

# Data Analysis Portfolio Case Studies

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# Introduction

- In this portfolio, I present case studies from various data analysis projects I've completed during my journey in the CareerFoundry Data Immersion program.
- Each case study showcases my analytical skills, insights gained, and the impact of my work.
- Through this portfolio, I aim to demonstrate my proficiency as a data analyst and my ability to derive actionable insights from real-world data.

# Project 1 & 2: Preparing for Influenza Season

## **Goal**

- Help a medical staffing agency plan for the influenza season by analyzing trends and forecasting staffing needs.

## **Beginning:**

- Identified the need to proactively plan for staffing during influenza season.
- Set the objective to analyze historical data and trends related to influenza cases.

# Middle

- Collected and analyzed influenza data to identify peak seasons and regions affected.
- Utilized time series analysis to forecast staffing requirements based on past trends.
- Explored correlations between influenza occurrences and other relevant variables.

# End

- Derived insights into peak influenza periods and regions with high demand for staffing.
- Provided recommendations for allocating temporary medical workers to clinics and hospitals.
- Enabled the agency to better prepare for staffing demands during influenza outbreaks.

# Historical Influenza Data Visualization



## Influenza Laboratory Surveillance Information



Date last refreshed (UTC)  
7/6/2022 8:24:01 AM

Country, area or territory  
All

WHO region  
All

Influenza transmission zone  
All

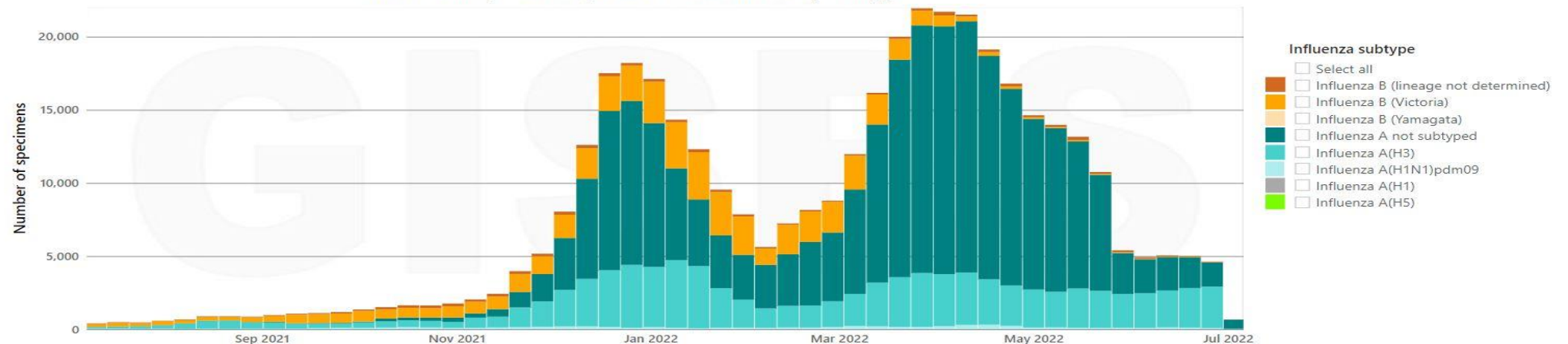
Hemisphere  
All

\*Surveillance site type  
All

Week end date  
7/10/2021 7/3/2022

Show week numbers

Number of specimens positive for influenza by subtype



**\*Surveillance site type:**

- **Non-sentinel:** Data obtained from non-sentinel systems as indicated by the reporting country. Data reported in this category may include outbreak investigation, universal testing, testing at point of care or other systems apart from sentinel surveillance.
- **Sentinel:** Data obtained from sentinel surveillance as indicated by the reporting country. Sentinel surveillance systems collect high-quality data in a timely manner systematically and routinely from sentinel surveillance sites representative of the population under surveillance.
- **Type not defined:** Source of data not indicated by the reporting country neither as sentinel nor as non-sentinel surveillance. These data may include sentinel or non-sentinel surveillance sources or both.

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Calendar type: ISO 8601

Data source: FluNet (<https://www.who.int/tools/fluNet>)

# Project 3: Rockbuster Stealth Data Analysis

## **Goal**

- Assist Rockbuster Stealth in launching an online video rental service by analyzing customer behavior and preferences.

## **Beginning:**

- Tasked with helping the business intelligence department analyze Rockbuster's data.
- Initiated data loading into a relational database management system.

# Middle

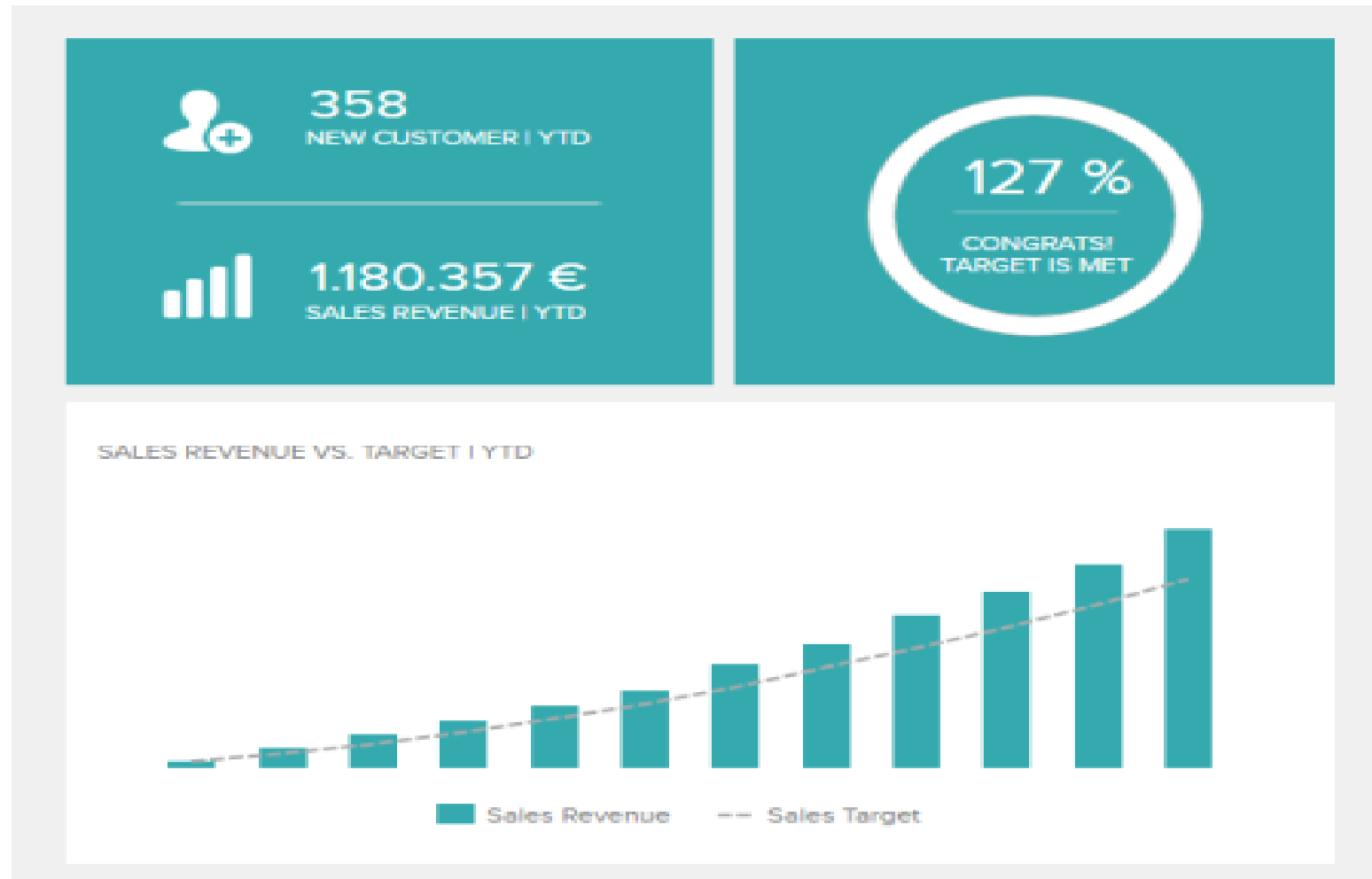
- Utilized SQL queries to analyze customer preferences, movie popularity, and revenue trends.
- Created engaging visualizations to present insights to the management board.
- Explored correlations between customer behavior and online video service success.



# End

- Provided valuable insights into customer preferences, enabling targeted content recommendations.
- Assisted in shaping the launch strategy of the online video rental service.
- Contributed to Rockbuster's competitive edge in the streaming market.

# Revenue Trend Visualization



# Project 4: Instacart Grocery Basket Analysis

## Goal

- Perform exploratory analysis for Instacart to uncover sales patterns and suggest strategies for customer segmentation.

## Beginning

- Engaged with Instacart's data to analyze sales patterns and customer behavior.
- Aimed to identify trends and opportunities for targeted marketing campaigns.

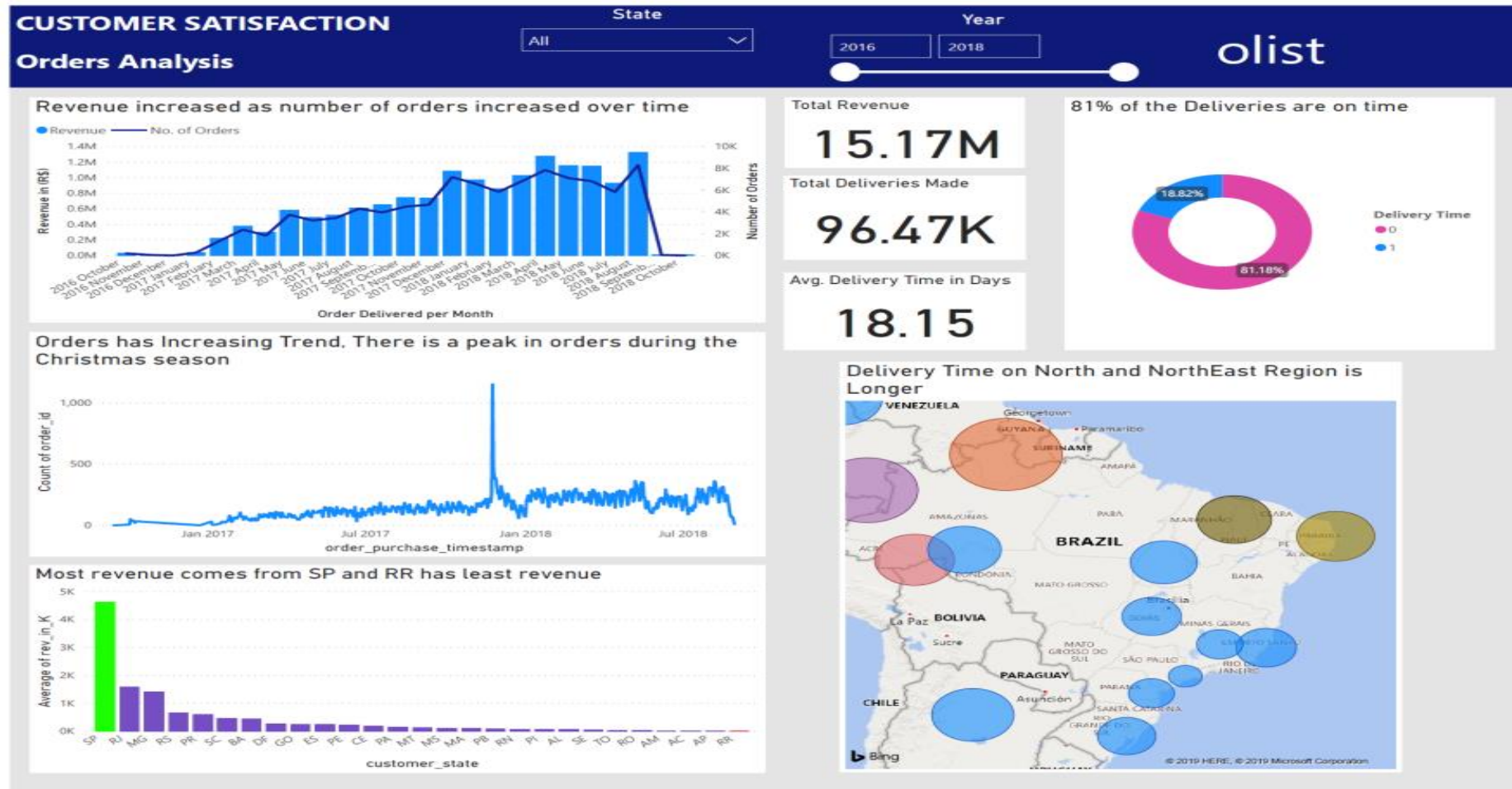
# Middle

- Explored customer purchasing behavior, time-based trends, and popular product categories.
- Utilized data mining techniques to segment customers based on behavior and loyalty.
- Derived insights into peak shopping times and products that drive revenue.

# End

- Recommended targeted marketing strategies based on customer segments.
- Identified prime time slots for product promotion to optimize sales.
- Enabled Instacart to better understand customer preferences and tailor offerings.

# Customer Segmentation Visualization



# Project 5: Data Ethics and Applied Analytics

## **Goal**

- Provided analytical support to a global bank's anti-money-laundering compliance department while navigating ethical challenges.

## **Beginning:**

- Joined the bank as a data analyst to assist with data-related compliance projects.
- Set out to assess client risk, transaction risk, and optimize compliance processes.

# Middle

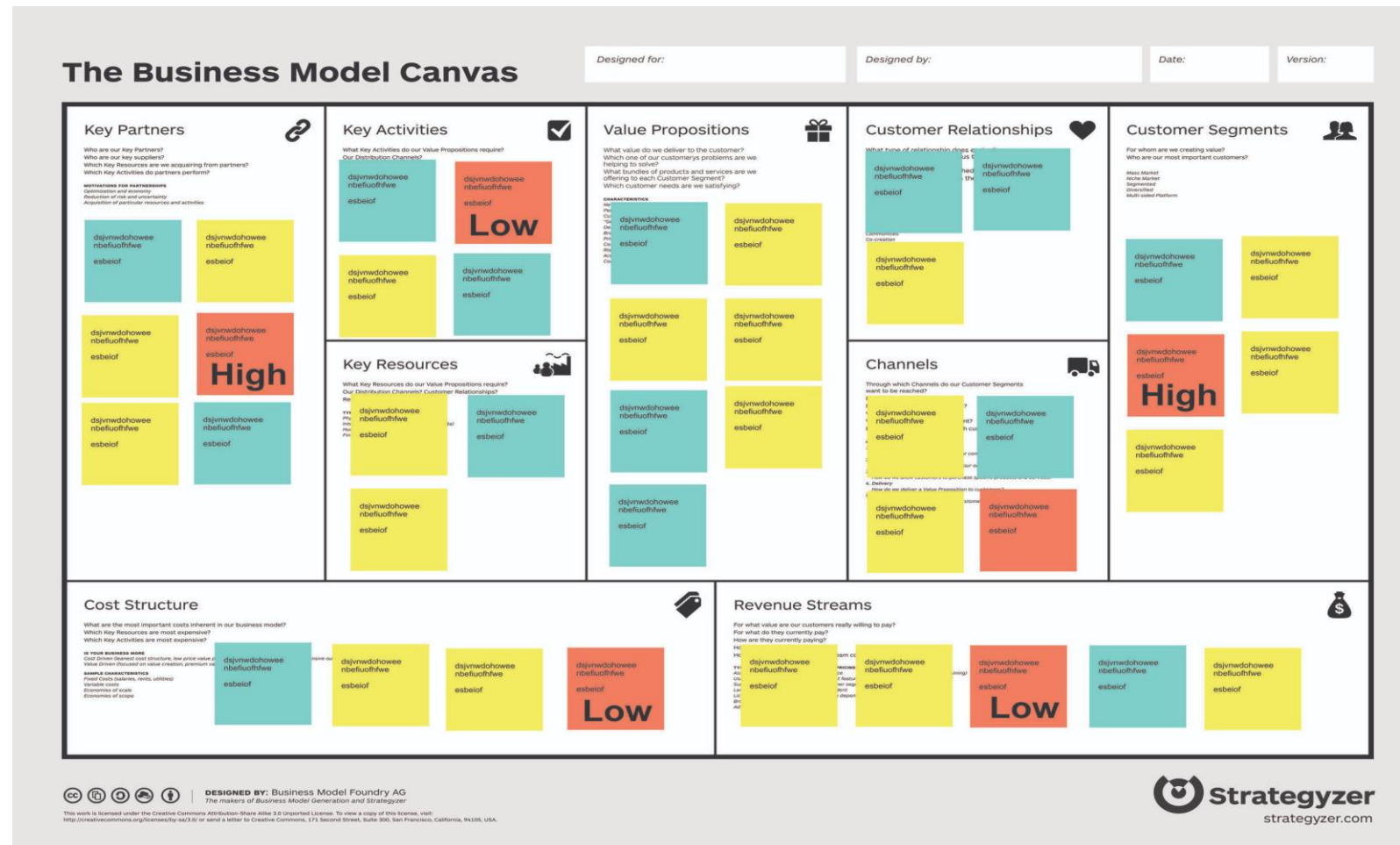
- Leveraged advanced data analytics to assess and mitigate money laundering risks.
- Built predictive models to identify suspicious transactions and behaviors.
- Addressed ethical dilemmas related to data privacy, bias, and transparency.



# End

- Enhanced the bank's compliance program efficiency and risk assessment accuracy.
- Ensured compliance with data ethics, protecting customer information.
- Empowered the bank to make informed decisions while upholding ethical standards.

# Risk Assessment Model Visualization



# Portfolio Links

- Github link

<https://github.com/ango706/Python-Project>

<https://github.com/ango706/SQL-Project>

# Gun Violence In US Data Analysis

## **Introduction**

- Welcome to my Data Analytics Portfolio presentation.
- In this journey, I will guide you through my exploration of gun violence data in the United States from 2013 to 2018.
- Let's dive into the compelling story of how I leveraged advanced analytics and interactive visualization to uncover insights and trends.

## **Beginning: Understanding the Context**

- Gun violence is a critical issue in the United States, and I chose to analyze this dataset to gain deeper insights into its nature and patterns.
- My goal was to use data analytics to shed light on this complex problem.

# Middle: Exploratory Analysis and Hypotheses

I started by conducting an exploratory visual analysis using Python.

**My initial hypotheses were:**

1. **Seasonal Patterns:** Is there a noticeable pattern in gun violence incidents over the months?
2. **Geographical Variation:** Do certain states experience higher gun violence rates?
3. **Type of Incident:** Are there differences in trends between different types of gun violence incidents?

**Advanced Analytics and Testing:**

I employed various advanced analytics techniques:

1. **Time Series Analysis:** Unveiled seasonal patterns and trends in gun violence incidents.
2. **Spatial Analysis:** Mapped geographical hotspots using clustering techniques.
3. **Statistical Testing:** Tested hypotheses using hypothesis testing to validate assumptions.

# Creating the Dashboard

I curated the most impactful insights into an interactive Tableau dashboard:

1. **Temporal Trends:** Line chart revealing monthly variations in gun violence incidents over the years.
2. **Geographical Distribution:** Heatmap showcasing concentrated areas of incidents.
3. **Incident Types:** Pie chart presenting the distribution of different types of gun violence incidents.

# End: GitHub Repository and Conclusion

- As my dashboard couldn't accommodate all my analyses, I documented additional insights, code, and visualizations in a GitHub repository linked in the dashboard.

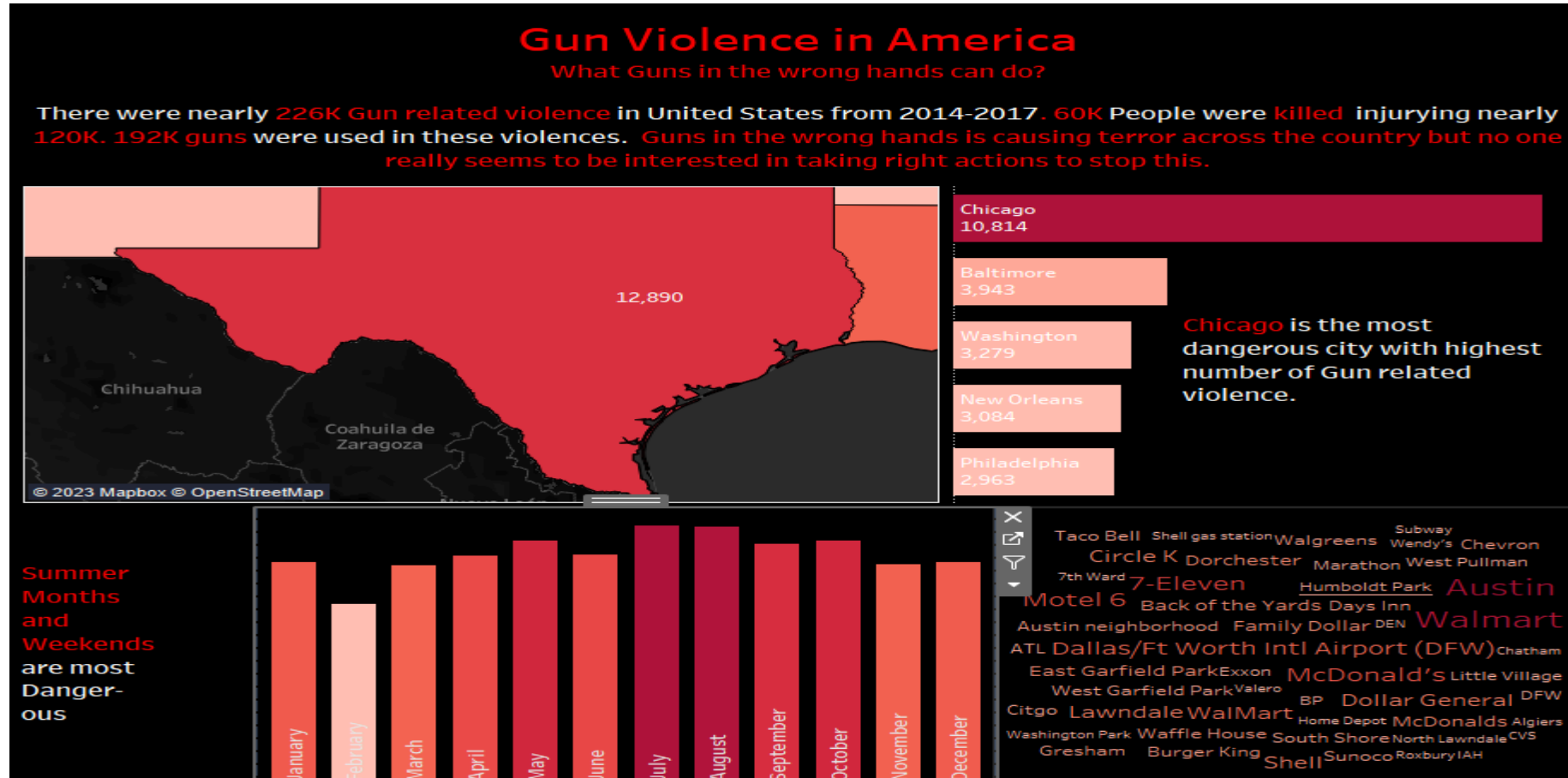
## **Link to Tableau Storyboard:**

- Explore the interactive Tableau dashboard  
<https://public.tableau.com/app/profile/angela.north>

## **Link to GitHub Repository:**

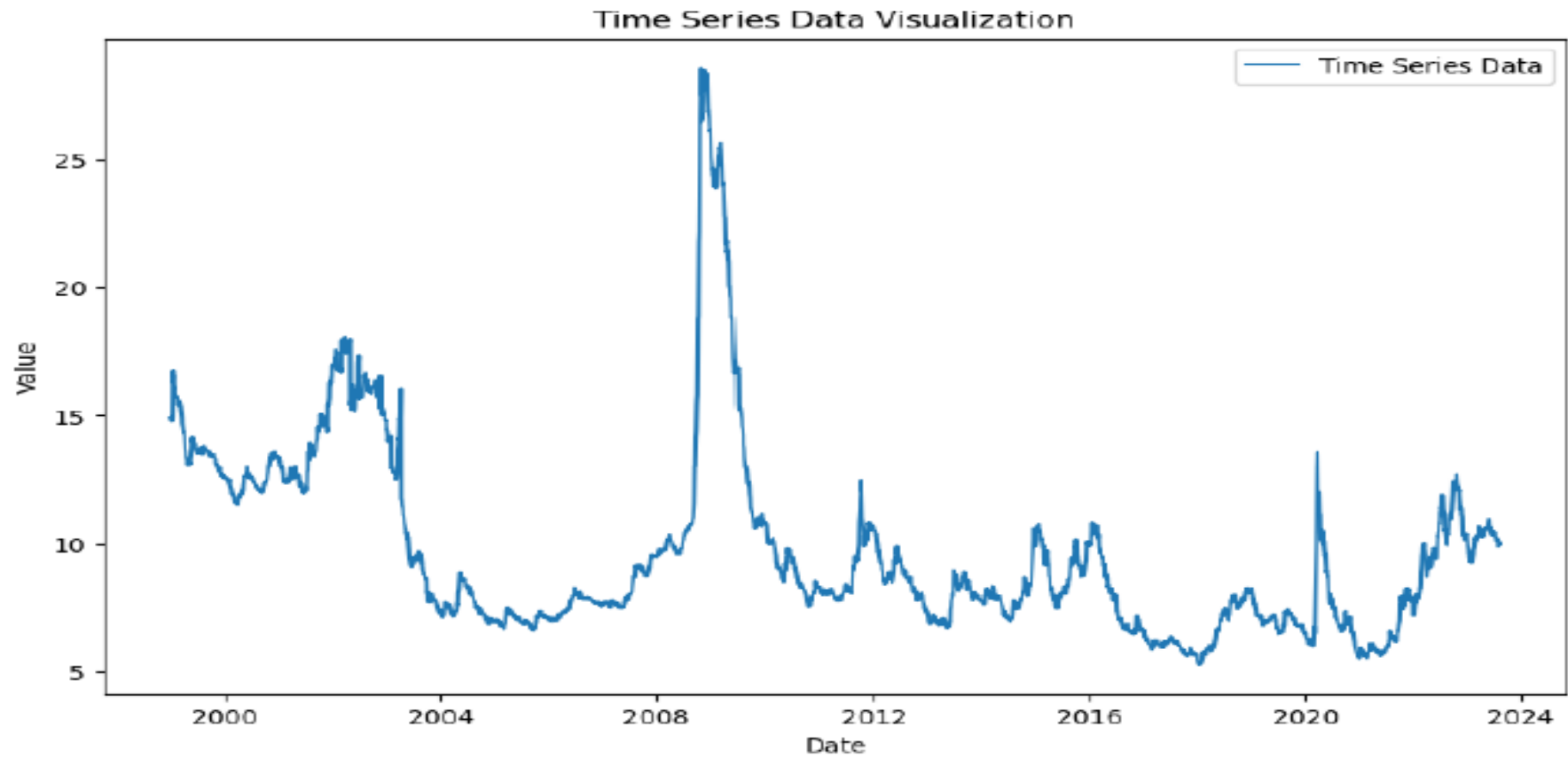
- Access the GitHub repository with additional analyses here.  
<https://github.com/ango706/Advanced-Analytics-Dashboard-Design>

# Gun Violence in America Dashboard





# Time Series Data Visualization



# Conclusion

- Through this project, I've not only revealed insights into gun violence data but also showcased my skills in advanced analytics, data visualization, and storytelling.
- Join me as we navigate the interactive dashboard and uncover the multifaceted dimensions of gun violence in the US.

*Thank you for joining me on this data exploration journey.*

# Thank You

- Thank you for taking the time to explore my portfolio and case studies.
- I'm excited to share my journey in data analysis and the insights gained from these projects.
- Feel free to reach out if you have any questions or would like to discuss my work further.

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GitHub: [ango706](https://github.com/ango706)