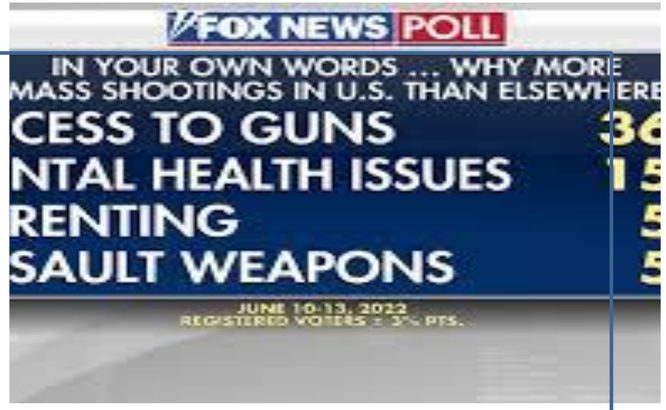
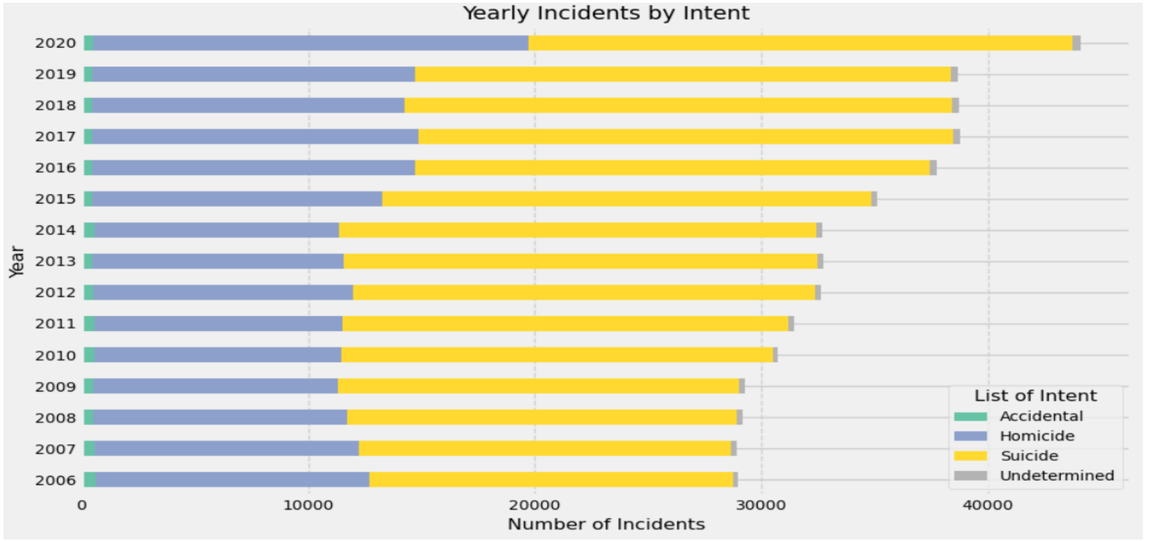
Gun violence is a growing concern in USA. From 2006 to 2020, yearly average of 33,969 peoples were killed due to this gun violence.




Average of 110 people
died EVERYDAY by gun
shot in USA

Gun Deaths in America

Data Analysis Period (2006-2020)



Team Member:

1. Mohammad Prodhania
2. Mohammad Nazmul Hossain

Data Source: Kaggle (www.Kaggle.com)

Updated dataset for the "Gun Deaths in America"
project https://fivethirtyeight.com/features/gun-deaths/, documenting firearm usage fatalities.

Context

Gun violence in the USA is a major concern because it results in a significant number of deaths and injuries each year, disproportionately impacting certain communities, and causing substantial economic and social burdens, making comprehensive analysis necessary to understand the root causes and develop effective prevention strategies.

Our Analysis:

1. Analysis of Gun Deaths Trend in USA from 2006-2020.
2. Corelation analysis for gun violence with intent (Suicide, Homicide, Accidental, Undetermined)
3. Demographic analysis to see any patterns.
4. Analysis of gun violence within different education level.
5. Eventually to use different tools & libraries for visualization.

Our Data:

1. 15 Data Tables (2006 to 2020)
2. 500,000 + Rows after combining all 15 data Tables.

Project Requirement

Project Requirement	Our Analysis	Status
Data Visualizations or Data Engineering	Data Visualizations	✓
Visualization must include:	Visualization includes:	✓
▪ Python (e.g. Matplotlib, Pandas plotting, hvplot) ▪ JavaScript (e.g. Plotly or Leaflet)	Python: Matplotlib, Pandas plotting, hvplot, Numpy, Plotly Express	✓
A Python or JavaScript visualization library that was not covered in class	▪ Python: Altair as alt ▪ JavaScript: (Plotly & Dropdown)	✓
Data must be stored in and extracted from at least one database (PostgreSQL, MongoDB, SQLite, etc)	▪ PostgreSQL database	✓
A dataset with at least 100 records	Dataset includes > 500 thousand rows	✓
GitHub repo must include a README.md	README.md included	✓

Data Ethics Principles in Our Analysis

1.Transparency

- Clearly document methodologies, data sources, and any assumptions made during the analysis.

2. Fairness

- Avoid biased interpretations or analyses that could misrepresent or harm specific groups.

3. Accuracy and Clarity

- Ensure visualizations and findings are precise and not misleading.

4. Accountability

- Take responsibility for the ethical implications of the analysis and its potential impact.

Analysis Method

Step-1:
- Create Table in PostgreSQL
- Import 15 Data Tables without any error
- Combine all 15 Data Table by union

Step-2:
- Save combined data as sql data also as csv data

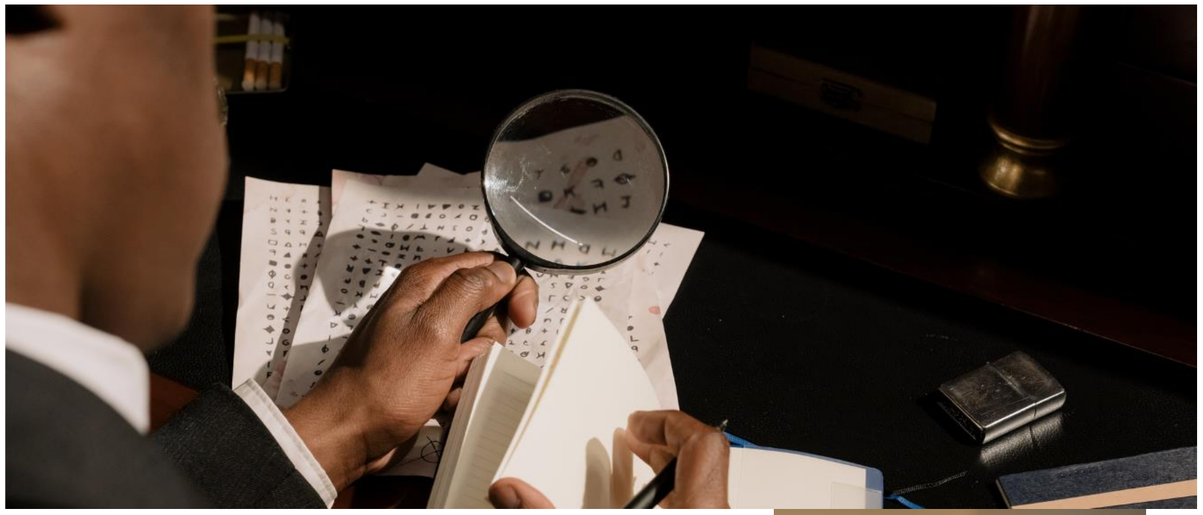
Step-3:
- Read both sql data and csv data in Jupyter notebook

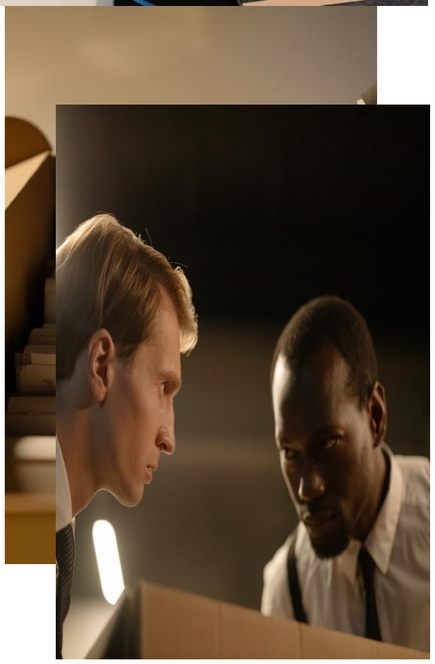
Step-4:
- Check data type
- Clean data with dropna to remove null values

Step-5:
- Use different libraries for visualizations

Step-6:
- Create new data table and save the data table as csv for JavaScript visualization

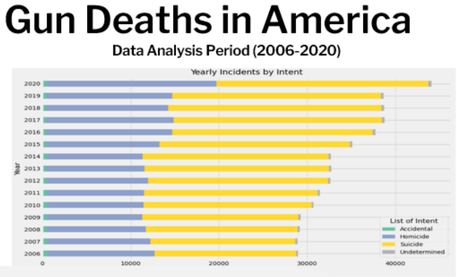
Step-7:
- Create Html doc
- Create gunShotIntentData.js
- Create gunShotRaceData.js
- Create chart.js

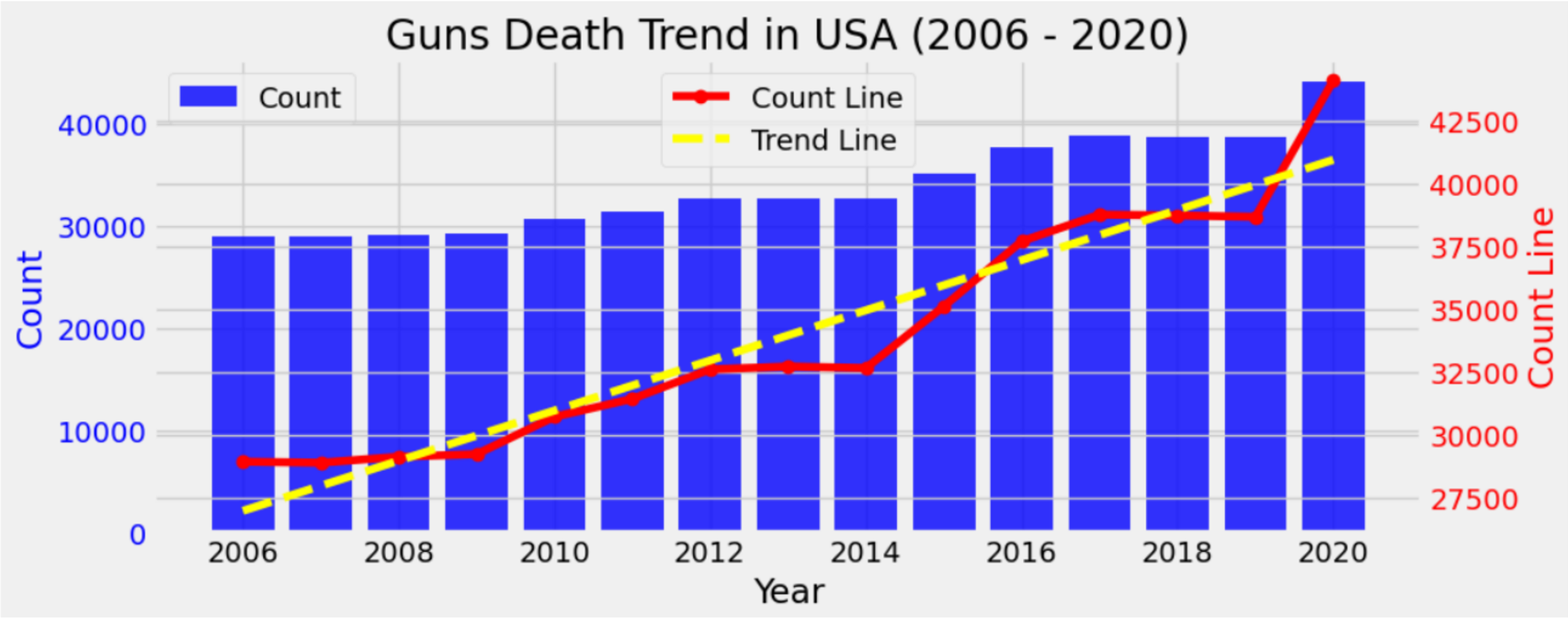




Welcome To Our Presentation

Summary Analysis of the data



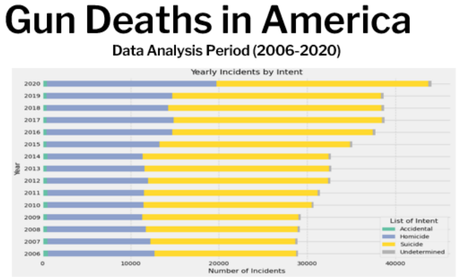


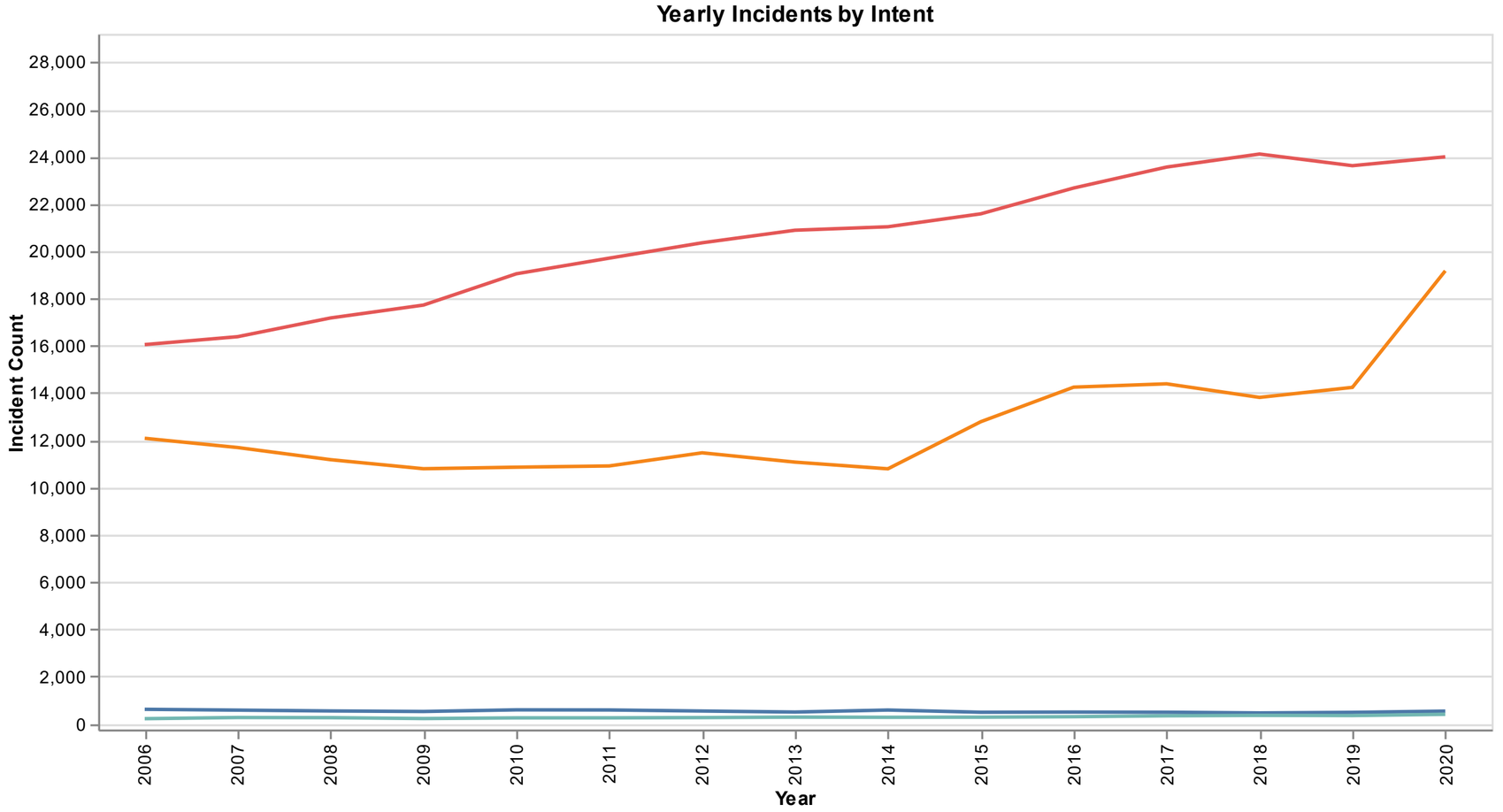
- Death trend over the period gives a growing concern
- There is sharp spike in death count during 2019-2020

In our next few slides, we will break down our summary findings

1. Type of violence (intent)
2. Races
3. Genders
4. Age Group
5. Place of occurrence &
6. Education

Line graph to represent death incidents by Intent

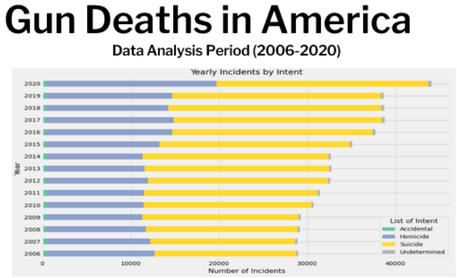


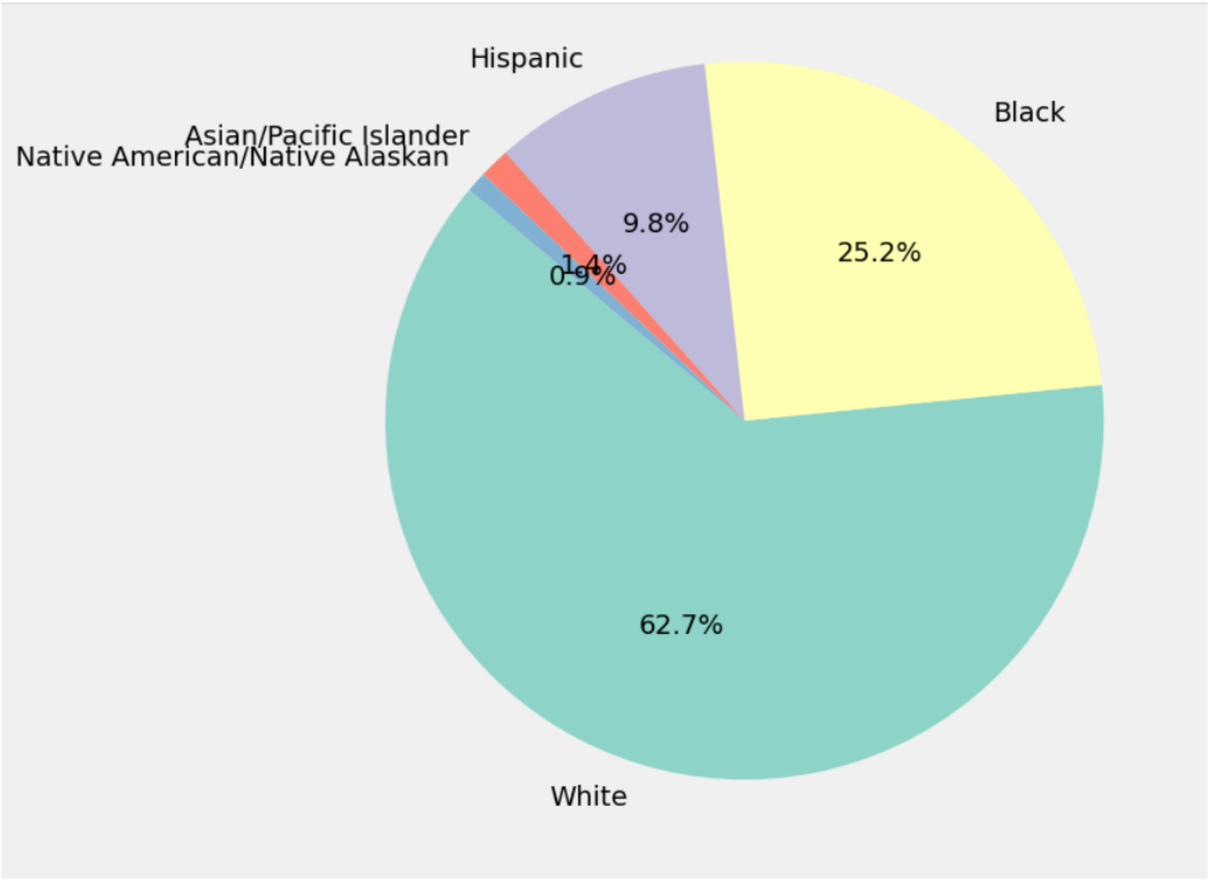


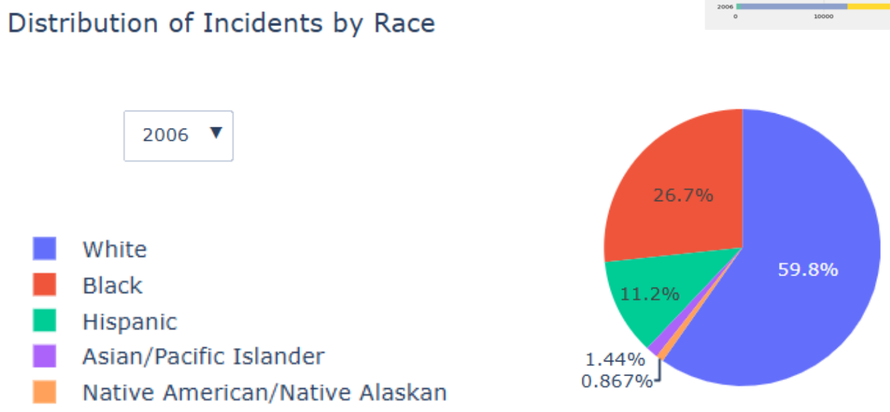
- Suicide & Homicide are the two most prominent types of violence.
- It is a big concern since the trend over the period is increasing

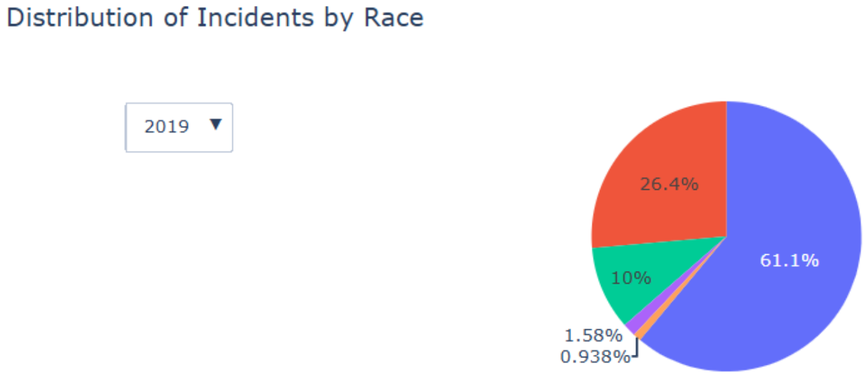
** Library used: Altair

Pie Chart to represent death incidents by Race



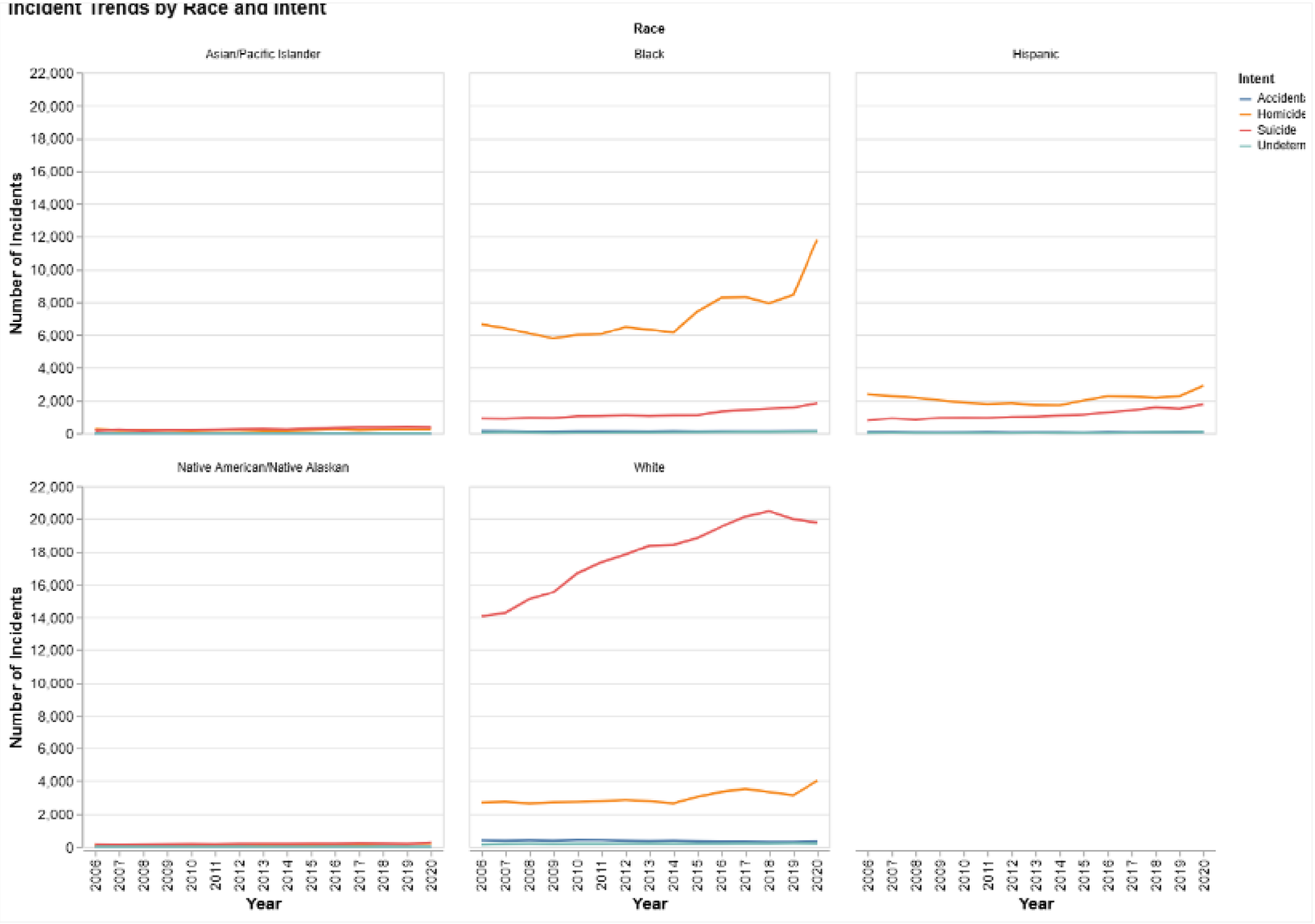


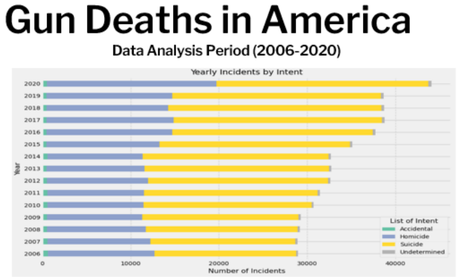




- Chart represents that death incidents are mostly occurring within White people

Incidents Trend by Race & Intent

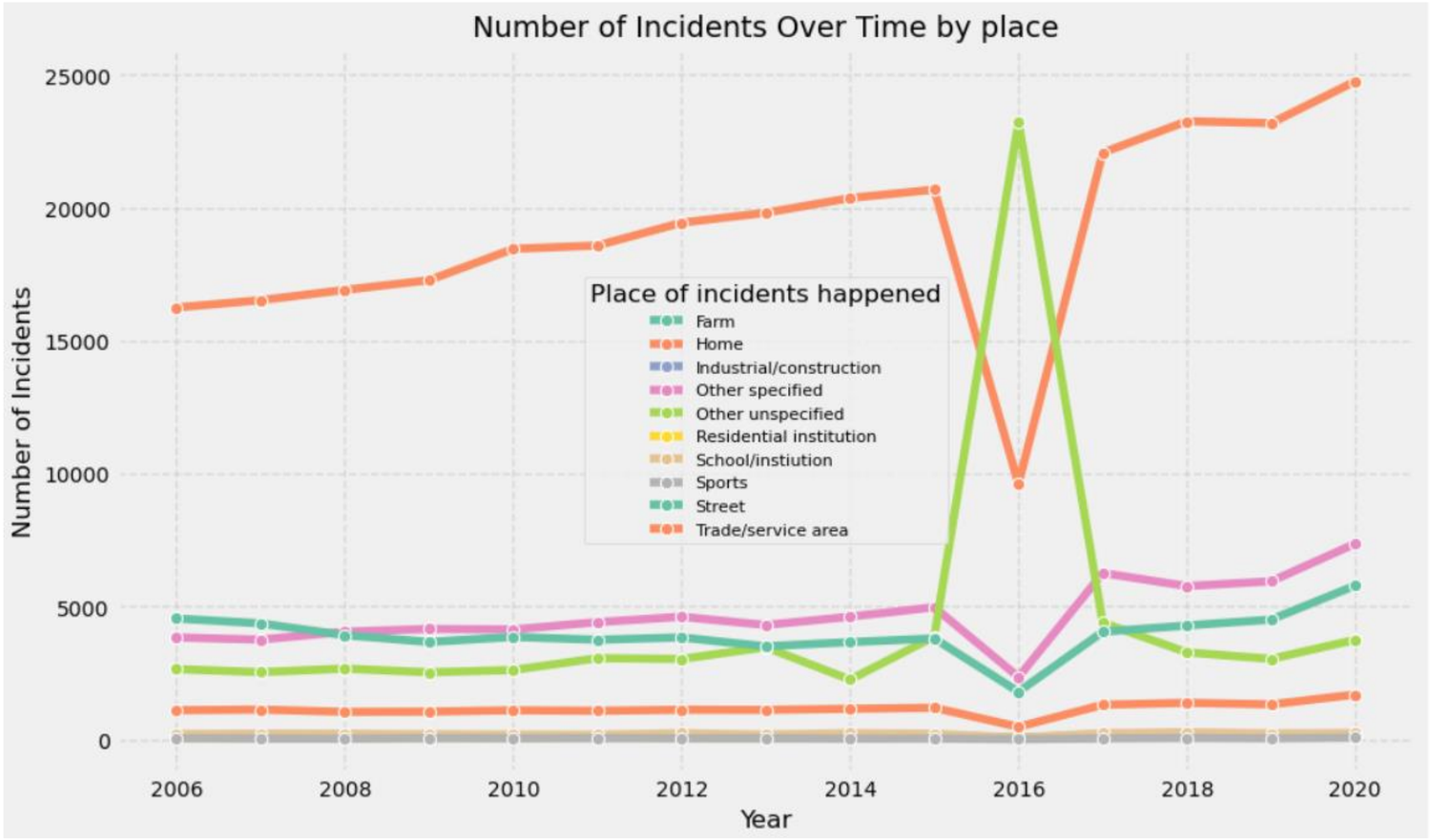


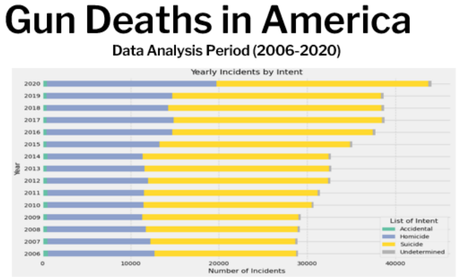


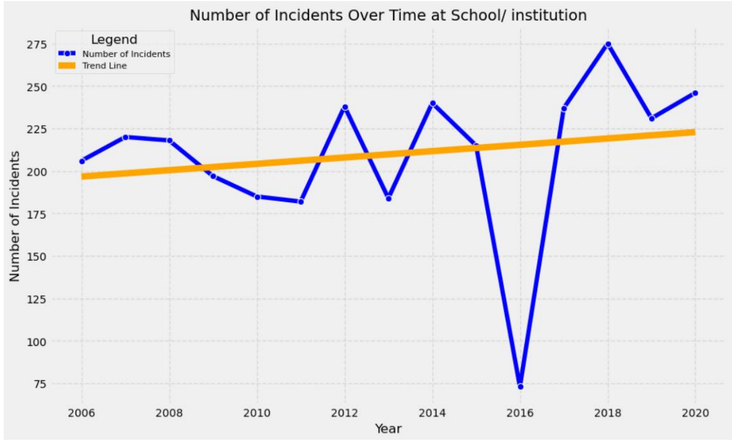
- Homicide is mostly happening in black community whereas Suicide incidents is happening more within White community

** Library used: Altair

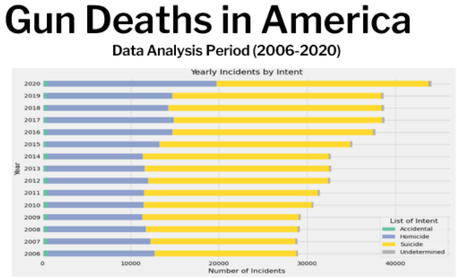
Line Graph to represent death incidents by Place



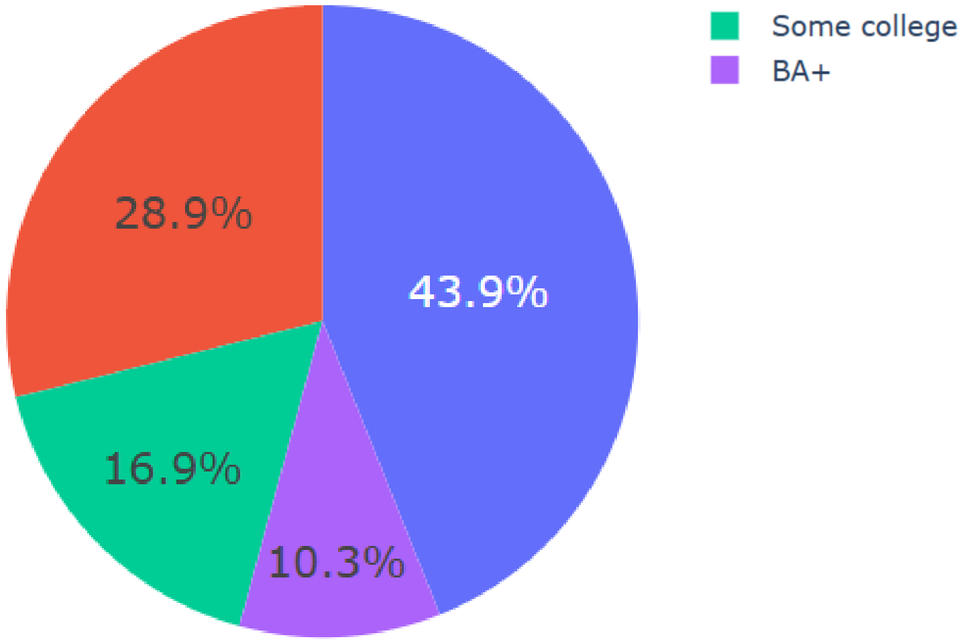




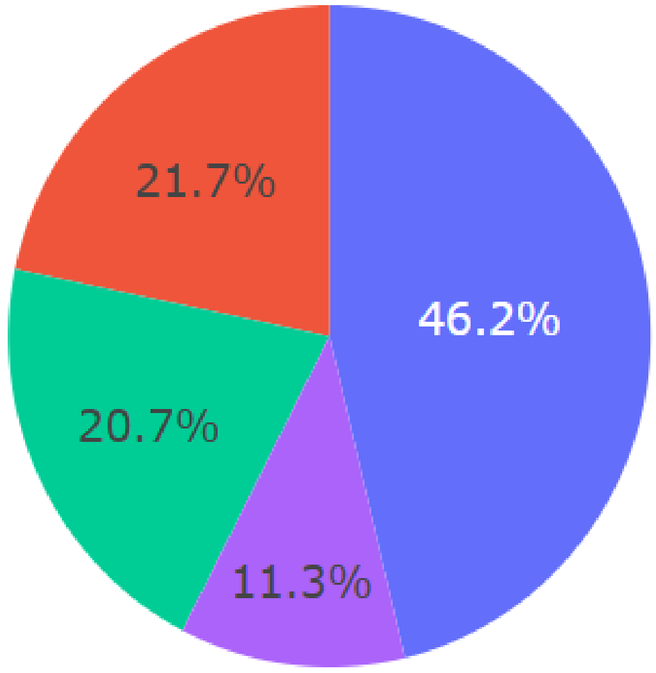
Pie Chart to represent death incidents with level of education



2006

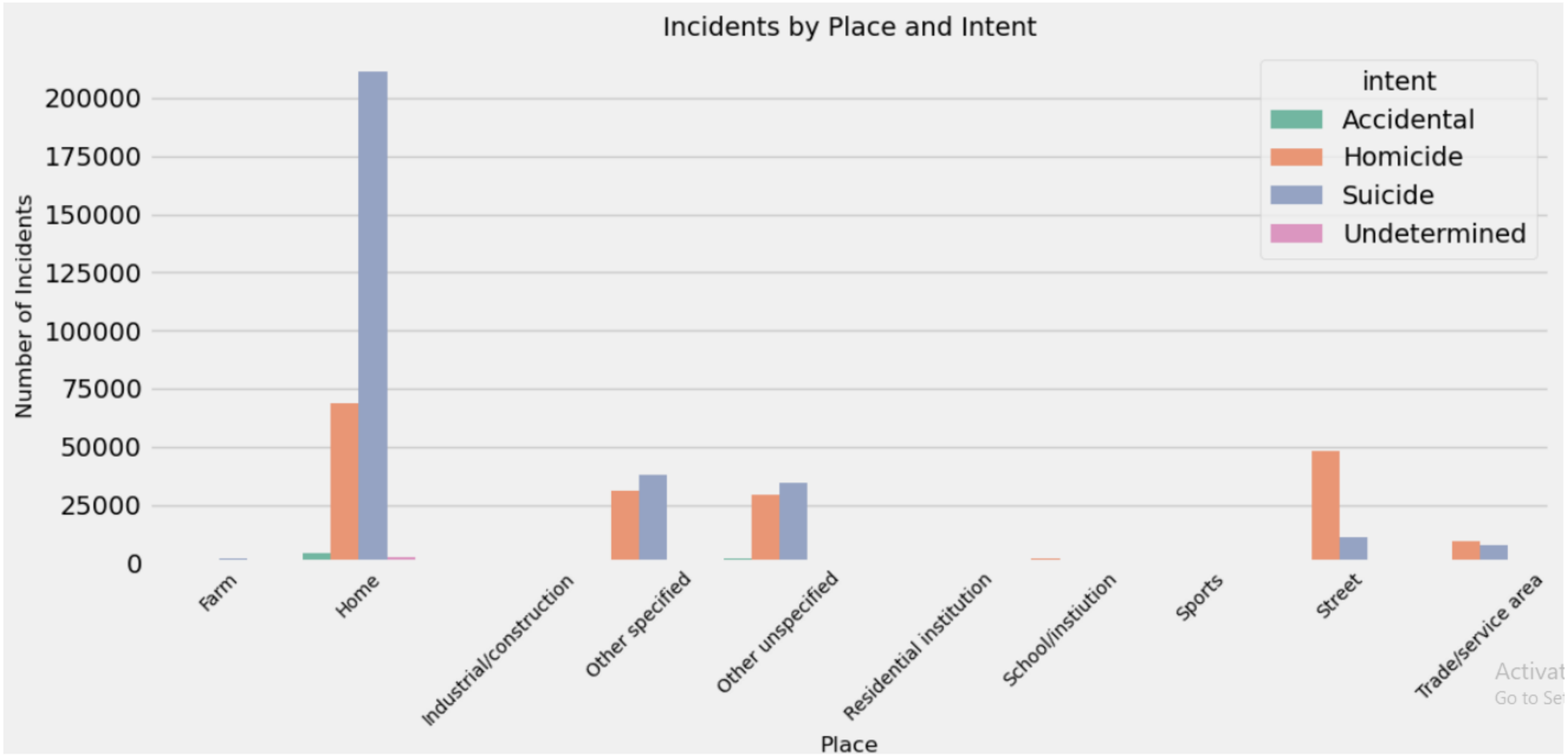


2020

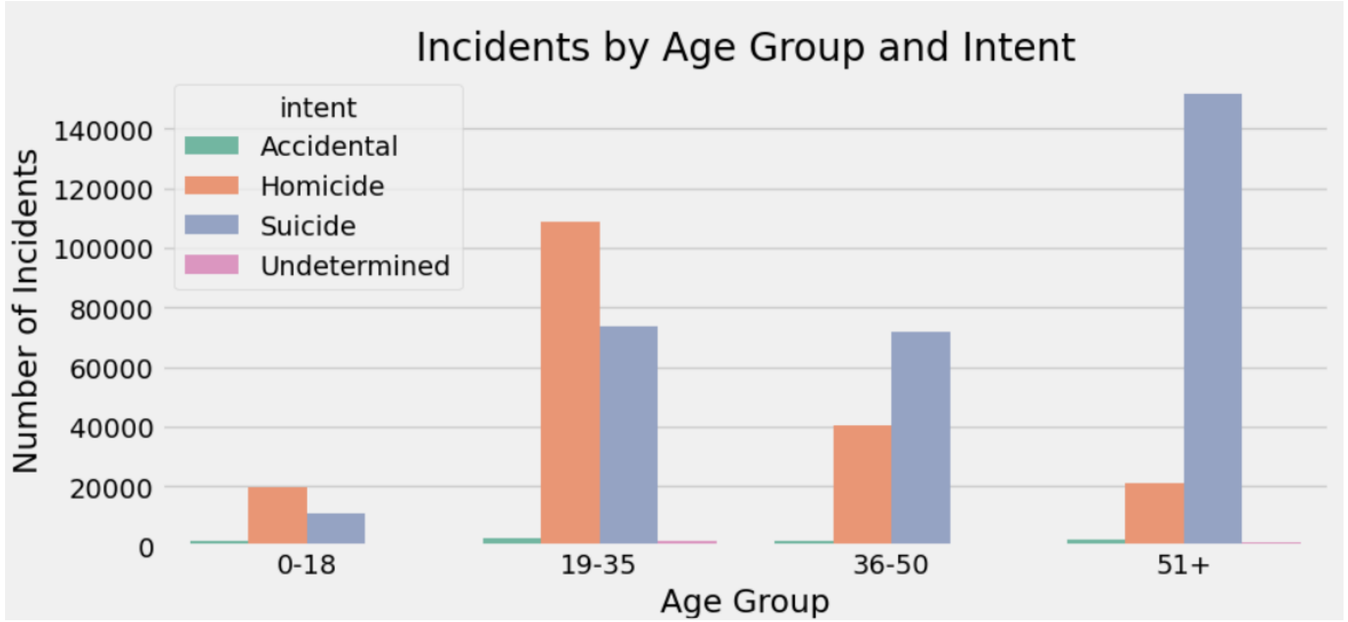


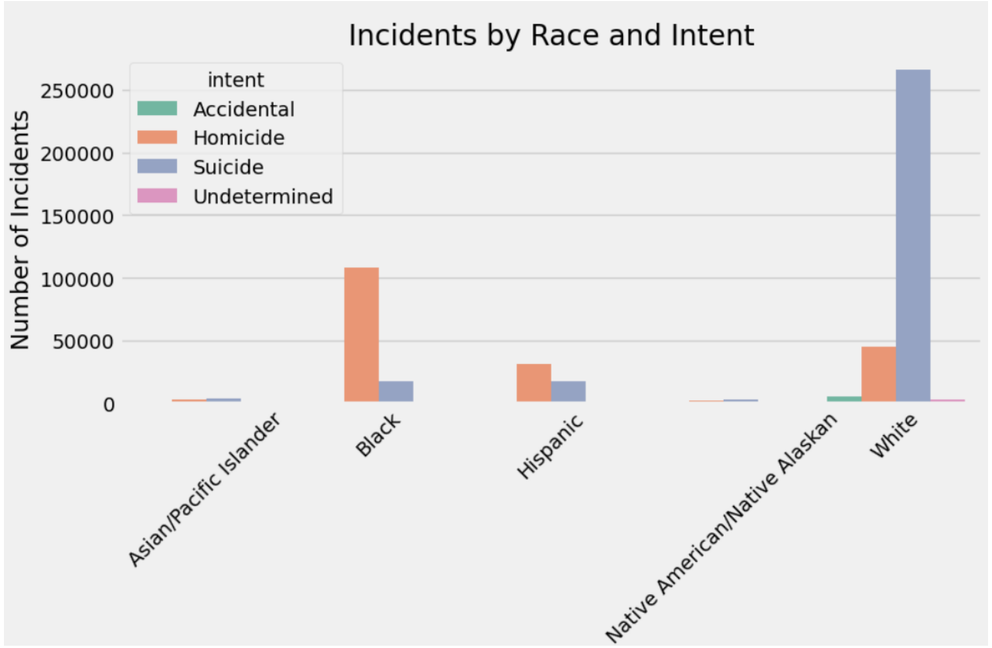
- There is a relation of gun violence with level of education

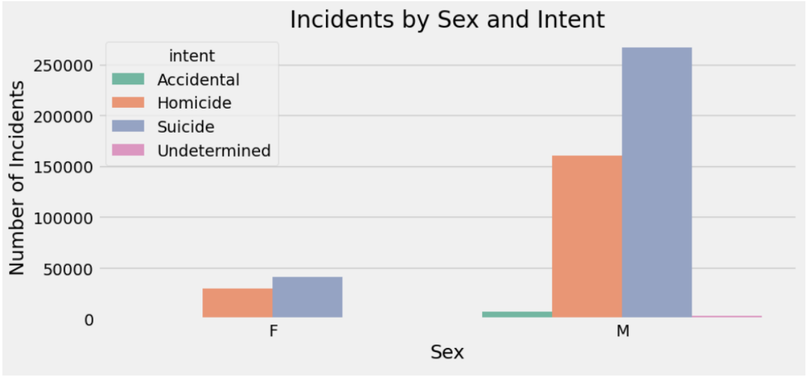
Demographic Analysis:
Most of the gun violence is happening at home



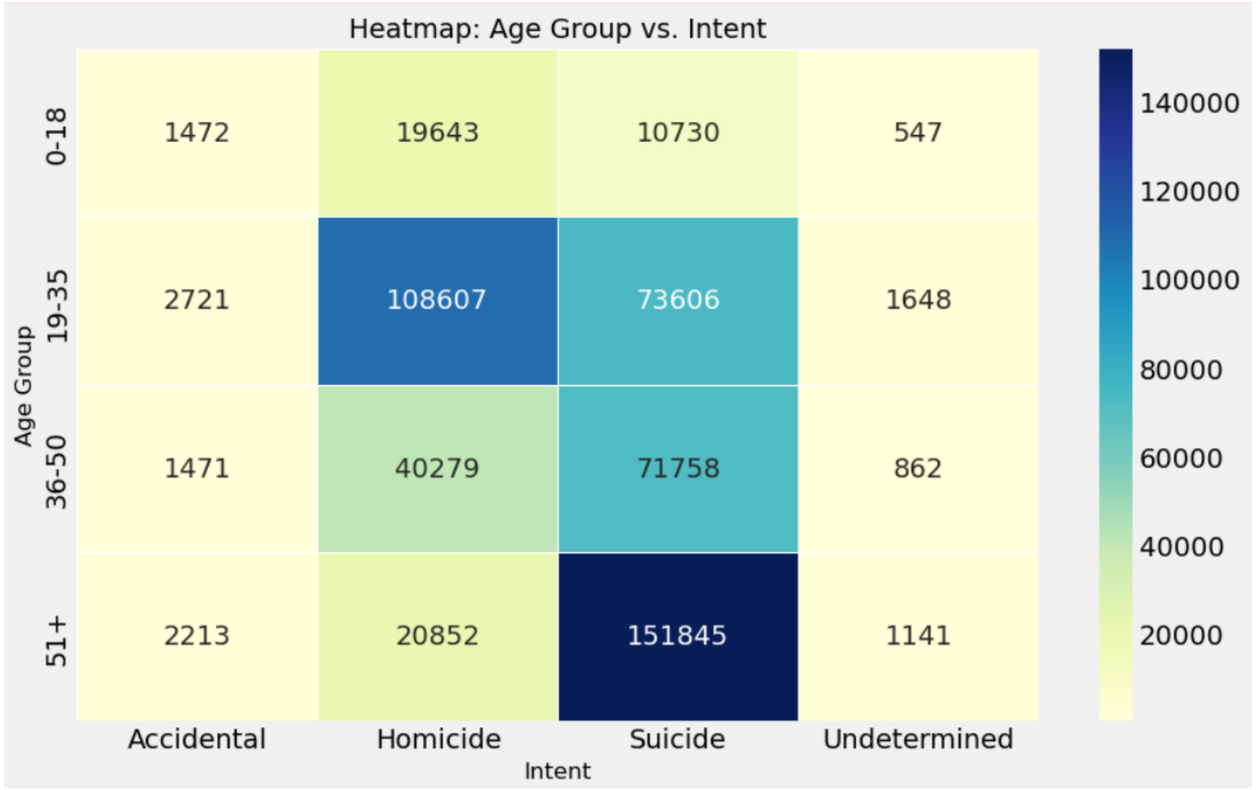
Demographic Analysis:

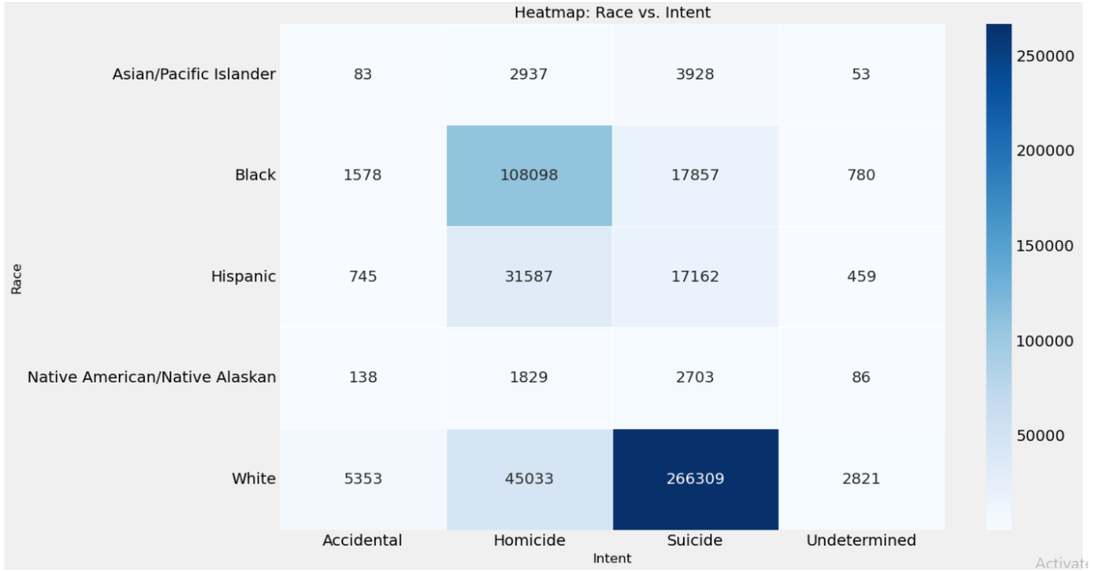


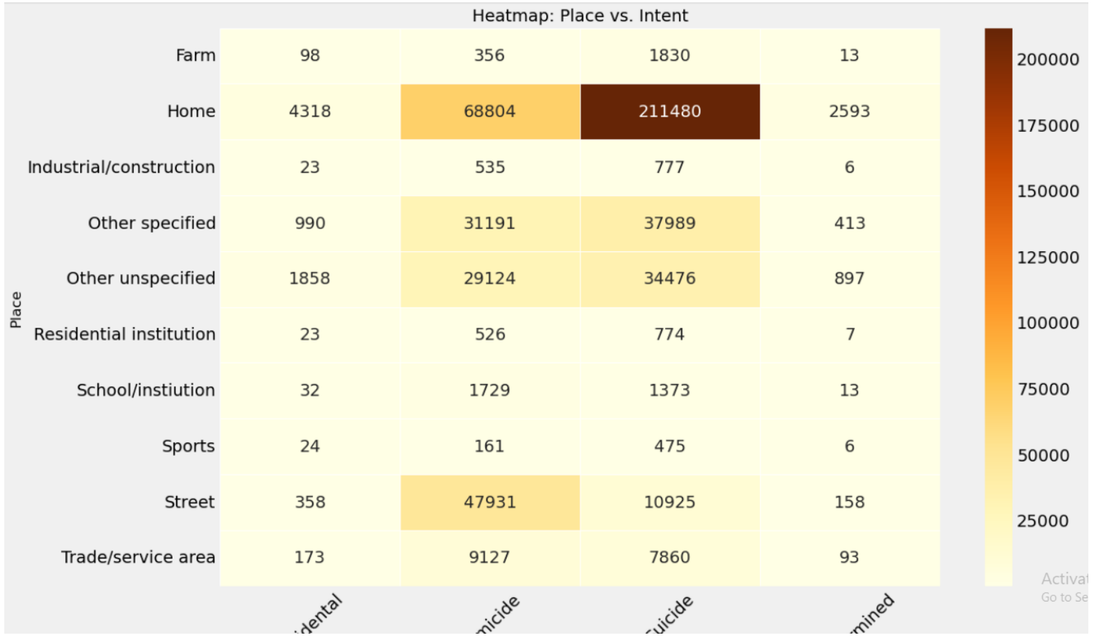




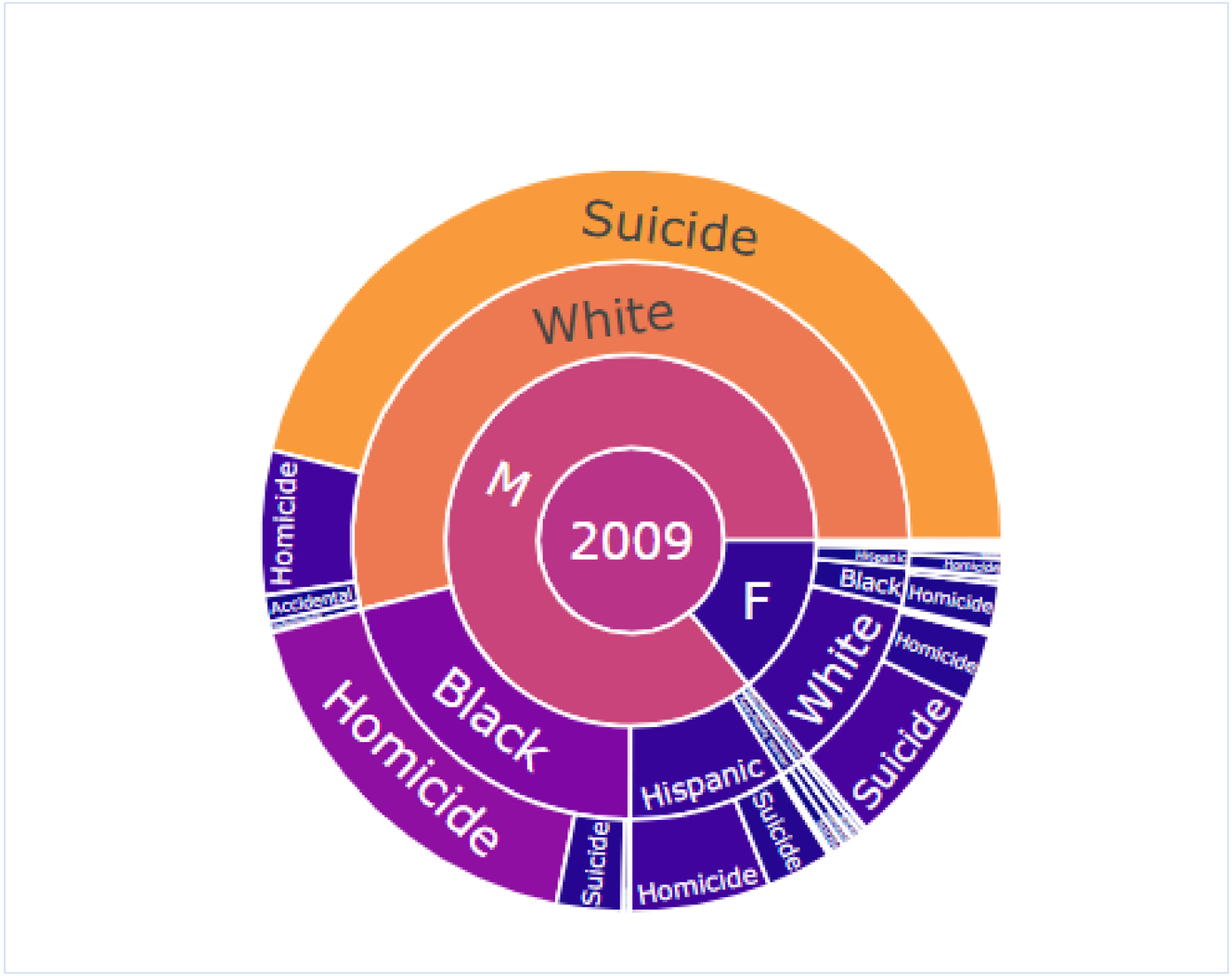
Corelation of Intent with Age Groups, Race and Place



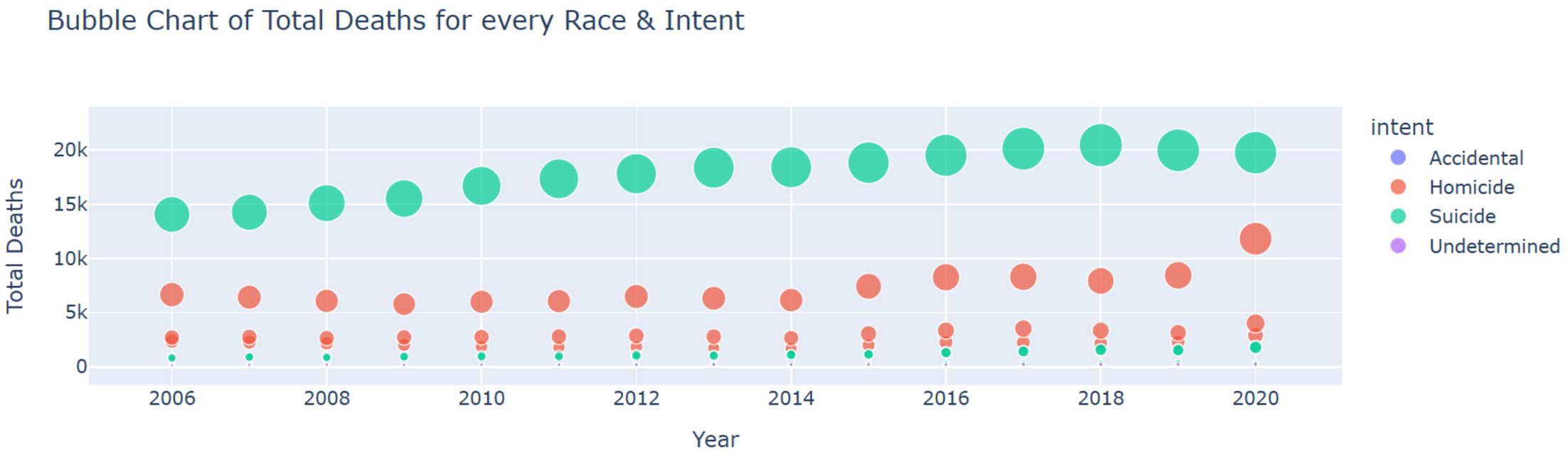




Sunburst Chart: Year, Sex, Race & Intent



Bubble Chart of Total Deaths for every Race & Intent



JavaScript Visualization

Summary & Recommendation

- Homicide tendency is more in the Age group 19-35 whereas suicide tendency is seen more within Age group 40+
- Overall suicide occurrence is about 60% and homicide about 38%
- Data Analysis revealed death for gunshot for white is 63% and for black is 25%
- And around 86% are Male group and 14% are Female
- Occurrence happening at home is 56% and in the Street is11%

- Data emphasizes the importance of targeted interventions and policy reforms
- Evidence-based strategies and community efforts are crucial to reducing gun violence.
- Collaboration across sectors is essential to address the root causes and save lives.

Thank You