Firearm Education Project

Haley Bustle January 3, 2024

**Project Name:** Firearm Education & Community Outreach Program, 2024

**Project Objective:** This project will help to dispel current community misconceptions about firearms by providing factual and transparent education materials to a public frequently misinformed by dominant narratives. Through comprehensive data analysis, this project will help pinpoint key regions and demographic groups most impacted by firearm-related events. The final report will help any individual in their pursuit of responsible firearm ownership and handling in the hope to ultimately reduce the number of firearm-related incidents and fatalities.

**Project Context:**

* Understand gun violence deaths in relation to total populations of each state
* Determine which population is most vulnerable to firearm related incidents

**Key Questions to Address**:

1. Which cause of firearm related death is most prevalent across all age groups?
2. What age groups are the most affected by firearm violence?
3. Is there a correlation between the size of a state’s population and the total number of reported firearm related deaths?
4. What are the trends in gun violence over recent years; do these trends vary across different regions or demographics?

**Data Source:**

**Dataset 1, US Census Estimated Population by State, Year, Gender, and Age Group (2009 to 2017)**

[**Download Dataset**](https://docs.google.com/spreadsheets/d/1I4zNbY2lPxglzCL6bmKKppt8zoMOnaLM_D8JGyaXQGY/edit?usp=drive_link)

**Dataset 2, US CDC Underlying Cause of Death in Population due to Firearms by State, Year, Gender, and Age Group**

[**Download Dataset**](https://docs.google.com/spreadsheets/d/19JtAzsNPKSNTKmDp4mLzjYQgu3vms9oh/edit?usp=drive_link&ouid=107389679865717903717&rtpof=true&sd=true)

**Deliverables:**

* Analysis completed using Python and relevant libraries
* Recommendations to stakeholders in preparation of their console launch
* Final report with detailed documentation of methodology, analysis, and data citation

**General Terminology:**

* Accidental discharge = unintentional means of discharging/firing a weapon
* ICD10-113 Cause List & Code = CDC Wonder category for firearm and other incidents of injury/death
* Suppressed = value in dataset; defined by CDC as value between 0 and 9 and unreliable in report
* script = notebook
* variable = column = characteristic
* observation = entry
* csv = file = excel
* read = import
* run = export
* write = export = save
* derive a variable = create a column
* filter = subset
* merge flag = match flag
* key column = identifier column

**Project Timeline**

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| Day 1 | data sourcing and preparation: create project portfolio and project brief, select and clean project data, outline initial research questions |
| Day 2 | exploratory analysis and hypothesis formation: define hypothesis and conduct exploratory analysis using Python |
| Day 3 | advanced data analysis: perform geospatial analysis and prepare data for machine learning |
|  | machine learning and visualization: apply supervised and unsupervised learning techniques and visualize results |
| Day 4 | Dashboard development: design and build a data dashboard using Tableau |
| Day 5 | Finalization, Publication, Presentation: finalize storyboard in Tableau Public, create final report, organize project portfolio for final presentation to client |