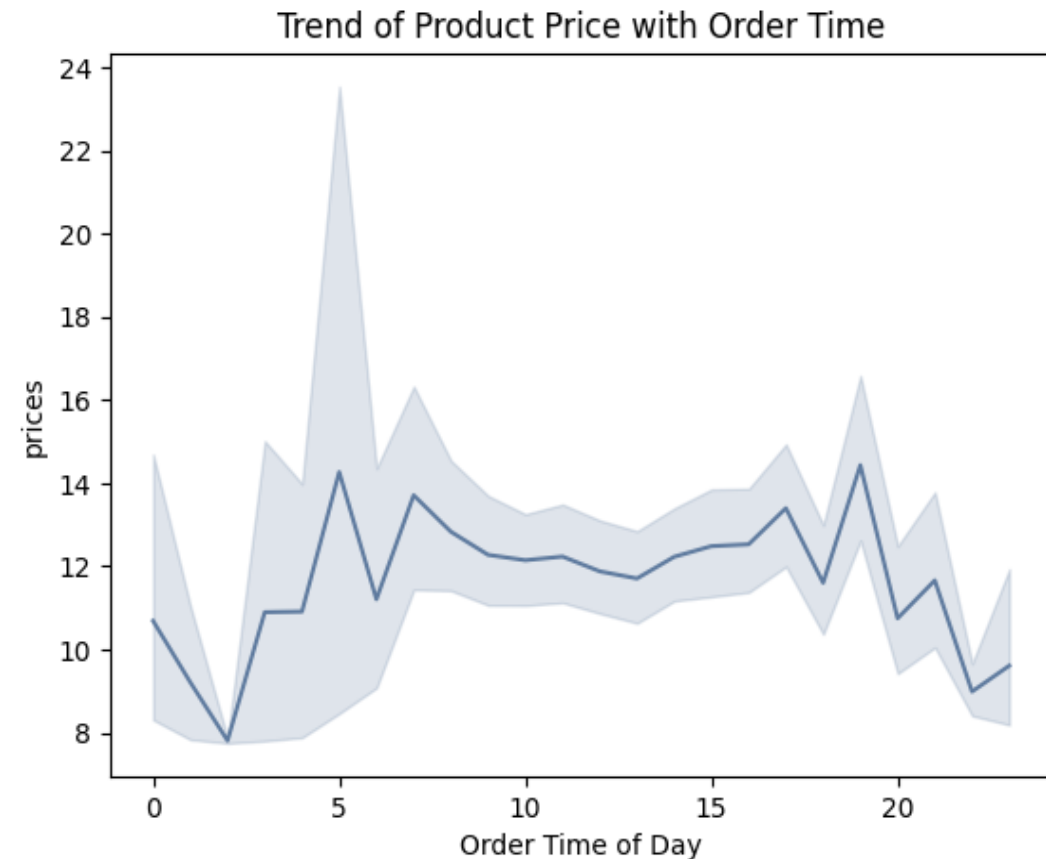
Skills: Data Wrangling & Merging | Grouping/Aggregating Data

# Analysis Findings



Produce and dairy items had the volume of orders by a comfortable margin.

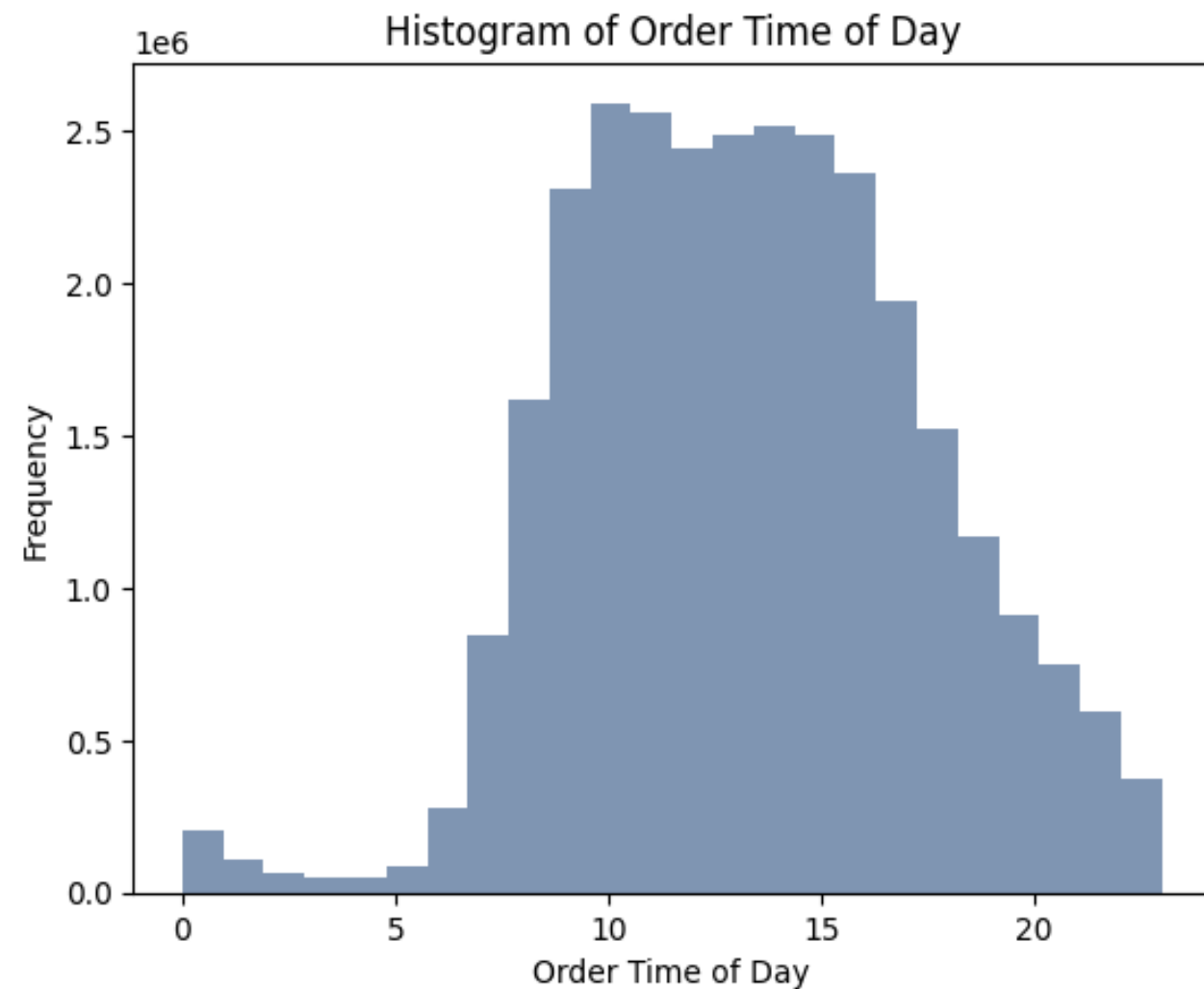
Unnamed: 0			department
0	1		frozen
1	2		other
2	3		bakery
3	4		produce
4	5		alcohol
5	6		international
6	7		beverages
7	8		pets
8	9		dry goods pasta
9	10		bulk
10	11		personal care
11	12		meat seafood
12	13		pantry
13	14		breakfast
14	15		canned goods
15	16		dairy eggs
16	17		household
17	18		babies
18	19		snacks
19	20		deli
20	21		missing



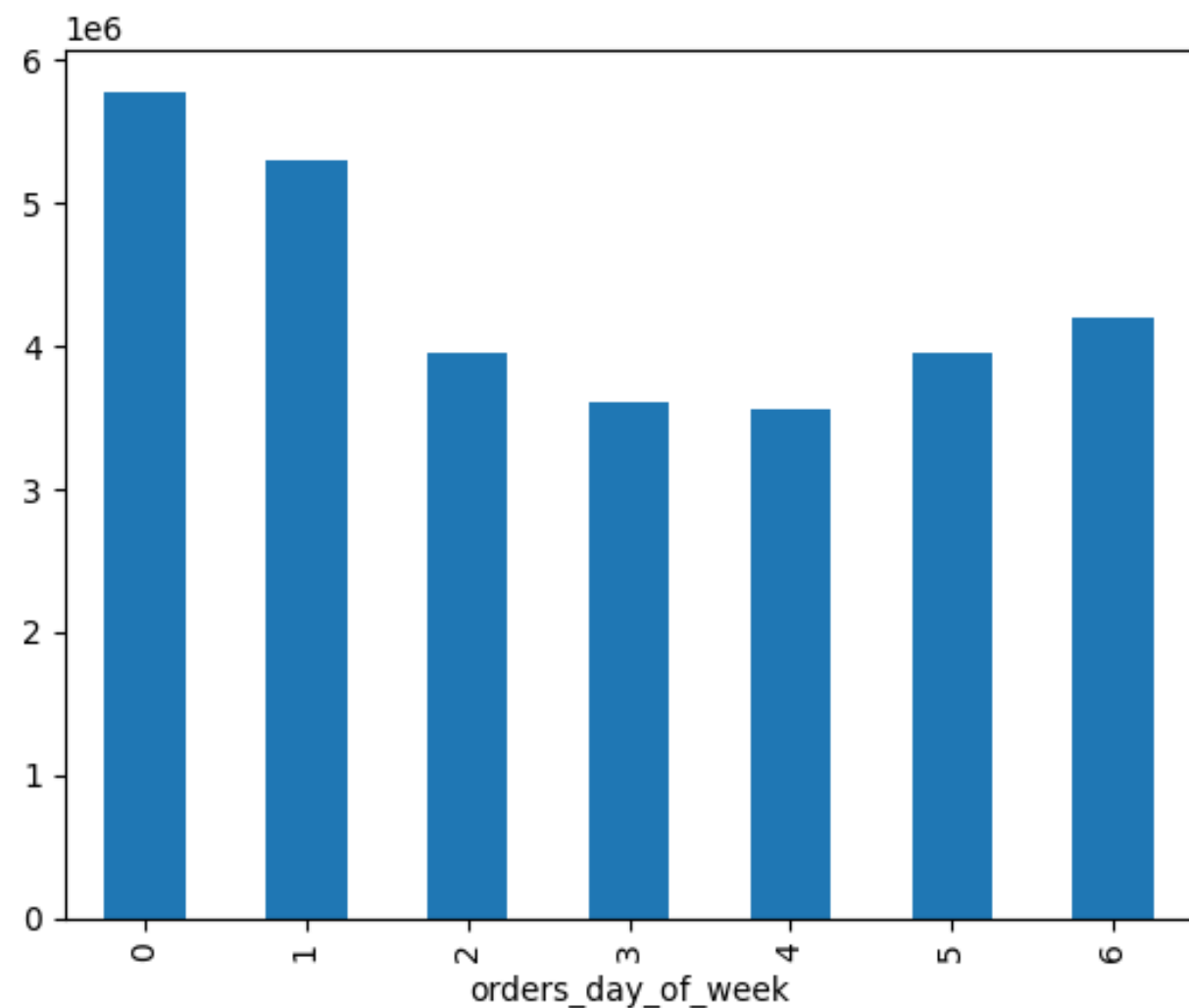
Price distribution is heavily skewed towards products \$15 and under



# Analysis Findings

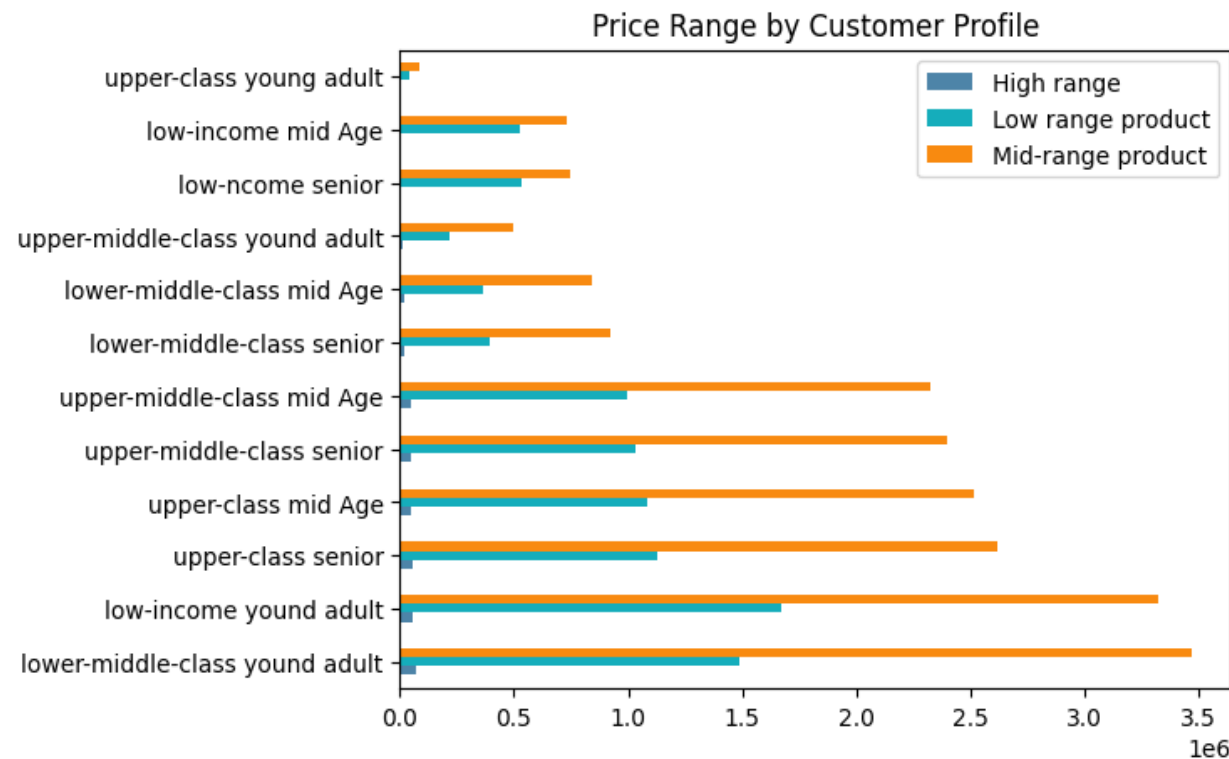
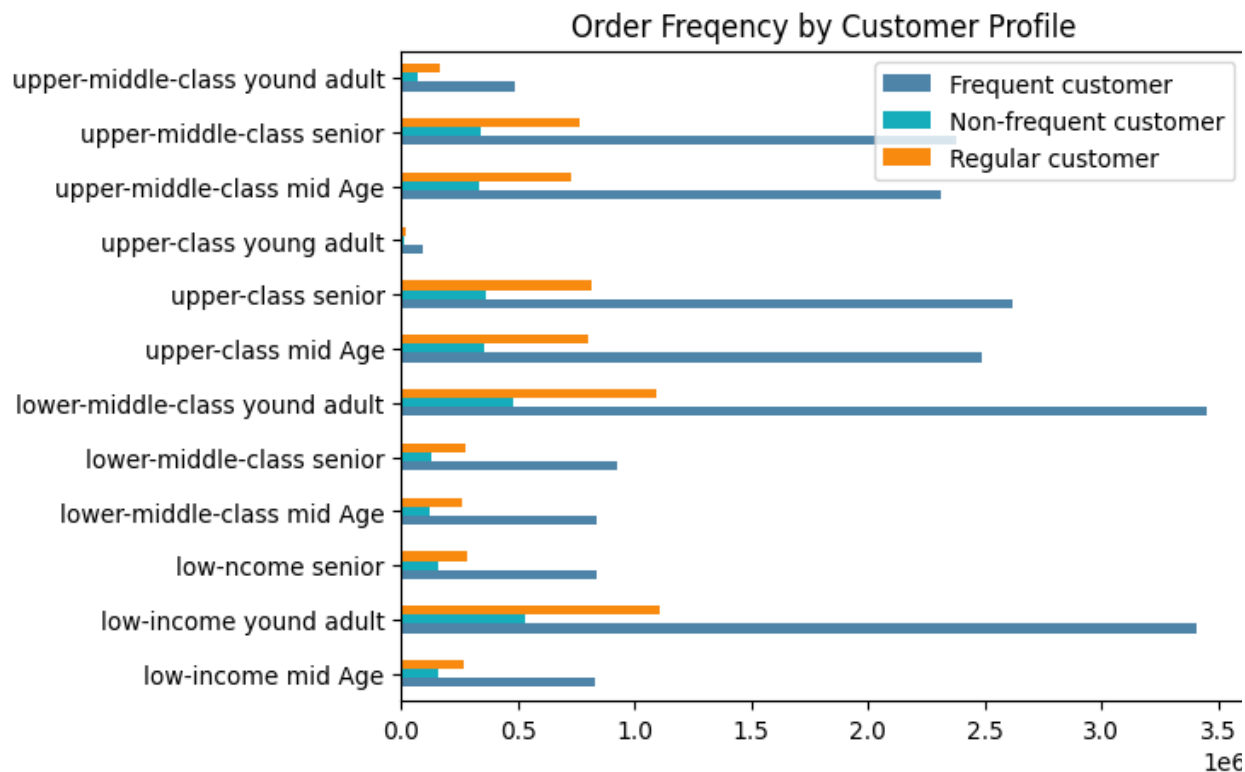


Daily high-traffic hours: 9AM to 5PM



Busiest days of the week: Friday – Sunday

# Analysis Findings



- Customer Demographics Impact:** Age and family status significantly influence order frequency and spending habits.
- Young Adults and Seniors:** Those with higher financial stability tend to shop more frequently.
- Single and Younger Customers:** Often opt for more affordable items.
- Married or With Families:** Demonstrate varied spending across different price ranges.
- Marketing Customization:** These patterns provide valuable insights for tailoring marketing approaches.
- Product Offering Alignment:** Helps in aligning product offerings with the distinct needs of each customer group.

## Optimize Marketing for Customer Demographics

- Targeted Marketing Messages:** Adapt marketing messages to specifically target age groups and family statuses with distinct purchasing patterns. Focus on the times and channels where these segments are most active.
- Increase Weekday Marketing Efforts:** Prioritize marketing on weekdays, especially targeting young adults and seniors with stable financial conditions, who tend to shop more frequently during these times.
- Optimize Marketing Spend:** Limit marketing expenditure during late-night hours when engagement is typically low, reallocating budget towards more productive times to maximize return on investment (ROI).

### Strategic Recommendations for Optimizing Marketing and Customer Engagement

## Enhance Family-Oriented Marketing Programs

- Family Shopping Rewards Program:** Launch a rewards program offering incentives for families to make purchases across a wide range of product categories.
- Personalized Email Marketing:** Initiate personalized email campaigns to remind family customers of special offers, thereby enhancing perceived value and encouraging repeat purchases.
- Loyalty Schemes for Families:** Develop loyalty schemes that reward varied spending habits, especially for families that spend across different price ranges, thus improving customer retention and satisfaction.

## Leverage Insights for Tailored Promotions

- Focused Promotional Efforts:** Direct promotional efforts towards product ranges that align with the spending habits of identified customer segments, such as premium products for financially stable adults and value items for younger, single customers.
- Timed Promotions:** Schedule promotions during peak shopping times as identified through customer behaviour analysis to achieve the highest level of engagement and conversion.
- Cross-Promotions and Bundled Deals:** Explore opportunities for cross-promotions and bundled deals that meet the comprehensive needs of families, potentially increasing average order value and fostering brand loyalty.

# Pig. E Bank Project

## Objective:

Enhance the effectiveness of the anti-money-laundering compliance department by providing robust analytical support. Key focuses include:

- **Risk Evaluation:** Assessing client and transaction risks to identify potential areas of concern.
- **Guideline Development:** Crafting guidelines to control bias in oversight and operational practices.
- **Model Refinement:** Improving predictive models to enhance the overall compliance strategy and efficacy.

## Data Overview & Limitations:

### • **Data Composition:**

- Customer demographics are confined to gender, age, and country.
- Includes additional records such as users' account balance, estimated salary, and membership status.

### • **Data Source and Scope:**

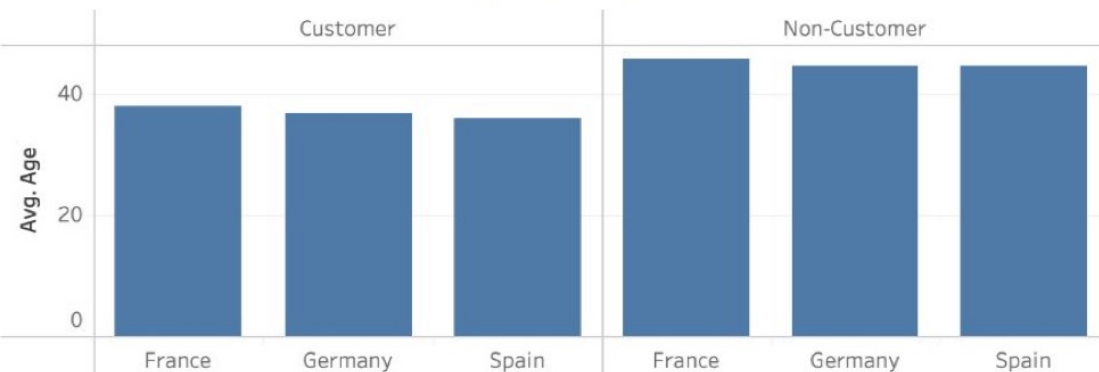
- The dataset comprises fictional client data provided by CareerFoundry.

### • **Limitations:**

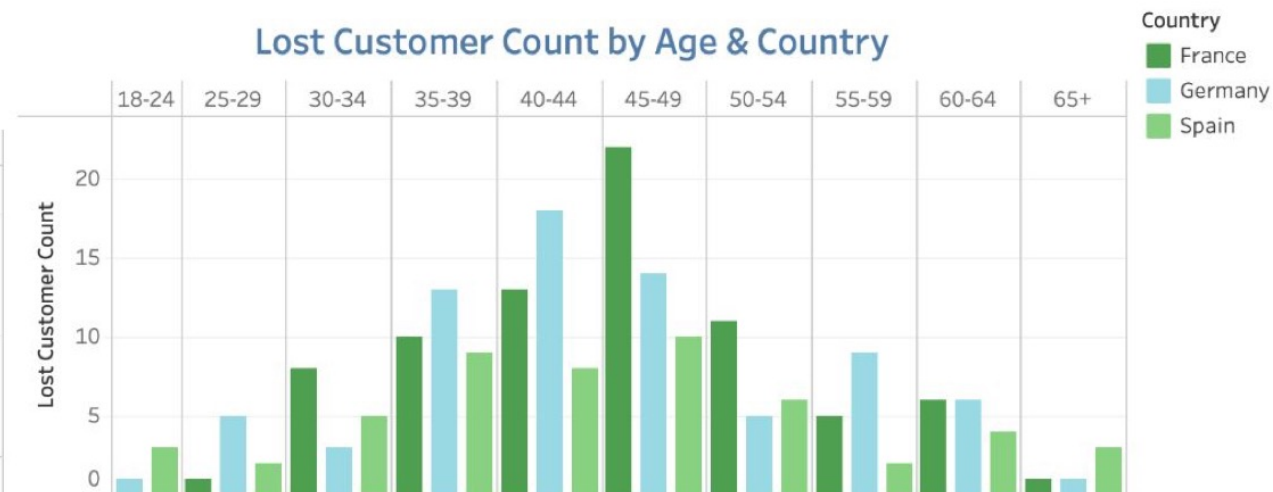
- The limited scope of demographic data may restrict the depth of risk analysis.
- Fictional nature of the data may not fully represent real-world complexities in anti-money laundering scenarios.

# Analysis Findings

## Average Age for Customers and Non Customers By Country



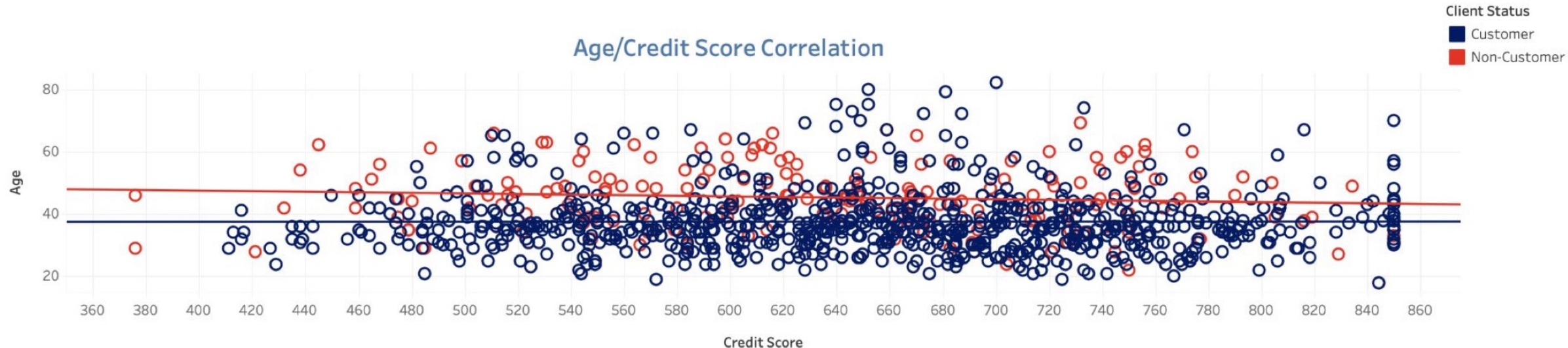
## Lost Customer Count by Age & Country



As evidenced by these graphs, the average age for a current customer is below 40 for all 3 countries in which data was collected. In contrast, the average age for a non-customer was no younger than 44.

This gives us a partial glimpse into the relevance of age in determining highest risk factors for customers leaving the bank.

## Age/Credit Score Correlation

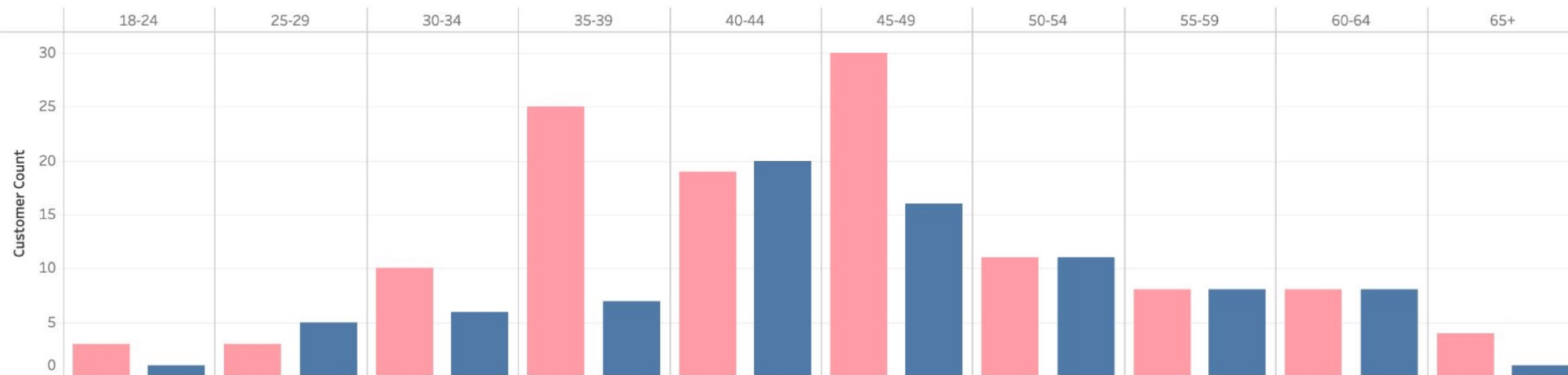




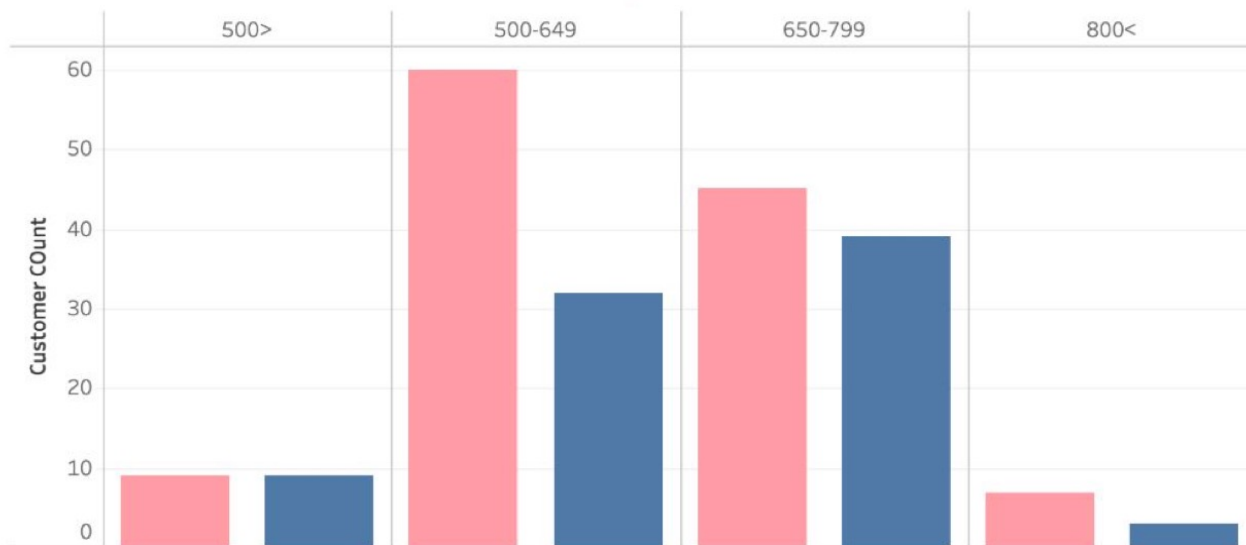
# Analysis Findings

Lost Customer Count by Age & Gender

Gender  
Female  
Male

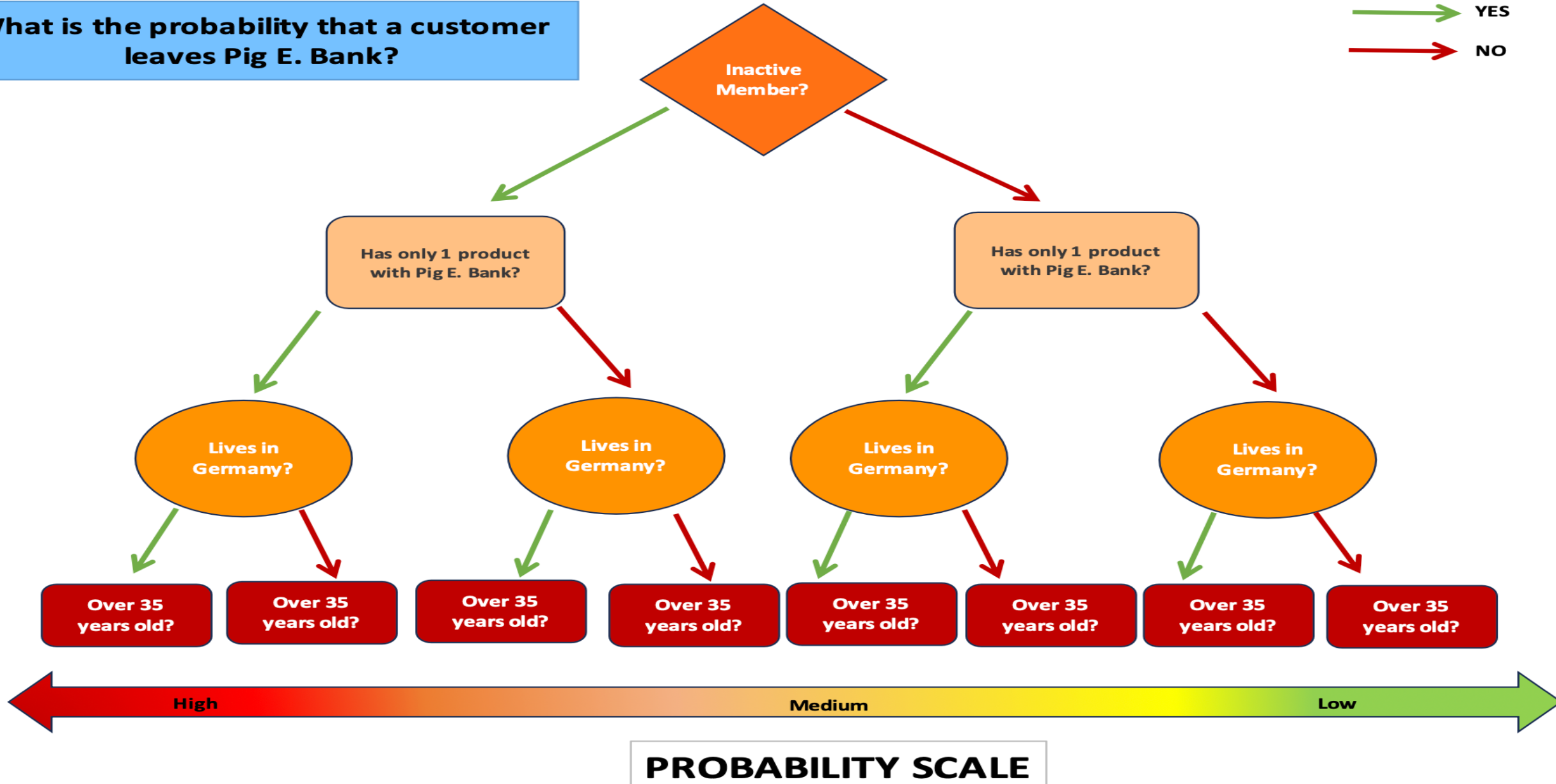


Lost Customer Count by Credit Score & Gender



# Analysis Findings

What is the probability that a customer leaves Pig E. Bank?



## **Diversify Offerings and Re-engage Customers:**

Expand product and service ranges to meet diverse needs, particularly for at-risk segments. Utilize personalized marketing to re-engage inactive members with customized promotions and services that match their financial needs and lifestyles.

## **Localized Strategies for Enhanced Experience:**

Implement geographic-specific strategies to address local customer needs, including community events and localized support. Enhance overall customer experience by providing personalized financial solutions and educational resources across all age groups.

## **Targeted Loyalty Programs:**

Develop tailored loyalty programs for older clients in high-churn regions, offering financial advice and retirement planning. Attract younger demographics with incentives like cashback rewards and financial literacy tools to build long-term relationships.

**Streamlined  
Recommendations for  
Enhancing Customer  
Engagement and Retention**



# Let's connect

Valentin Monnet

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