**Project Proposal**

**Executive Summary**

The purpose of this project is to explore the effect that the Covid pandemic has had on gun violence. We will answer one central question and four auxiliary questions. The scope of this project is to understand the link between the Covid pandemic and gun-violence. We will use R, Python, SQL, and Tableau and no other programs. Data is sourced from The Gun Violence Archive, an online archive of gun violence incidents collected from over 7,500  law enforcement, media, government and commercial sources daily in an effort to provide near-real time data about the results of gun violence.

**Business Objectives**

We endeavor to answer the following questions:

* What effect has the Covid pandemic had on gun-violence in the US?
* In areas where gun-violence has gun up, has there been any change in the rate of mental illness cases?
* In areas where gun-violence has stayed the same or gone down, has there been any change in the rate of mental illness cases?
* In areas where gun-violence has gun up, have there been any changes in policing laws or policies?
* In areas where gun-violence has stayed the same or gone down, have there been any changes in policing laws or policies?

**Background**

There is a putative link between mental health and Covid (Javed, Sarwer, Soto, & Mashwani 2020) and at least a weak positive correlation between mental illness and gun violence (Rozel & Mulvey 2017). On the assumption that the Covid pandemic has caused increases in mental illness and mental illness is among the causes of gun violence, by transitivity of causation, we should see an uptick in gun violence post-Covid as compared to pre-Covid numbers. It turns out, this is just what we see. Further analysis of this data such as the locations, times of day, changes in policing laws in those locations, will all count towards understanding the effects of the Covid pandemic on the rate of gun violence in the US.

**Scope**

The scope of this project is to understand the link between the Covid pandemic and gun-violence. If there is any change in the rate of gun-violence post-Covid as compared to pre-Covid, we will only be interested in investigating whether that link might be explained in terms of increases of cases of mental illness. If no such links between mental illness and Covid can be found, we will conclude that some factor other than mental illness explains that. With one exception, we will not be interested in any further putative explanations of any found positive correlations between the Covid pandemic and gun violence in the US. The one exception will be changes in policing. If we find that changes in policing are co-occurring with changes in the rate of gun-violence, then we will consider that as a mitigating factor in our analysis.

* We are willing to use R, Python, SQL, and Tableau and no other programs.
* We are not willing to learn new skills for this project.
* We are not willing to work more than 20 hours per week to finish the project.
* We are willing to add or replace up to three data sets if asked.
* We are willing to complete a dependent t-test, structural equation modelling and data mapping, and no other analyses.

**Functional Requirements**

* We will use R, Python, SQL, and Tableau and no other programs.
* Data is sourced from The Gun Violence Archive, an online archive of gun violence incidents collected from over 7,500  law enforcement, media, government and commercial sources daily in an effort to provide near-real time data about the results of gun violence.
* We will complete a dependent t-test, structural equation modelling and data mapping, and no other analyses.

**Personnel Requirements**

This project will be conducted by two students, Genesis Docena and Sophie Ban, with the help of Dr. Mohamad Saleh and Woz-U / Entity mentors. We will complete individual work, and have check-ins on a daily basis.

**Delivery Schedule**

We will adhere to the following schedule:

* Week 1: Project Planning
* Week 2: Project Planning
* Week 3: Project Planning
* Week 4: Data Wrangling & Data Exploration
* Week 5: Data Analysis & Data Visualization
* Week 6: Data Reporting and Presentation

**Other Requirements**

**Assumptions**

We assume that the programs will run and not have bugs, and that we will have the time to dedicate to the work and communication this project requires.

**Limitations**

It’s possible that we have forgotten some of the skills required for this project and will need refreshers from mentors.

**Risks**

It’s possible that internet could go out, that computers could break, or programs have bugs. It is also possible that family and work commitments could interfere with the work required for the project to be completed.