Final Presentation

DO2: understanding data

DO4: visualizing data

DO5: communicating insights

Allison Lee
CS & Design

ARTG2242

Information
Design
Principles

Prof. Paolo
Ciuccarelli

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Experiment: [D02]

Understanding Data

Data Descriptors -- Shootings.csv

The metadata:

Quantities: Data shape:
                             2020 rows x 8 cols

Who produced it? When?   Boston Regional Intelligence Center collects
How: is the data col-   this data under the Boston Police Department
lection robust?   Bureau of Intelligence and Analysis.
                             Published by Department of Innovation and Tech-
                             nology.

                             2015 and onward, it's updated by a 7 day roll-
                             ing delay after analysis of new incidents.

   Shootings are defined by non-self inflicted
                             bullet wounds.

Why the dataset was   Produced for public safety.
produced?

What is producer's   The producer has not released any opinion on
take on the topic?   the data.
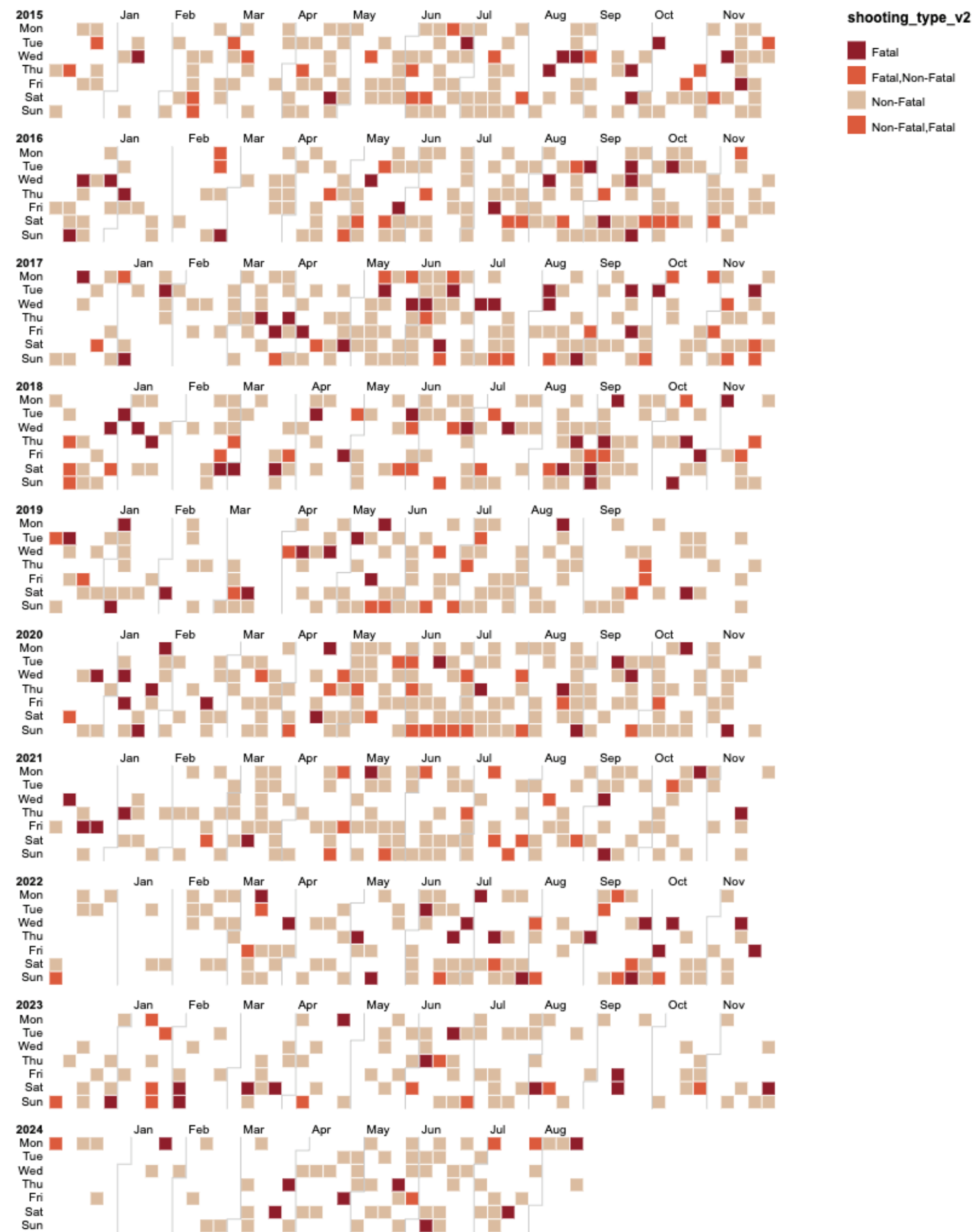
This calender heatmap serves the purpose of showing when occurances happen/aggregate over time.
By using color/hue distinction in the severity of the incident (fatal v. non), we can see patterns of when shootings tend to occur.

We see that 2017 and 2020 had aggregates of shootings in the summer. 2017 in particular looks dense in fatalities. Also, we see the first week in June 2020 there was one shooting a day.

Number of records
○ 1.0
○ 1.0

victim_race

■
■ Asian
■ Black or African American
■ Unknown
■ White
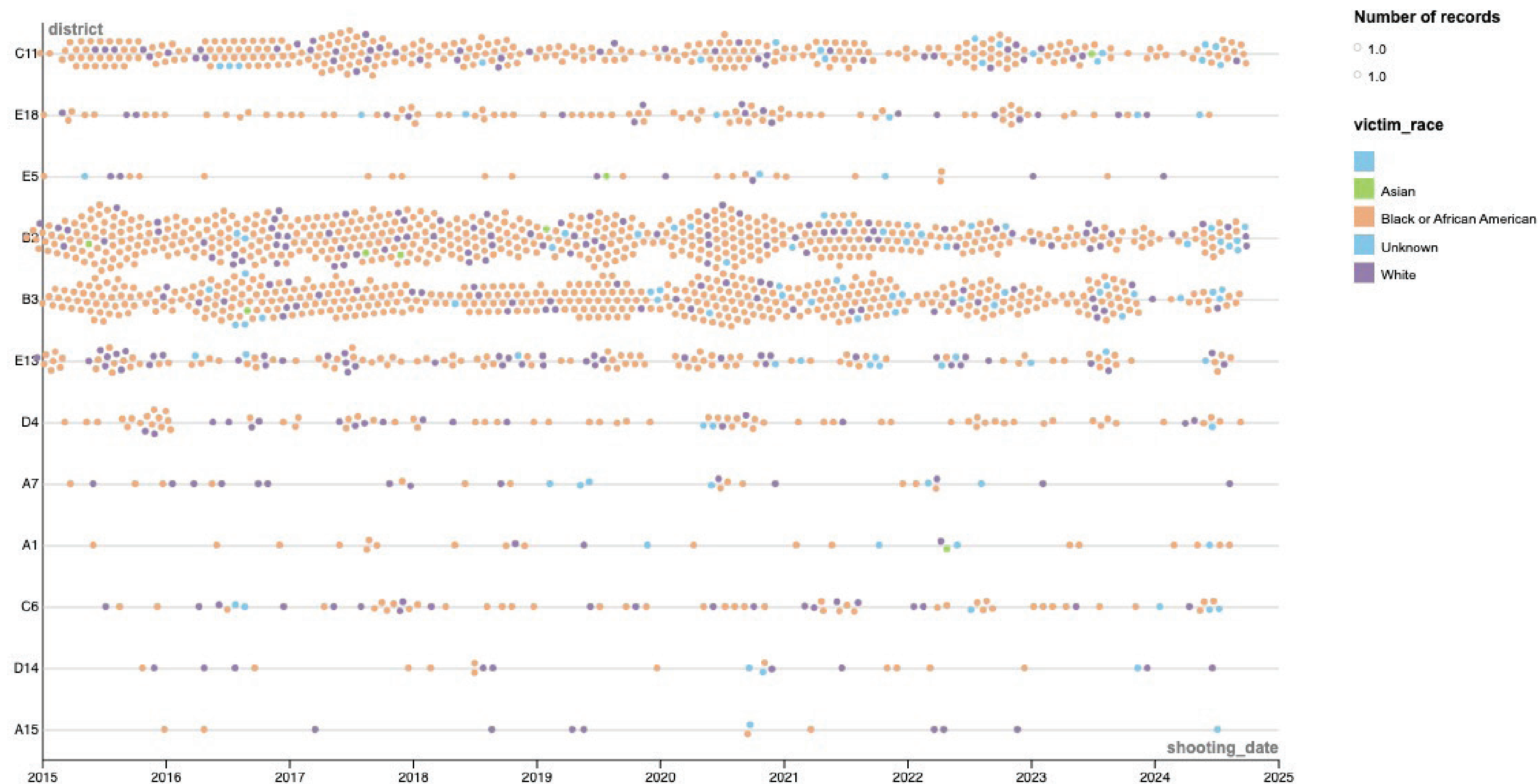
This beeswarm plot acts like a density plot as well.
It shows a general number representation of shooting victims races vs time in combination with the Boston police district where it occured. By using color distinction, we can picture them more as figures.

We see that proportionally the most shootings occur in districts B2, B3, and C11. (Roxbury, Mattapan, and Dorchester respectively. We can also observe the majority makeup of victims are Black or African American. Further we see the swarms seem to shrink over time, and further, dips in time (beginning of 2020) where we can observe the effect of mandated quarantine.
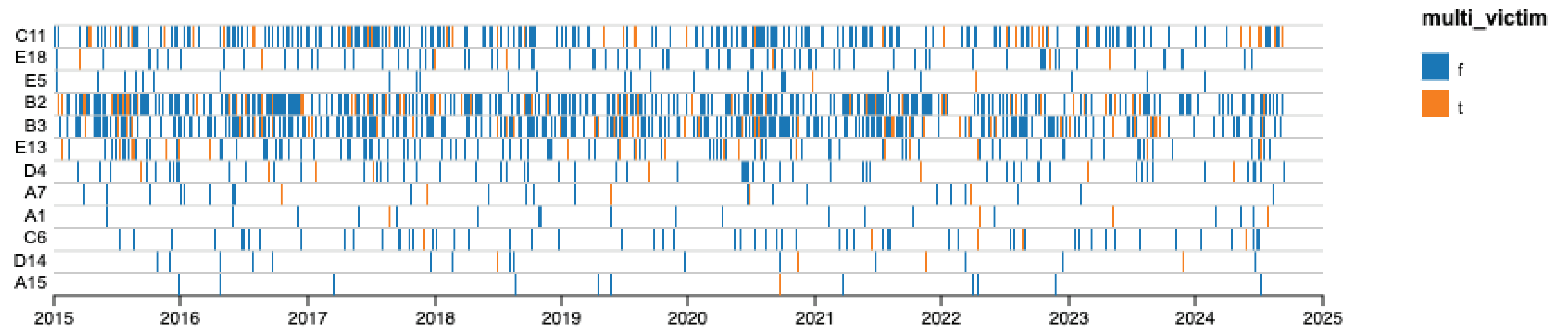
This Gantt chart also acts as a density map over time.
Plotting multi-victim cases vs time and district occured, the frequency leads to a denser cluster. We can observe a large amount of non-multi victim shootings occuring in late 2016 district B2. And again with the lessening of shootings within the last 2 years.

Number of multi/single victim cases
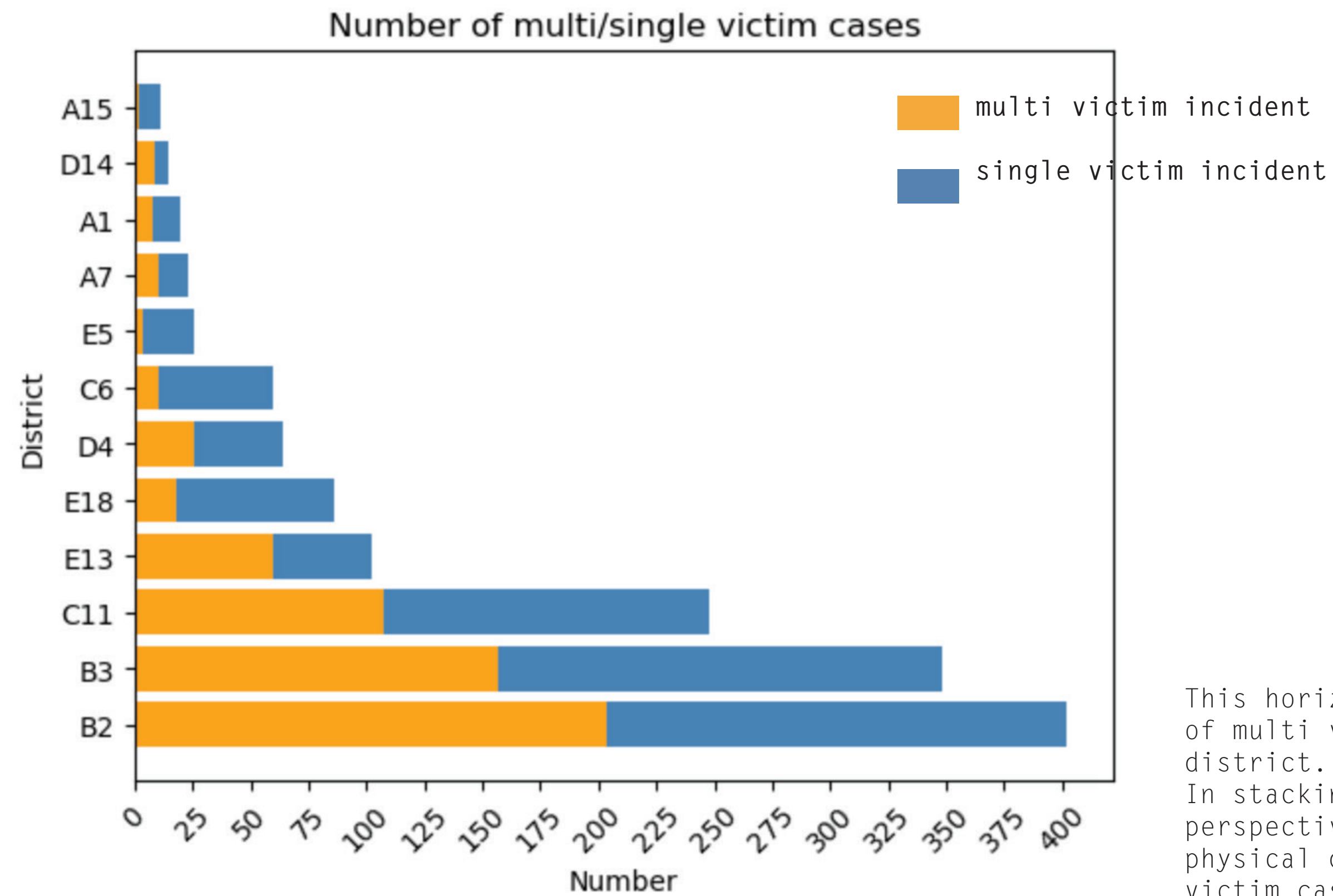
This horizontal bar chart showcases the numbers
of multi v. single victim cases in each
district.
In stacking the bars, it combines another
perspective into the mix. Also we can see the
physical difference in the amount of multi
victim cases in one district vs another.
There's a large difference showcased by E5 in
the discrepency of observed ranking.

Experi-
ment:
[D04]

Visualizing
Data

Persona

Name of the expert:
Luke Cane

Domain/area of expertise:
   They are an expert in analyzing criminal statistics, more specifically for victims in the combination of social studies, social justice, and behavior. They study these statistics for public safety purposes.

Role and organization:
   They work in the Massachusetts Executive Office of Public Safety and Security.

Seniority in the organization:
   They have 2 years of experience on the job. They are someone who works with this constantly, yet is always expanding/hoping to know more.

Level of knowledge about data analysis:
   They have a medium knowledge of data analysis – as it is in combination with the social studies/justice point of view. Their job is not to clean up the data or work with it from the start exactly, their job is to take what is cleaned up and to apply it to possible scenarios to frame what is the leading issue at hand (As a form of response measurement).

Insights they want to get from the dashboard (as many as you deem relevant):
   They are searching for patterns – any kind of pattern or cue to help better understand how to both address the issue of needless violence and eventually find a solution to end it.

Potential consequent actions in their domain:
   Once they know/ have something to take away, they can raise awareness of said issue to investigate and make this analysis known to the public and/or higher-ups in their organization. This could either lead to more studies on violent incidents or increased protective/ preventative services of shooting victims and gun control.

Introduction

What is the 'big picture' of the phenomenon
you want to offer to the expert through your
dashboard, and - connectedly - why did you
select those charts and designed those kinds of
interactions?

The big picture of the
phenomenon I want to
offer to the expert
through my dashboard is
a summary of shootings
in the Boston area and
how patterns may appear
or shift. Patterns
meaning trends in
victims, or location,
or other variables.

This is to help with
the public safety and
well being of citizens
if there does happen
to be an unexpected
occurance in shootings.
By studying patterns
in shootings and
victims, there is
a predictability/
probability of future
incidents we can take
away -- and hopefully
prevent for the good
of Bostonians.

I chose these specific
charts to visualize
movement or prevalence
of certain categorical
values from the data.
I aim to tell a story
with displays of
location, demographics,
and time.

The dashboard is meant
to act as both a hub
and exploratory tool
to analyze the dataset.
The big picture happens
to be the who, when,
where, and how of the
data.

Additonal tendencies
of behavior can be
extracted given setting
of location and time
-- which I further
elaborate on in my
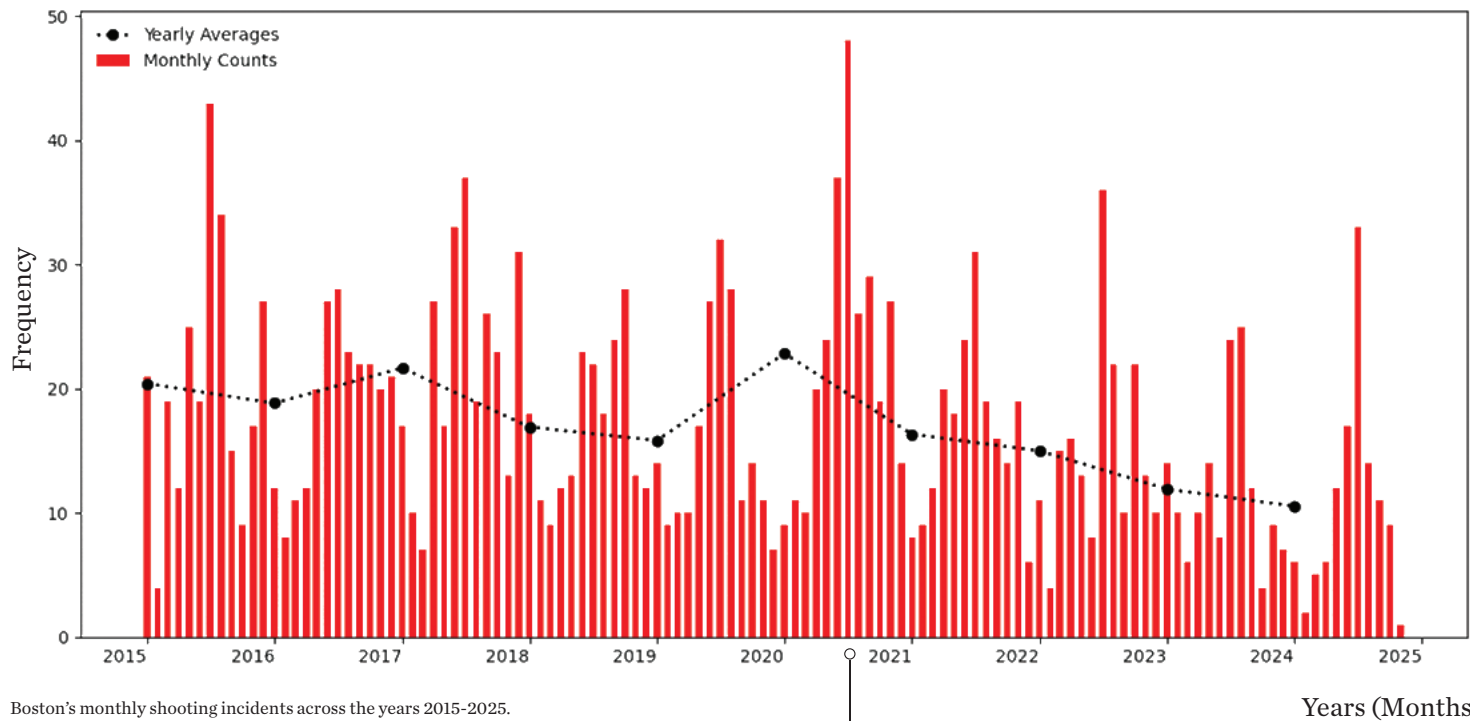Districts and Yearly
pages of the dashboard.

https://www.figma.com/proto/hFwP4Q6uWQR5YFehVMzAFK/Viz.-Data-
Dashboard?node-id=3-93&node-type=canvas&t=tblWk4yCLN7mWfJe-
1&scaling=scale-down&content-scaling=fixed&page-id=0%3A1

Experi-ment::
[D05]

Communicating Insights

Boston's History of Gun Violence

The decline of local shootings within the past decade

By Allison Lee
CS & DESIGN

Boston's monthly shooting incidents across the years 2015-2025.

Years (Months)

Daily Incident Counts for 06-2020

A look into the months

• June 2020 -- highest count of shootings in the past 10 years

• 274 number of incidents total; Over 1.33x the average of 203 incidents in Boston per year.


NEWS ANALYSIS

Implications on public safety

This year 2024 there's total count of 116, the lowest total of the past 10 years so far. As the rest of November and December come along, the total incident counts are projected to fall along the same as 2023

• Through the summer spike, the decline of gun violence appears evident as time moves forward.

• The greatest spikes in 2015 and 2020 are purpotedly due to rises in controversy regarding homicide and protests respectively.

• Recently there've been drops in behavior, evident by the downward yearly trend.

On balance, beams
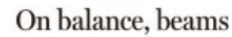
Saturday: Sunny, windy. High: 35-40. Low: 16-21.
Sunday: More sun. High: 33-38. Low: 28-33.
Sunrise: 6:28 Sunset: 5:27
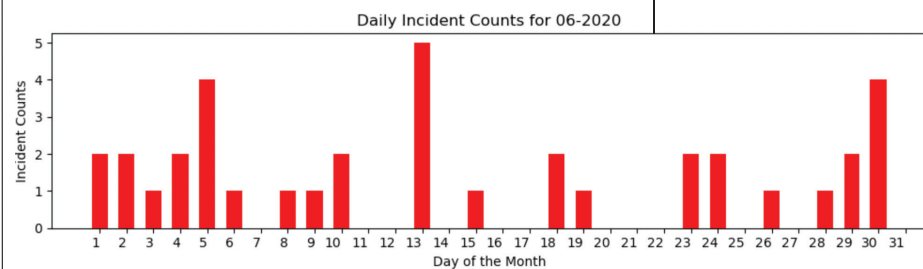Comics and Weather, **D4-5.**
Obituaries, **C9.**

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Suggested retail price
$1.50
$2.00 outside Metro Boston

What this means for the impacted
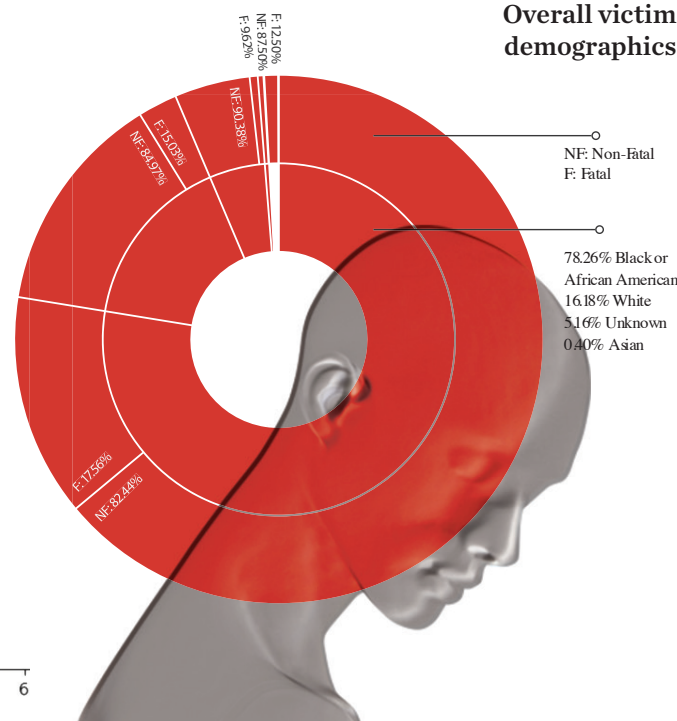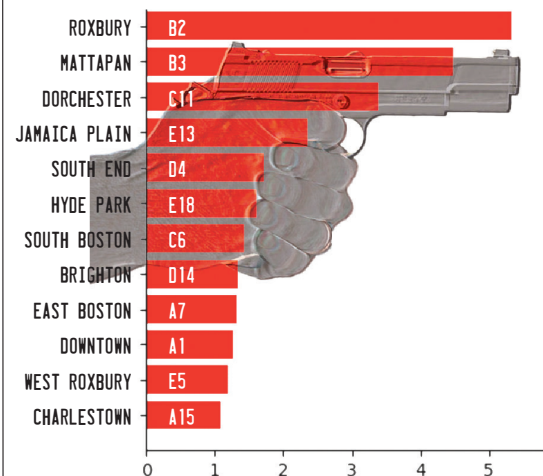
By Allison Lee
CS & DESIGN

As the reports are filed per police district of the Boston metropolitan area, we can observe the regions in which incidents have been recorded. Roxbury, Mattapan, and Dorchester have the highest average number of shootings per month. The victim demographics are displayed in the sunburst diagram to the right. By a large margin,

Black or African Americans are the most impacted demographic. They account for > 78% of the shooting victims. Consequently, the fatal shooting percentages are higher as well for that demographic. Taking into account the neighborhoods in which the shootings occur, they each make up over 50% of the populations in their respective areas. What is not clear though is who the

perpetrators are. Although, where the discrpency lies is Black or African Americans make up for just 25% of the Boston population. This raises concerns regarding the safety of this demographic where it appears they are targeted by a large margin. To ensure

the safety of this demographic, further analysis should be performed in the surveillance of the area and police response to given incidents. Firearms are currently allowed for Massachusetts residents over the age of 15 to own given an appropriate license. Though firearm reform is also a rising movement in the state of Massachusetts.

Monthly average incident counts per police district

Overall victim demographics

NF: Non-fatal
F: Fatal

78.26% Black or African American
16.8% White
3.16% Unknown
0.80% Asian

ARTG2242 Visual Rhetoric Matrix

		create **context**	convey **message**	**engage** the user
visualization title:	Decline of local shootings			
URL:				
the addition of textual annotations, titles and/or figurative elements, usually over or around the charts - or color added for conveying a specific meaning	**addition**	The textual annotations and titles add some context to the graphs. The graphs also add visual context to the situation.	The message they convey a kind of rhetorical narrative. You explore the data through the different graphs and analyses	The user is engaged by all the additions -- where the images that've been overlayed with graphs also create visual interest.
transforming charts (whole or parts) into shapes that mean something more than just the data, often by means of visual metaphors, to represent what the data is about	**transfiguration**			
the intentional choice of a chart and/or the arrangement of its components (marks displacement, orientation - upward, downward, scales …) or the way multiple charts are arranged (tiled) in the canvas	**arrangement**	Relating the shape of the graph to a gun or target shape, you can quickly understand what the article may be about	Theres an obvious message about danger and guns coming from the arrangement of the graphs.	It also creates an interesting visual dynamic.
the animation of the graphical elements (movement) through time and space confer them meaning (e.g. acceleration, pause, going up or down …)	**direction**			