NICKI SMITH

DATA ANALYTICS PORTFOLIO

KEY SKILLS HIGHLIGHTED IN THIS PORTFOLIO

Tools:
- Excel
- Tableau
- Python/Jupyter Notebooks
- SQL/PostgreSQL
- GitHub

Techniques:
- Data prep/wrangling
- Data manipulation
- Visualization
- Testing
- Forecasting

Communication:
- Translating business requirements
- Data storytelling

PROJECT CASE STUDIES

1. [Global video game sales analysis](#)

2. [U.S. flu season preparation](#)

3. [Business analysis for an online video rental company](#)

4. [Marketing strategy for an online grocery store](#)

5. [Market opportunity analysis for roofing company](#)

1

GLOBAL VIDEO GAME SALES ANALYSIS

PROJECT OVERVIEW

Goal & Context:

This project analyzes video game sales data to identify trends and regional market opportunities for GameCo, a fictional video game company.
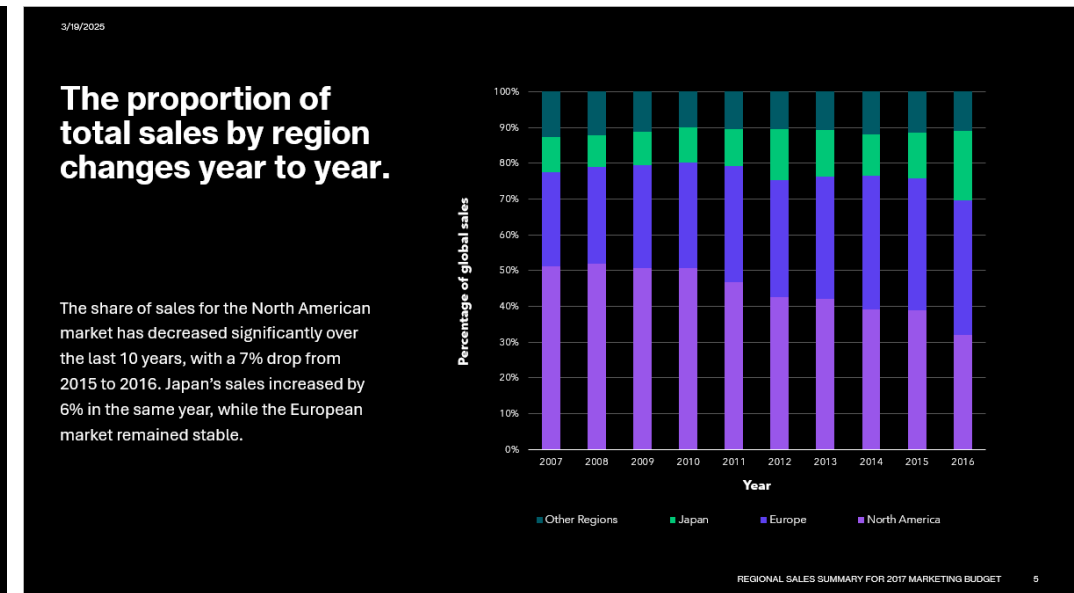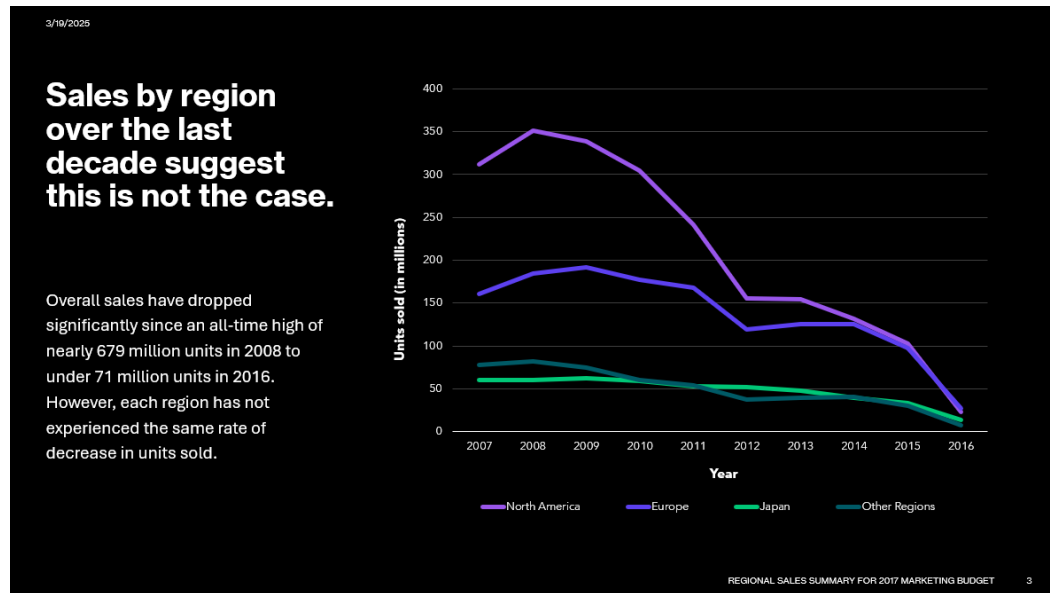
Key Questions:

•How have game sales changed over time?

•How do sales differ across regions?

•Which game types are most popular?

Skills Highlighted:

Excel, data grouping and summarizing, and presenting insights through data visualization are skills demonstrated in this project.

UNEXPECTED MARKET INSIGHTS

The GameCo executive team assumed that video game sales would remain consistent across geographic regions year over year. This analysis challenges that assumption and provides key insights into the performance of each market.


3/19/2025

Sales by region over the last decade suggest this is not the case.

Overall sales have dropped significantly since an all-time high of nearly 679 million units in 2008 to under 71 million units in 2016. However, each region has not experienced the same rate of decrease in units sold.

REGIONAL SALES SUMMARY FOR 2017 MARKETING BUDGET   3

3/19/2025

The proportion of total sales by region changes year to year.

The share of sales for the North American market has decreased significantly over the last 10 years, with a 7% drop from 2015 to 2016. Japan's sales increased by 6% in the same year, while the European market remained stable.

REGIONAL SALES SUMMARY FOR 2017 MARKETING BUDGET   5

ADDITIONAL INSIGHTS

Further analysis by genre identifies which game types are most popular in each region, providing valuable information for marketing budget allocation.
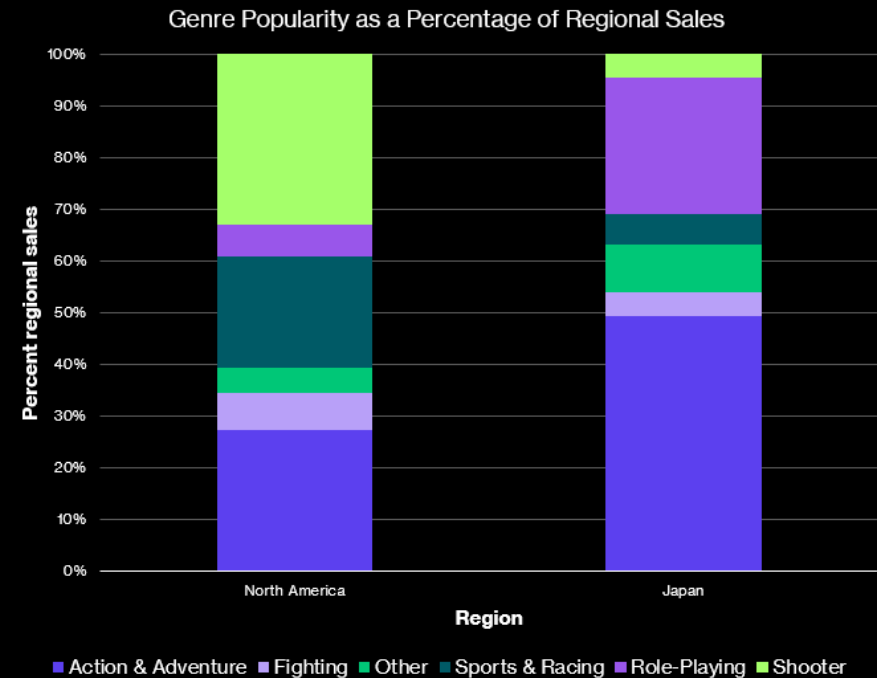
STRATEGIC RECOMMENDATIONS

Focus on North American Sales

This analysis revealed a significant decline in North American game sales between 2008 and 2016. The region's most popular genres — shooting, action & adventure, and sports & racing — present a strategic opportunity. Investing marketing efforts in these genres could help GameCo regain lost sales in this previously strong market.

2

U.S. FLU SEASON PREPARATION

PROJECT OVERVIEW

Goal & Context:
Help a medical staffing agency plan for the influenza season by analyzing trends to optimize staff allocation across the 50 U.S. states. The project focuses on identifying when and where to deploy staff based on flu trends and vulnerable populations.

Key Points:

•Analyze flu trends for staffing needs.

•Identify timing and location for staff deployment.

Skills Highlighted:
This project showcases data cleaning and transformation, statistical hypothesis testing, and data storytelling in Tableau.

DATA STORYTELLING

This project utilized Tableau and data storytelling techniques to present an analysis designed to help a staffing agency respond effectively to influenza season. View the report [here](#)!

KEY INSIGHTS

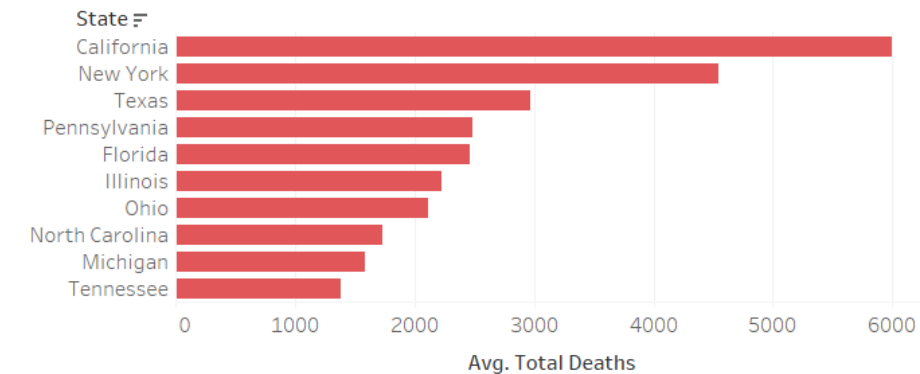Two key factors were explored for determining staffing needs: the **location** of influenza-related deaths (by state) and the **timing** of those deaths (seasonally, by month).

The visualizations on the right identify states with the greatest need for staffing, based on number of deaths.

State Population and Influenza-Related Deaths (2009-2017)

Avg. Total Deaths
0 ▭ 6,000

© 2025 Mapbox © OpenStreetMap

Population
• 607,409
○ 10,000,000
○ 20,000,000
○ 30,000,000
○ 37,683,376
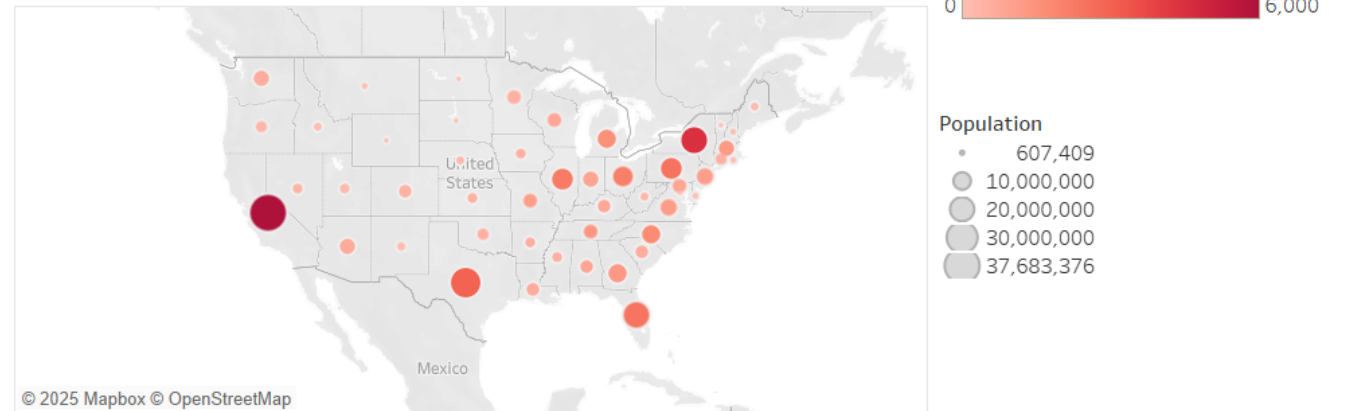
States with Top 10 Highest Average Number of Deaths (2009-2017)

States with the highest average number of influenza-related deaths each year will require increased staffing to meet patient care demands. The analysis highlights California and New York as having significantly higher number of deaths compared to other states, indicating a greater need for medical personnel in these regions during influenza season.

12

KEY INSIGHTS

To understand influenza death seasonality, two visualizations were used: a bar chart highlighting peak months and a line chart revealing seasonal trends. These insights are key for planning staff allocation during high-risk periods.

Influenza-related deaths follow a clear seasonal pattern, peaking during the winter months of December through March, when the highest percentages of fatalities occur each year.

Monthly Deaths as a Percentage of Annual Total (2009-2017)
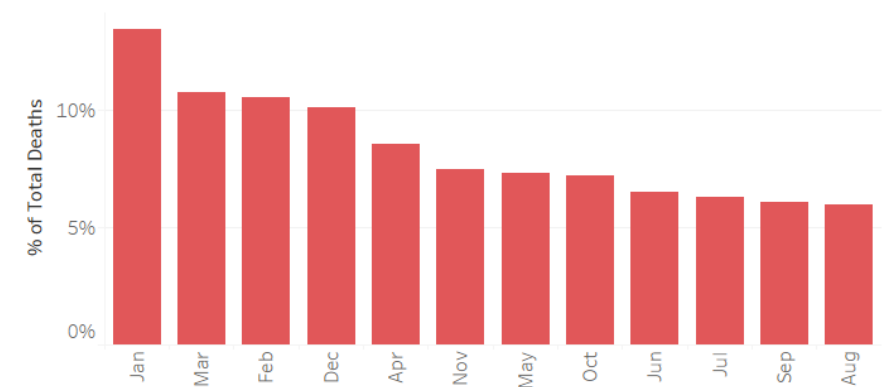
Monthly deaths by year: 2009-2017

13
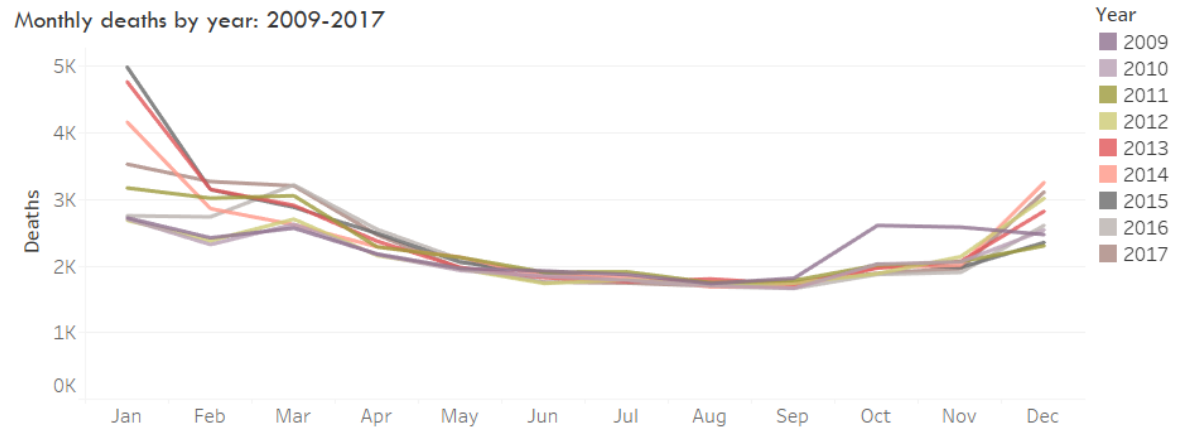
TARGETED STAFFING PLAN

Where?

California and New York lead in influenza-related deaths, likely due to their larger populations. Texas, Pennsylvania, and Florida round out the top five, indicating the highest staffing demands.

When?

Peak influenza deaths occur in winter, with December through March. Staff should be deployed to the states with the greatest need in advance of December to allow for effective onboarding.

3

BUSINESS ANALYSIS FOR AN ONLINE VIDEO RENTAL COMPANY

PROJECT OVERVIEW

Goal & Context:
This project helps Rockbuster Stealth launch an online video rental service by analyzing sales and customer data. The analysis will inform the 2020 strategy by answering key business questions using SQL and data visualization.

Key Questions:

•Where are Rockbuster's customers located?

•What are the top performing cities?

Skills Highlighted:
SQL querying, relational databases, documentation and data dictionaries

DATA STORYTELLING

This project leveraged Tableau and data storytelling techniques to deliver insights to stakeholders. Explore the report here!

KEY INSIGHTS

The data analysis process explored several factors, but the final report focused on identifying the locations of Rockbuster's customer base, with particular emphasis on top-spending customers in key cities, to help optimize the marketing budget and create customer incentives.

Countries with the Top 10 Highest Number of Customers
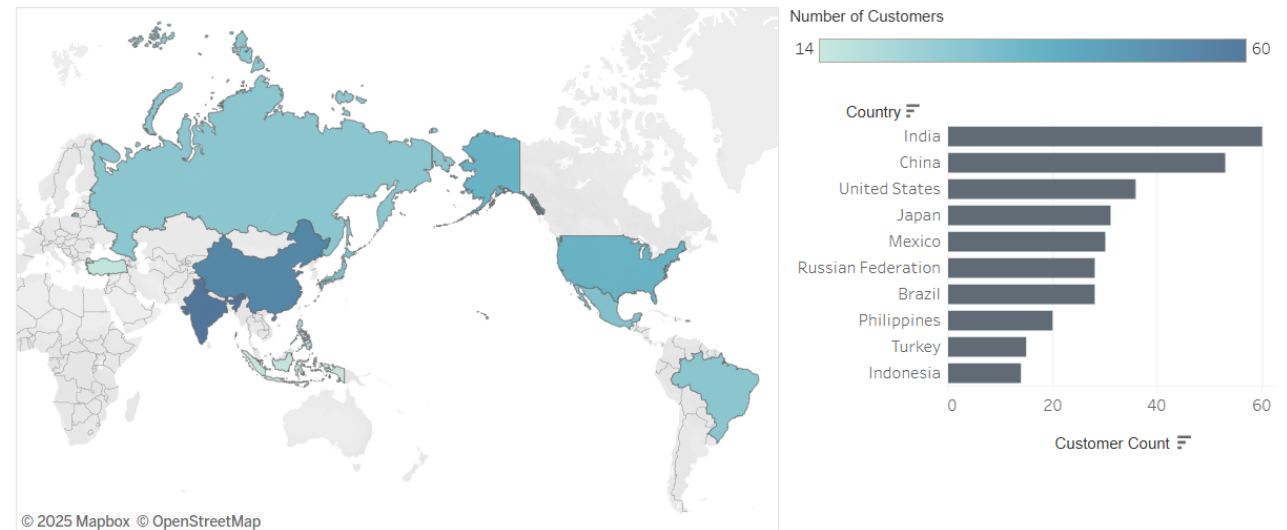

The Rockbuster subscription base varies by country. The countries with the top 10 highest number of customers include (in descending order by customer count): India, China, United States, Japan, Mexico, Brazil, Russian Federation, Philippines, Turkey, and Indonesia.

KEY INSIGHTS

India led all countries with the most top-performing cities. In the Tableau report, a tree map visualized the distribution of top performing cities by country.

Top 10 Cities with the Highest Number of Customers within the Top Performing Countries

The top 10 cities across the leading 10 countries show an even distribution of customers, with one standout: Aurora in the United States, which has the highest customer count among them. Notably, the United States contributes only one city to the list, whereas India accounts for an impressive five of the top 10 cities.
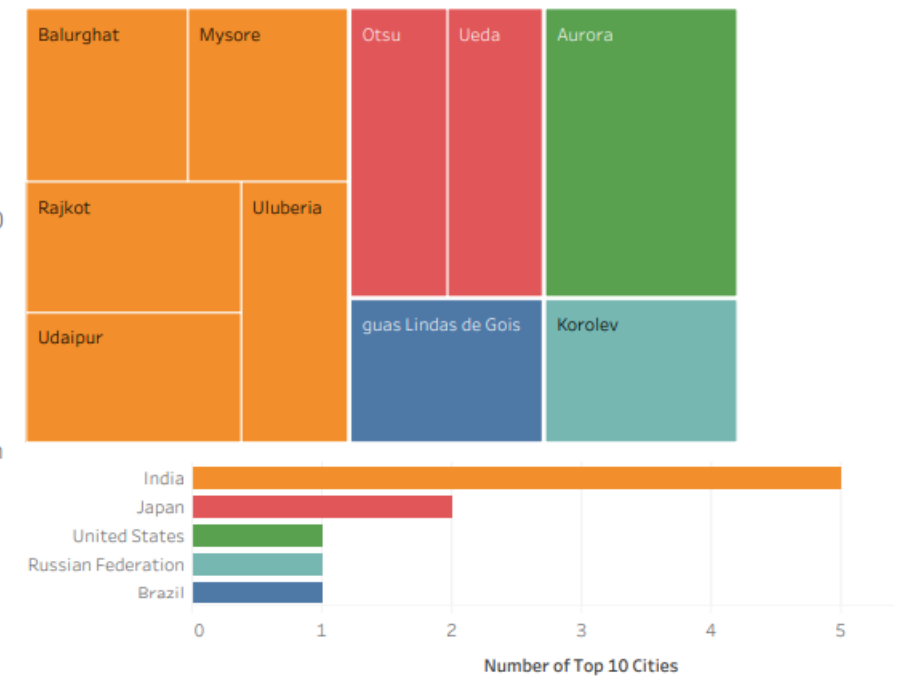
19

STRATEGIC RECOMMENDATIONS

Results

A detailed analysis of Rockbuster's customer base highlights India as a strategic priority for the company's new online video service. India not only offers significant revenue potential but also boasts a large segment of Rockbuster's most loyal customers. Implementing a rewards program tailored to this market can further strengthen brand loyalty and drive long-term customer engagement.

Strategy

- Develop a customer loyalty program focused on the Indian market.

- Perform further analysis on the categories of films that perform best in India, and which are less popular.

- Use this analysis to tailor film offerings to appeal to customer preferences in India.

4

MARKETING STRATEGY FOR AN ONLINE GROCERY STORE

PROJECT OVERVIEW

Goal & Context:
Analyze Instacart's sales and customer data to uncover insights on purchasing behaviors, identify customer segments, and suggest strategies for targeted marketing and product advertising.

Key Questions:

•What are the busiest and most profitable hours for orders?

•Which product departments have the highest order frequency?

•How do customer profiles (e.g., loyalty, region, age, family status) impact ordering habits?

Skills Highlighted:
Python, data wrangling, coding etiquette, grouping, aggregating and reporting data

HOURLY ORDER PATTERNS

In this report, a line plot displays the average price of orders placed each hour of the day. An error band, representing a 95% confidence interval, illustrates the uncertainty around the data, helping chart readers understand the range of possible values.
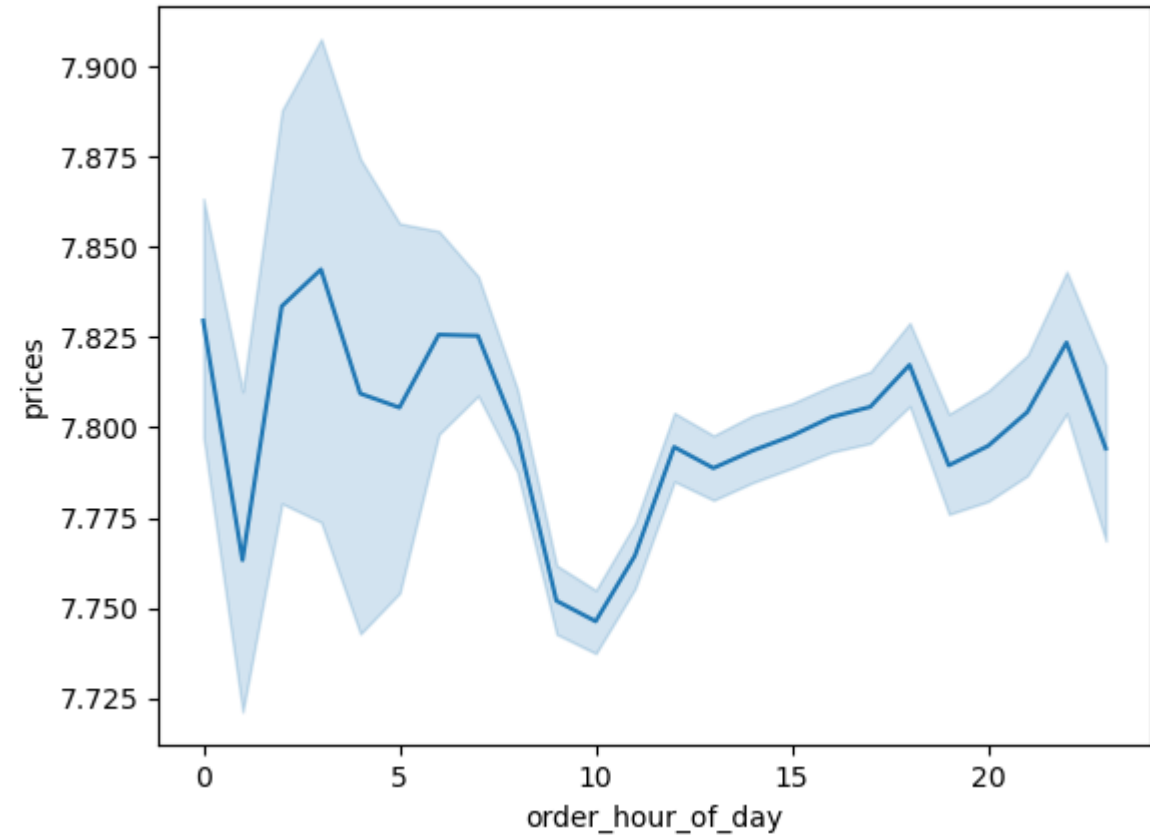
DEPARTMENT PREFERENCES

The frequency of orders across departments was analyzed, with further investigation into whether department preferences varied by customer type in relation to loyalty status.
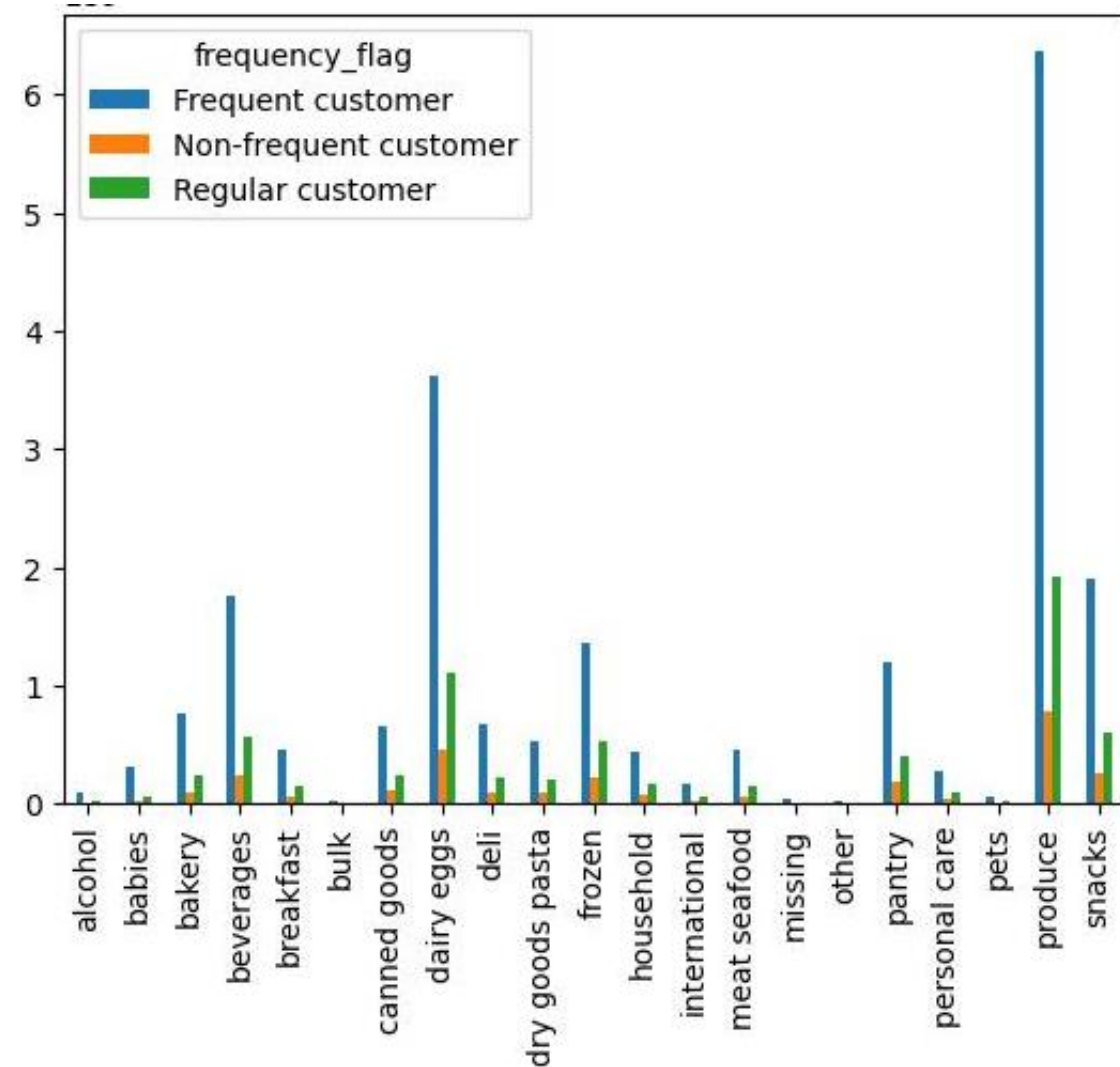
CUSTOMER DEMOGRAPHICS

Interestingly, when customers were grouped by marital status, a significantly higher number of orders were placed by married customers compared to single customers.
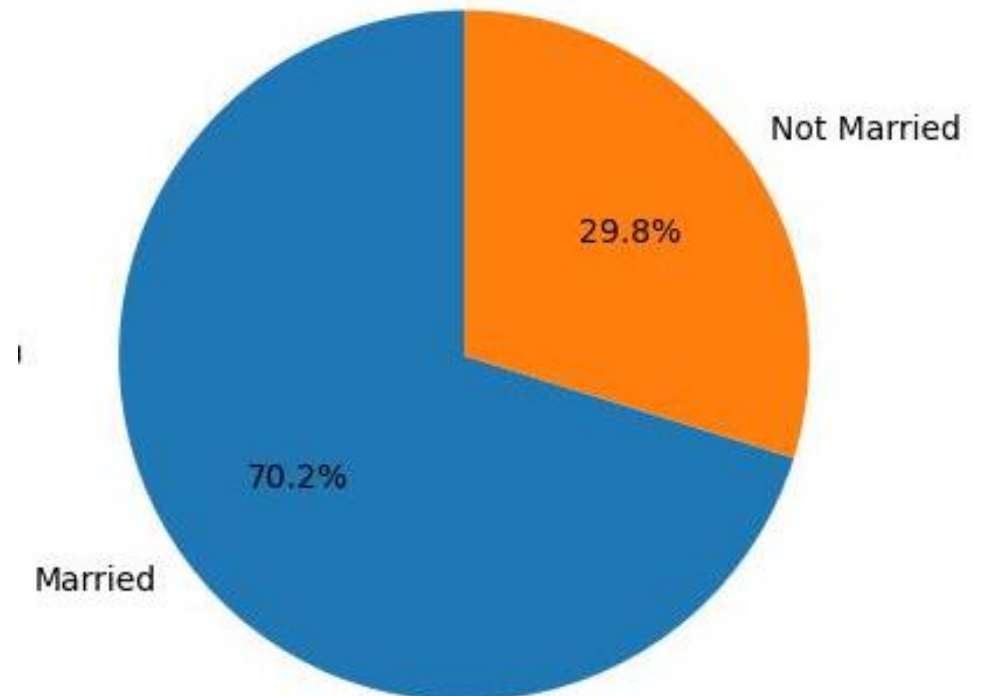
STRATEGIC RECOMMENDATIONS

Most popular departments

Produce, dairy, and eggs are top sellers for the company, especially for frequent customers. Sales in these departments should be marketed to frequent customers.

Marital Status

Many more orders are placed by married customers than unmarried customers. Single customers may represent an untapped market for additional sales.

5

MARKET OPPORTUNITY ANALYSIS FOR ROOFING COMPANY

PROJECT OVERVIEW

Goal & Context:
The Hail Mary Roofing Company, LLC has built a successful business on roof repairs and replacements resulting from storm damage, especially hail. They wish to expand their business into new markets and want to choose a geographic location based on the need for new roofs following significant storm damage. Storm event and housing statistics data help answer these questions.

Key Questions:

•Which storm events do the most property damage?

•Which state has the most relevant events?

•Which counties within the state present the greatest business opportunity?
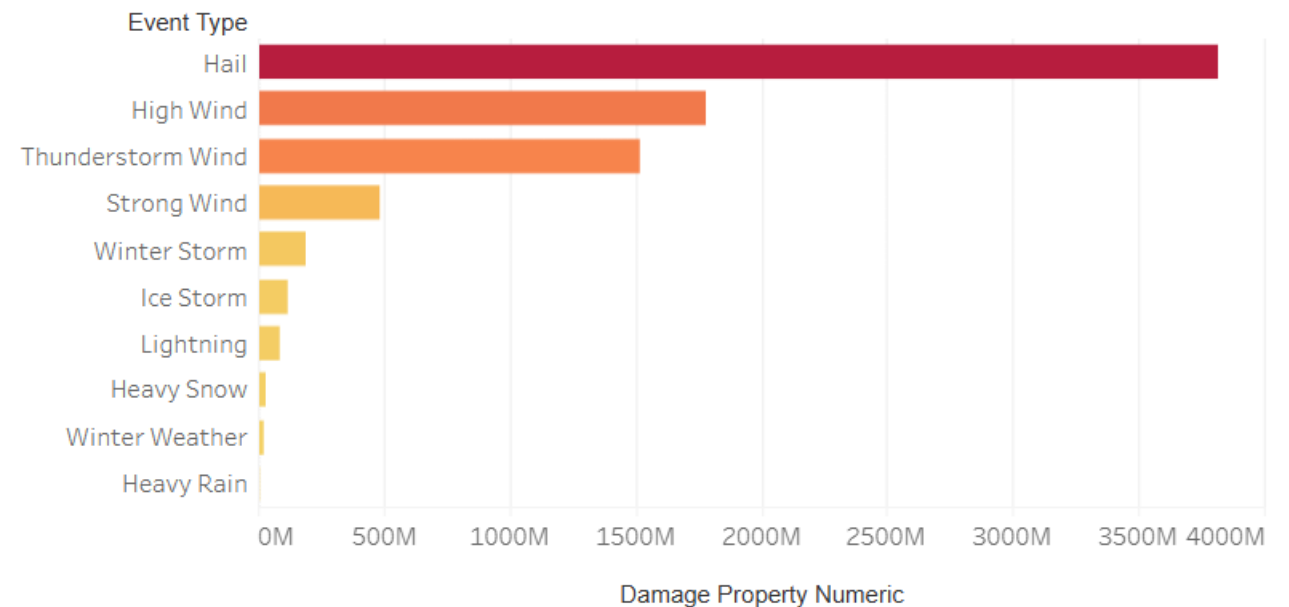
Skills Highlighted:
Python, data wrangling, coding etiquette, regression analysis, geospatial analysis, and reporting data

DESTRUCTIVE STORM EVENT TYPES

The chart to the right shows the reported property damage for relevant storm event types for a 5-year period. Hail causes more than double the amount of property damage than the second highest category. Hail is also highly likely to cause roof damage, making it the idea weather event to include in the analysis!

Reported property damage from 2020-2024 by storm event type

Event Type

Event Type	Damage Property Numeric
Hail	(bar to ~3900M)
High Wind	(bar to ~1800M)
Thunderstorm Wind	(bar to ~1500M)
Strong Wind	(bar to ~480M)
Winter Storm	(bar to ~150M)
Ice Storm	(bar to ~80M)
Lightning	(bar to ~50M)
Heavy Snow	(small bar)
Winter Weather	(small bar)
Heavy Rain	

0M   500M   1000M   1500M   2000M   2500M   3000M   3500M 4000M

Damage Property Numeric

IDENTIFYING THE TOP STATES

The number of hail events reported in Texas is more than double the second highest state, representing a significant number of events with the potential to damage roofing and generate customers.


Number of hail events by state: Top 10
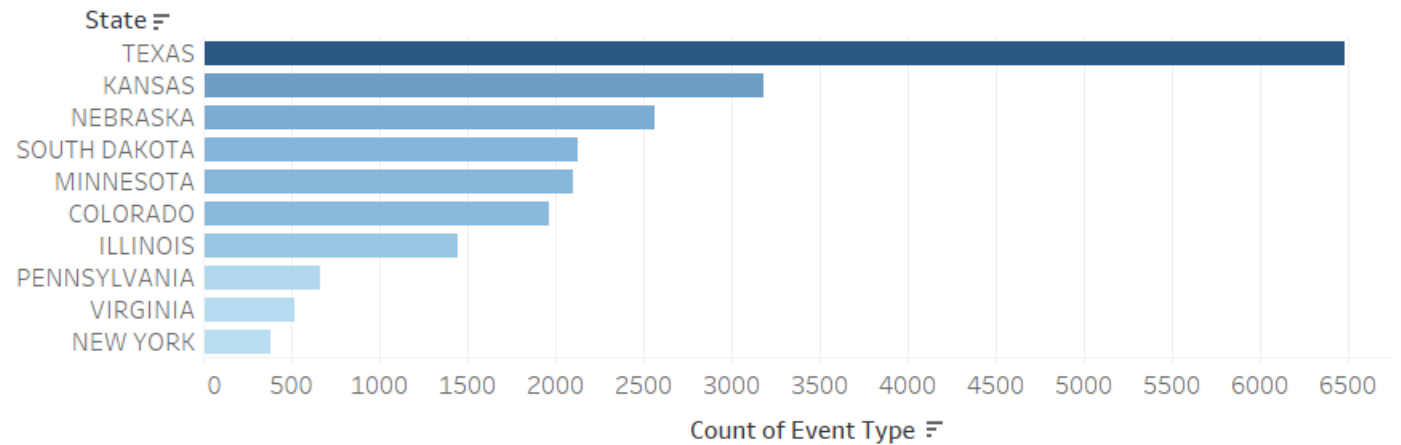
EXPANDING THE ANALYSIS

High hailstorm frequency alone does not indicate high opportunity—hail damage requires the presence of housing. Without structures, there is no potential for roof-related impact. A KMeans analysis identified and classified opportunity scores for each county, using both hail event data and housing statistics.
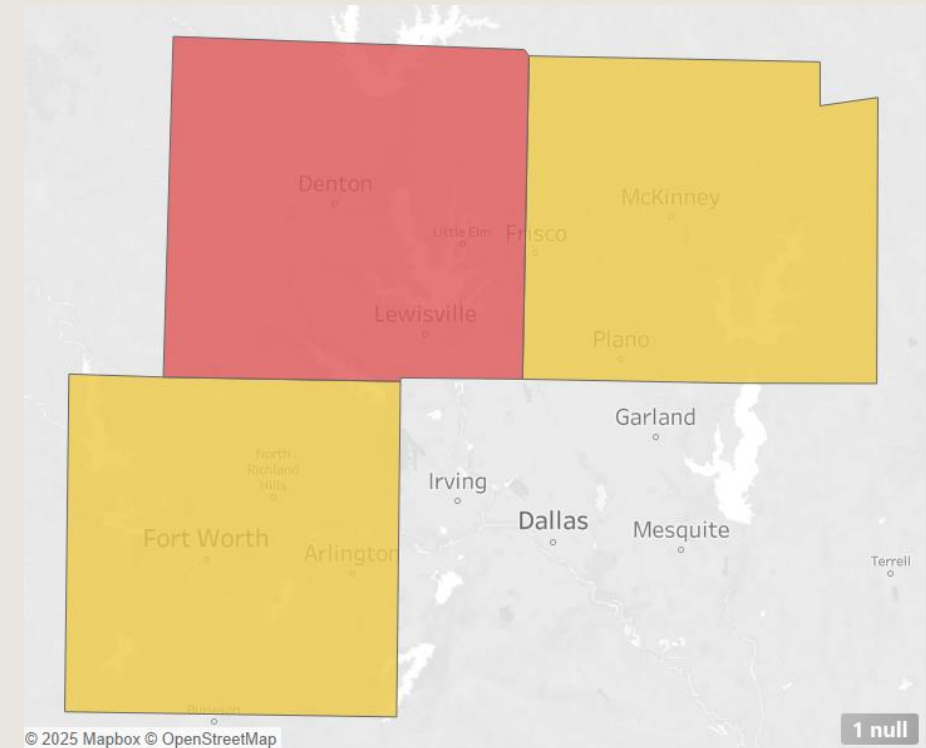

31
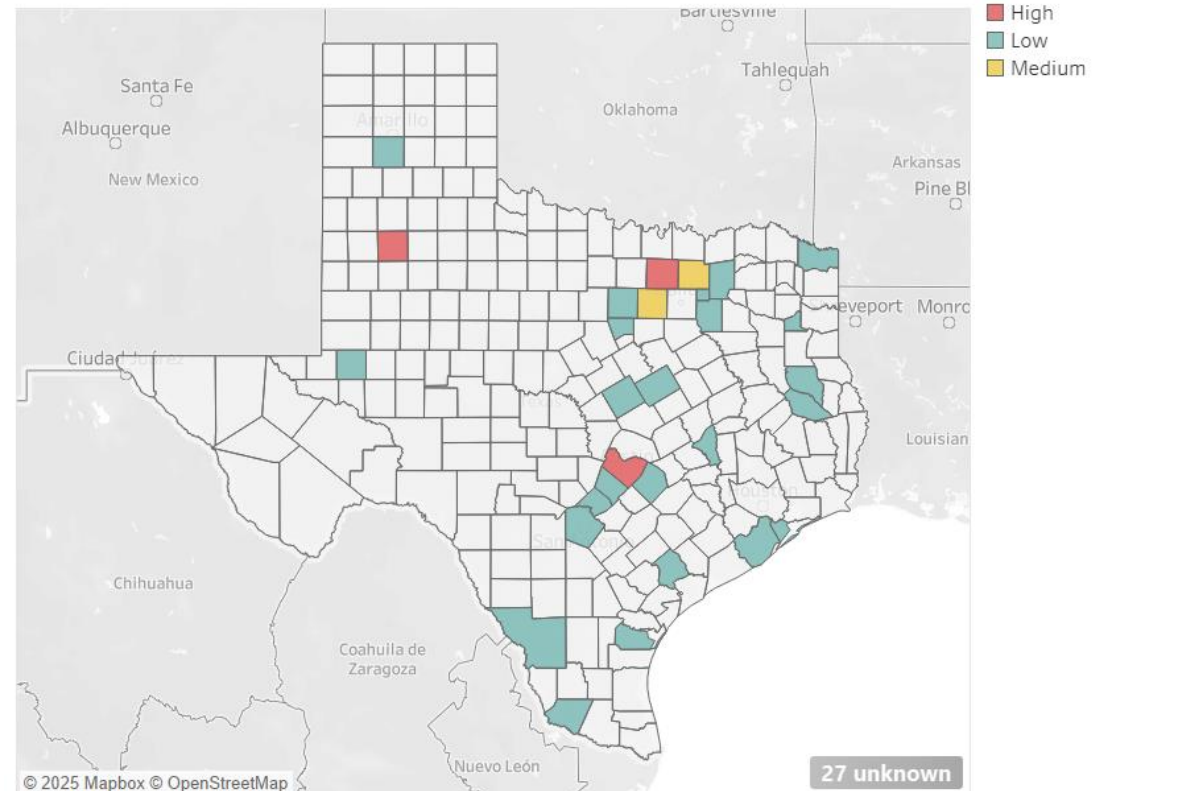
STRATEGIC RECOMMENDATIONS

Explore Opportunities in Denton County, TX

There is a cluster of 3 counties North and West of the city of Dallas ranking medium and high. The other two counties with high opportunity score are isolated. This suggests that the area of Collin, Denton, and Tarrant counties represents a good business opportunity. Based on this analysis, consider expanding the Hail Mary Roofing Company, LLC into Denton County. The adjacent counties of Collin and Tarrant provide an expanded pool of customers.

Explore the full storyboard here.

© 2025 Mapbox © OpenStreetMap

1 null

NICKI SMITH

https://github.com/beaksy