DIGITAL HEALTH EXAMS

Use case : Specific problem descriptions of all stakeholders involved. %500

crime can have significant effects on the public health of a nation. High crime rates can contribute to physical and mental health issues for individuals, create a sense of insecurity, and strain healthcare resources. Additionally, violence and criminal activities may lead to injuries, trauma, and increased stress within communities, impacting overall well-being. Addressing crime often involves a multi-faceted approach that considers both law enforcement and public health strategies.

Here are some key stakeholders:

1. **Government and law enforcement Agencies:**
    - **Police and law enforcement:** Responsible for maintaining public safety, preventing and investigating crimes.
    - **Judicial system:** Involves courts, judges, and legal processes that determine the guilt or innocence of individuals accused of crimes.
2. **Healthcare professionals and Institutions:**
    - **Medical personnel:** Addressing the physical and mental health consequences of crime, treating injuries, and providing mental health support.
    - **Hospitals and Clinics:** Manage the healthcare needs of crime victims.
3. **Community Organizations:**
    - **Nonprofits and NGOs:** Engaged in community development, crime prevention, and support services for victims.
    - **Community Health Centers:** Address public health issues at the community level.

4. **Education Institutions**
    - **Schools and Universities:** Play a role in educating the public about crime prevention and promoting community safety.
5. **Social Services:**
    - **Social workers:** Provide support to individuals and families affected by crime
    - **Counselors and therapists:** Address mental health issues resulting from exposure to crime.

Solution: Your pathway to finding a solution to the problem.

Addressing the impact of crime on public health requires a comprehensive and collaborative approach. I worked with the USArrest dataset, I use various analytical techniques to gain insights into crime patterns and contribute to solutions.

With the dataset I had, I did the following:

1. **Data Exploration:**
    - I begin by exploring the USArrest dataset. I understood the structure, variables, and general trends in the data.
    - I looked for missing values, outliers, and any anomalies that might impact my analysis.
2. **Descriptive statistics:**
    - I then computed basic descriptive statistics for each variable in the dataset.
    - I calculated measures such as mean, median, mode, quartiles, that is a summary of the dataset.
3. **Data Visualization:**
    - I created visualizations to illustrate crime trends over time and across different states.
    - I use charts, and graphs to convey patterns and variations in crime rates
4. **Correlation Analysis:**
    - I explore correlations between different variables, especially crime rates and potential contributing factors such as income, education, and population density.
    - I visualize correlations using scatter plots or correlations matrices.
5. **Identify High-Risk Areas:**
    - I identified states with consistently high crime rates. As this information guided me to knowing the targeted interventions and resource allocation.
6. **Contribute to policy Recommendations:**
    - Based on my analysis, I was able to provide insight and recommendations for policymakers, and was able to highlight areas where targeted intervention, such as community policing or social programs, might be effective in reducing crime.
7. **Communication:**

- I presented my findings in a clear and concise manner, using shinny app dashboard that is also accessible to a non-technical audience.
- I also engage with stakeholders, such as law enforcement agencies, policymakers, and community leaders, to discuss my analysis and its implications.

Implementation: Description of the detailed steps and settings in the tools used to show how the interaction and data generation are facilitated by the system you developed; Also involve your prototype to the final version%2000

Implementation: I use shiny in creating my code.Shiny is an R package that allows you to build interactive web applications directly from your R code. Creating a Shiny app to analyze and visualize the USArrest dataset involves several steps.

I choose a three file structure built into my working directory each of the file were named

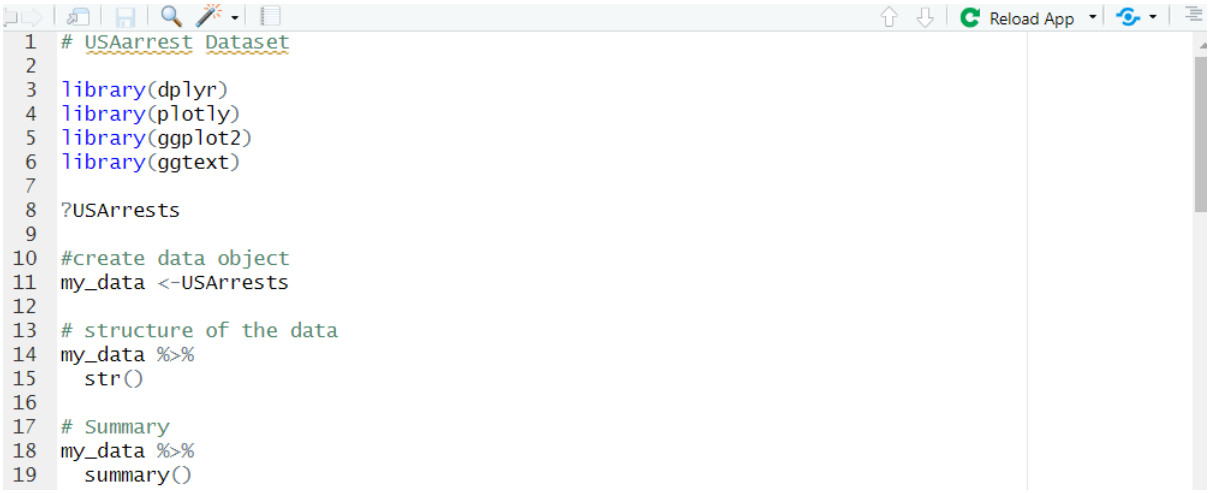
- UI.R – For UI elements.
- Server.R – For computation and reactivity.
- Global.R – Contains objects used and accessible by the UI and server.
- www folder – This contain the media

I ensured that I was working on the right working directory, then I installed the shiny app package so I could build the dashboard then I started adding the UI element one after the other then added the main component of the dashboard page which are the dashboard header, dashboard sidebar, and dashboard body.

```
library(shiny)
library(shinydashboard)


## Shiny UI component for the Dashboard

dashboardPage(
  dashboardHeader(title="Exploring the impact of crime to Global Public Health in the USA with
                  tags$li(class="dropdown",tags$a(href="https://www.linkedin.com/in/abraham-os
                  tags$li(class="dropdown",tags$a(href="https://github.com/abraham-Ej/Digital_
  ),
  dashboardSidebar(

    # sidebarmenu

    sidebarMenu(
      id = "sidebar"
```

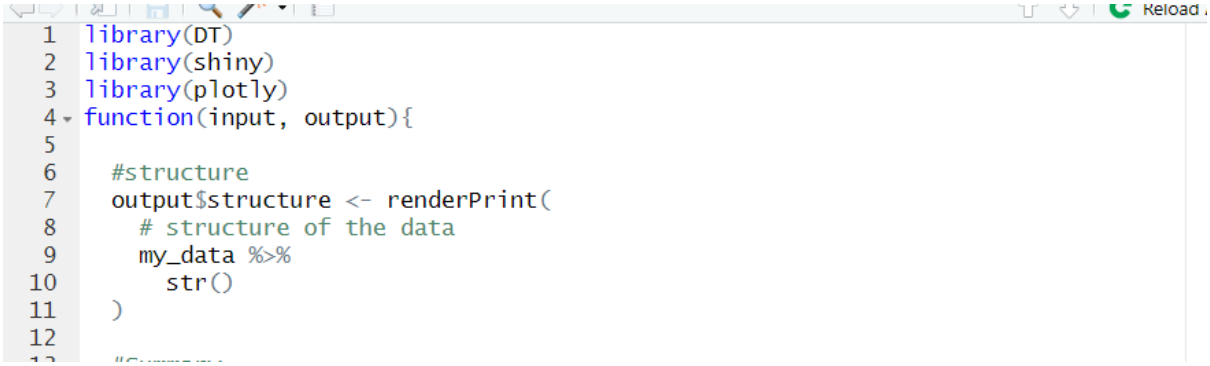
UI Code Snippet

Thereafter I added the title into the header and used tags to include my social media links so I can be easily reached should need be.

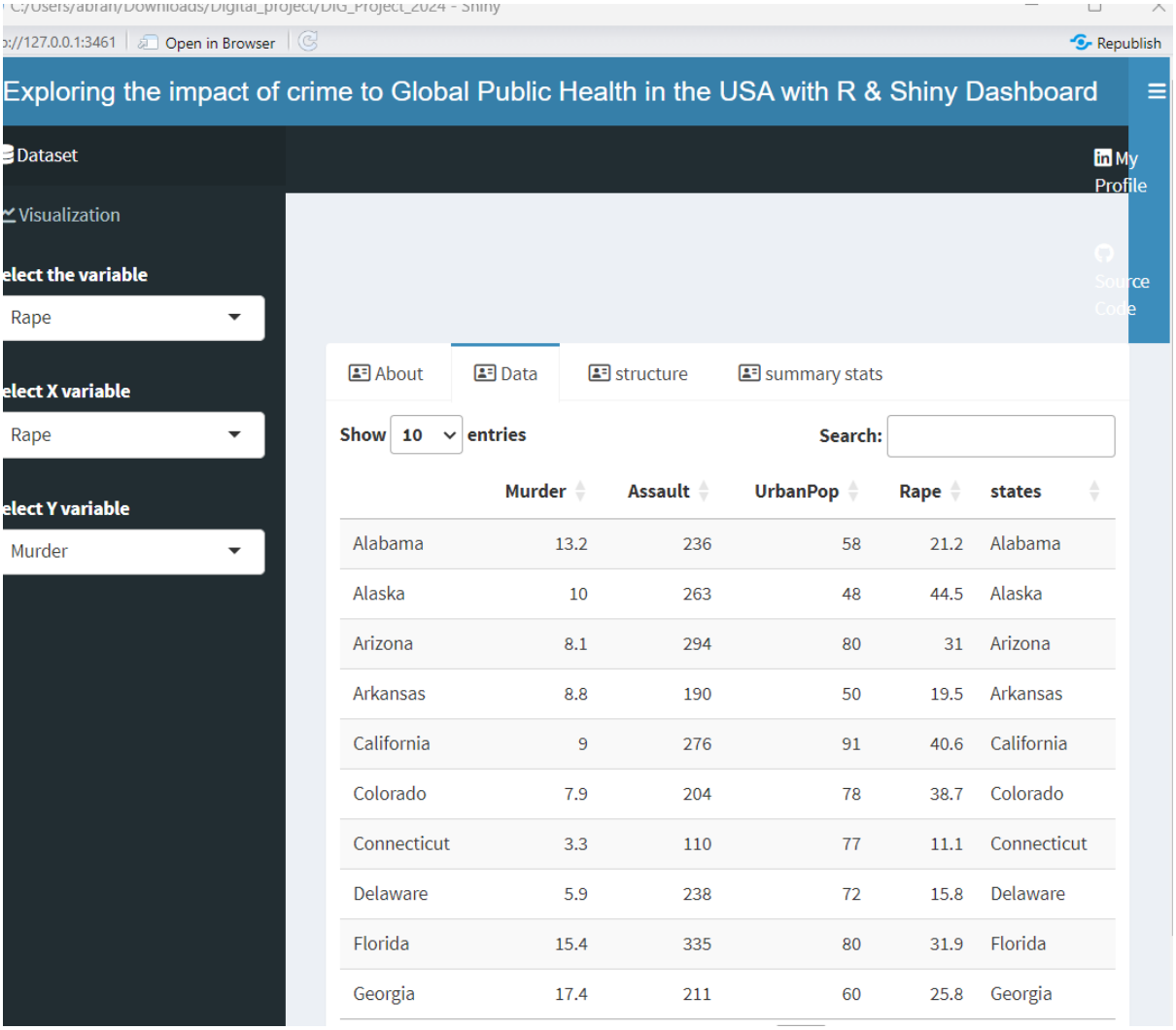


Global.R Code snippet

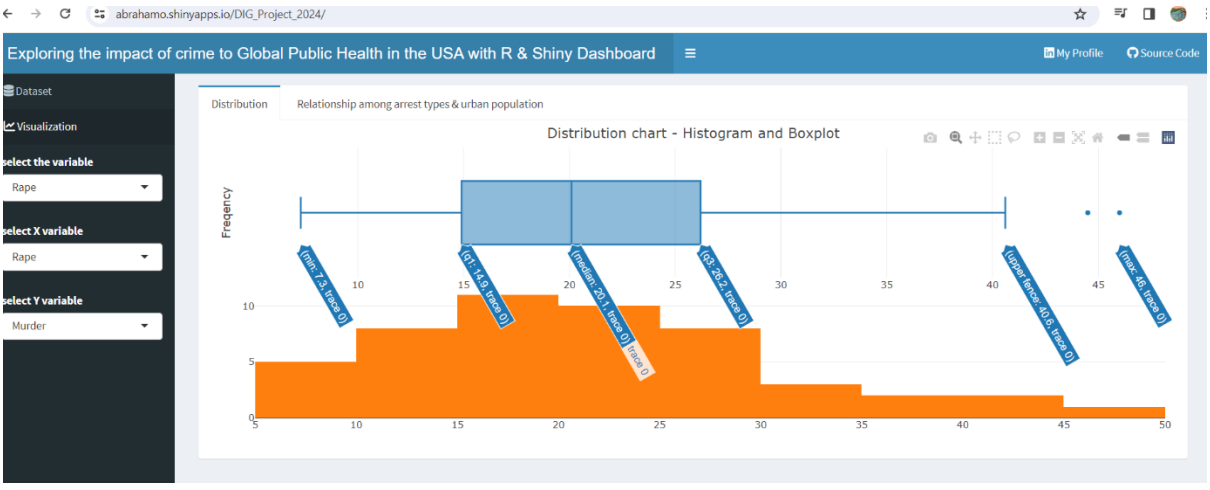
I use the following Library, dplyr, plotly, ggplots, and ggtext.



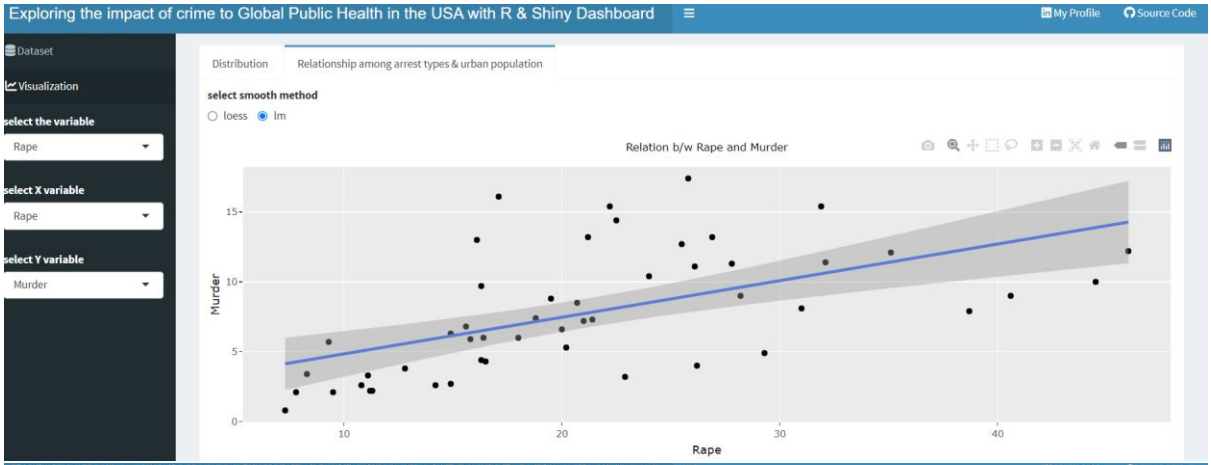
Server.R Code snippet

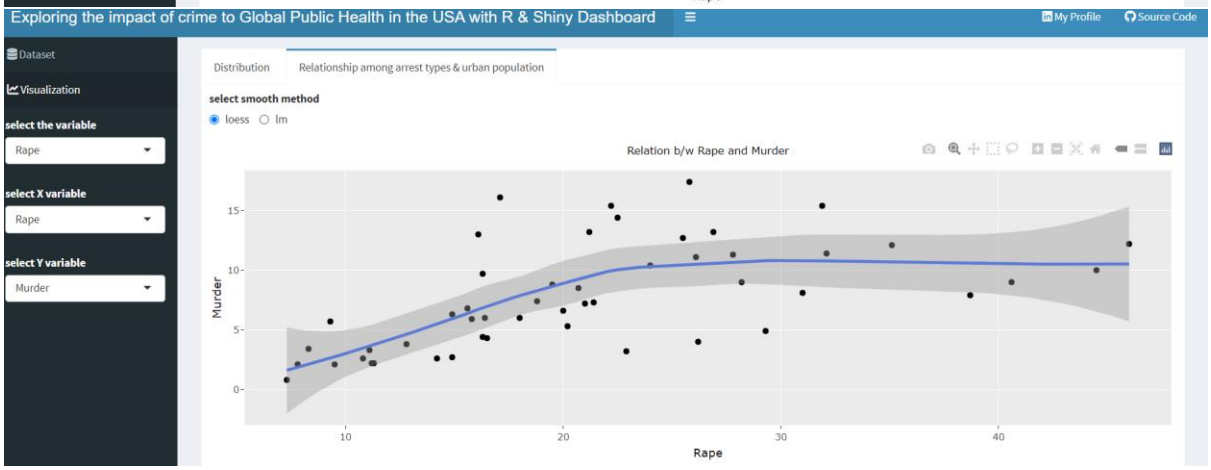


Snippet of my dataset



Snippet of my charts





Correlation Snippet