Data Visualisation 2 Report

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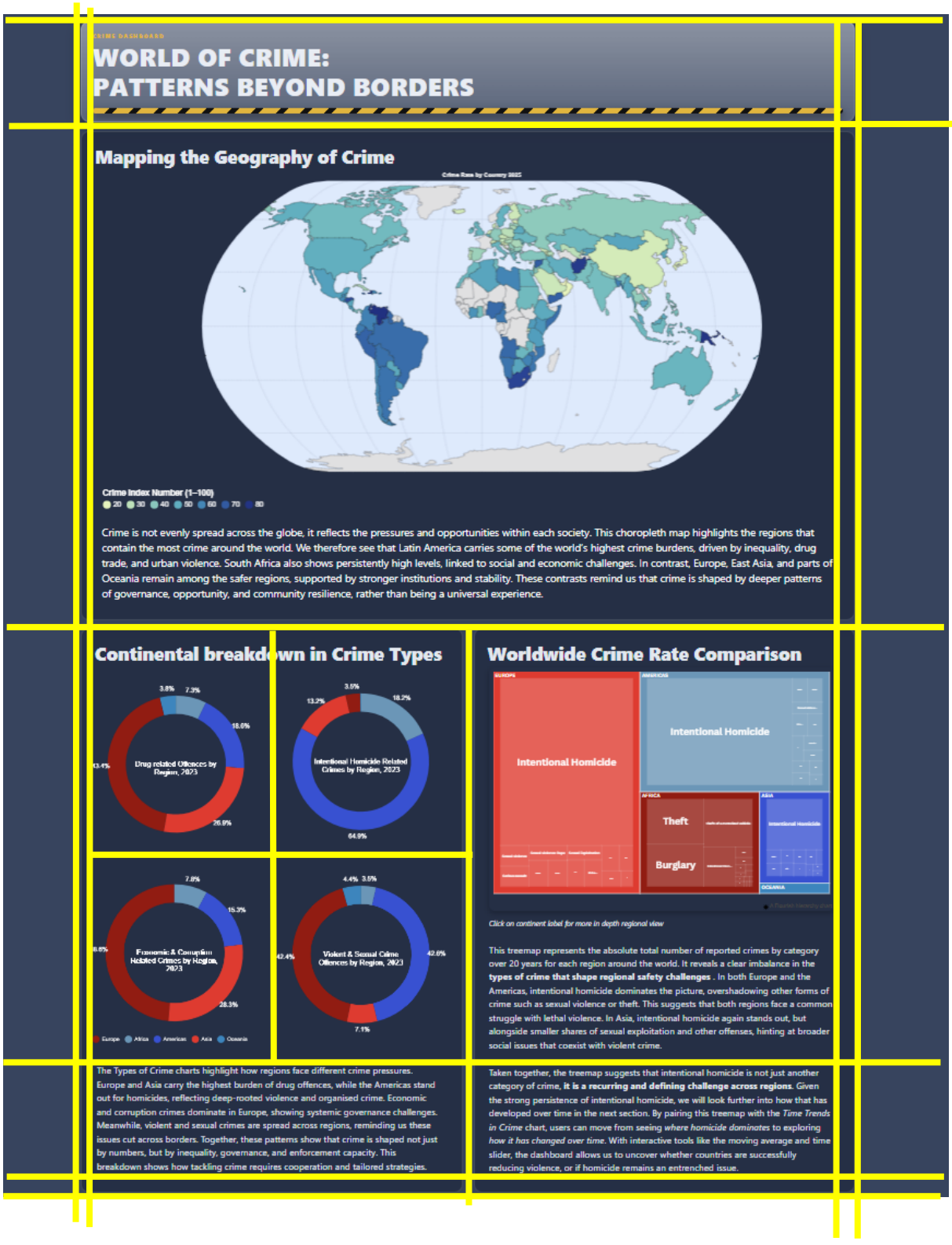
Studio: #14 Tues 16:00-18:00

Visualisation URL: https://chrismaior.github.io/FIT3179/DV2/

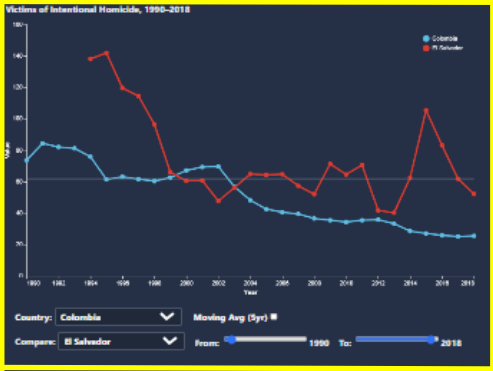
Five Design Sheets URL: https://chrismaior.github.io/FIT3179/DV2/DV2_5DS.pdf

Visualisation Screenshot:



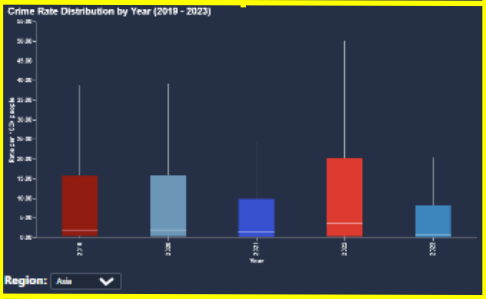
Note: Zoom out for clearer view of dashboard on github link.

Decades of Change in Global Crime



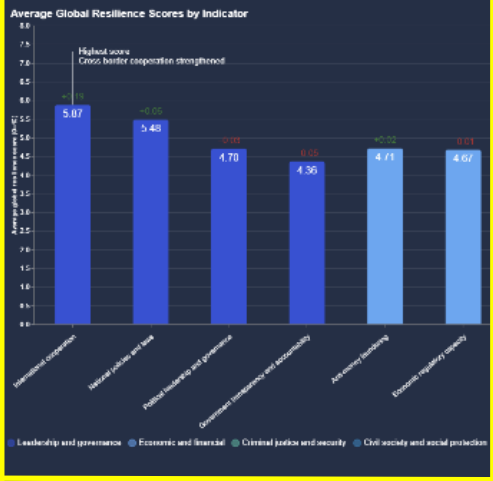
Looking at how crime has evolved over time, intentional homicide shows a clear global arc: many countries reached their highest levels in the early–mid 1990s, followed by a long downward shift through the 2000s, with stabilization or modest decline by 2018. This pattern is not uniform, as Latin American nations such as El Salvador, Colombia, and Honduras display persistently high and volatile rates, while Europe and much of Asia trend lower and steadier. By comparing single countries or pairs, the chart highlights how social, political, and economic contexts shape safety outcomes over time. Intentional homicide was chosen because, as the treemap above demonstrates, it is the dominant crime category across all regions. To enhance exploration, the chart includes interactive controls: a country selector to compare different national contexts, a time slider to zoom in on specific periods, and a toggle for a 5-year moving average that smooths year-to-year fluctuations and highlights the underlying trend. Looking at its time trends provides the most direct lens into how societies work in improving public security. In many ways, these shifts reflect broader transformations, from peace agreements to changing economic opportunities and law enforcement strategies. Understanding these trends helps contextualize today's crime patterns and the progress, or setbacks, made in public safety.

The boxplot below shows how, crime rates fluctuate between 2019 and 2023, across the five continents. Africa showed low and fairly stable levels with mild peaks in 2020 and 2022, while the Americas had the highest and most volatile rates, reflecting strong disparities across countries. Asia and Europe displayed moderate peaks around 2020–2022 before declining in 2023, suggesting gradual improvement. Oceania saw the sharpest drop, from high variability in 2019–2020 to minimal levels by 2023, hinting at effective interventions or post-pandemic recovery. Together, these observations highlight that progress in public safety is not linear but closely tied to how societies adapt to evolving challenges over time. The trends highlight how governance and reform speed shape safety outcomes.



Beyond the numerical shifts, these patterns reveal how crime is deeply intertwined with broader social and economic transitions. Regions experiencing political stability and improved governance tend to show sustained reductions in homicide, whereas nations facing inequality, corruption, or weak institutions often struggle with volatility. Post-2020 changes further reflect the global impacts of the pandemic, where disrupted economies, shifting law enforcement priorities, and social stressors temporarily altered crime trajectories. Regional differences show uneven progress, reflecting unique policy and social dynamics. Overall, the charts indicate a general global decline in crime rates after 2020, though regional differences remain pronounced.

Understanding the Forces Behind Crime



Between 2021 and 2023, global resilience to organised crime showed small yet uneven gains across regions. The bar chart above shows improvements in **international cooperation** (+0.19 to 5.87) and **national policies and laws** (+0.06 to 5.48) reflect stronger cross-border partnerships and renewed legislative focus on combating transnational crime. These advances point to a growing global consensus on the need for coordinated frameworks and shared accountability. However, progress in **governance** (4.70, −0.03) and **transparency** (4.36, −0.05) continues to decline, exposing vulnerabilities in political integrity and institutional oversight. Many nations continue to rely on **security**

focused responses such as law enforcement (4.87, −0.04) and territorial integrity (5.06, 0.05), while social and community-based resilience efforts remain underdeveloped. Civic ndicators like **victim and witness support** (4.24) and **non-state actor engagement** 4.72, −0.16) remain the weakest globally, signalling limited trust between governments nd citizens. Strengthening anti-money laundering (+0.02 to 4.71) and prevention (+0.08 4.55) initiatives has shown promise, but sustainable resilience will depend on balancing nforcement. Overall, progress remains limited — true resilience depends on pairing nforcement with stronger governance, integrity, and community participation.

Refe nces

Global Organized C e Index (OC Index)

World Population Review Crime Rate by Country

Statista — Glob rime Statistics

United Nations Office on Dr and Crime (UNODC Data)

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Report:

i. **Domain, Why, Who**

Domain:

The domain of the visualisation is global crime patterns and resilience, focusing on how crime varies across regions and how societies respond through governance, cooperation, and law enforcement. The domain encapsulates global crime indices, causes and time trends.

Why:

The why is to explore and communicate how different regions experience, manage, and evolve through crime-related challenges. The dashboard aims to uncover not only where crime occurs, but also why, by linking crime levels to factors such as inequality, governance, and institutional strength. The purpose of this dashboard is to provide a means for users to visualise crime statistics around the world, allowing for a holistic view into crime figures that may not currently be available to view.

Who:

The who includes policymakers, criminologists, researchers, and the general public interested in understanding crime through a global lens. It helps these audiences identify trends, compare regions, and evaluate the effectiveness of crime prevention and resilience efforts.

ii. **What:**

The dashboard draws on multiple reputable data sources:

- Global Organized Crime Index (OC Index) – provides resilience scores and governance indicators.
- World Population Review – offers crime rates by country.
- Statista – aggregates global statistics on types of crime.
- United Nations Office on Drugs and Crime (UNODC) – supplies official records of homicide, violence, and other crime categories

All visualisations in the dashboard were completed with data from the below sources. Data from the UNODC was used for the donut charts & interactive line charts. In addition, data from World Population Review was used to create the Choropleth Map; the Global Organised Crime Index was used for the resilience bar chart and Statista was used for the boxplots.

dataUNODC. (2024). *United Nations - Data by Topic*. Retrieved October 8, 2025, from UNODC - United Nations Office on Drugs and Crime: https://dataunodc.un.org/

Global Organised Crime Index. (2024). *Global Score for Criminality*. Retrieved September 25, 2025, from Global Organised Crime Index: https://ocindex.net/

Statista Research Department. (2025, March 17). *Statista*. Retrieved October 6, 2025, from Crime Worldwide - Statistics & Facts: https://www.statista.com/topics/780/crime/?srsltid=AfmBOorkV-pZeMbAr0_W_Uj3zpEfYDSCZhRiAD7BshaiOhjordDkIoG3

World Population Review. (2025). *Crime Rate by Country 2024*. Retrieved September 26, 2025, from World Population Review: https://worldpopulationreview.com/country-rankings/crime-rate-by-country

In addition, the dashboard incorporates:

- Spatial data — geographic boundaries by country and continent
- Quantitative attributes — crime counts, homicide rates, resilience scores, and YoY changes.
- Categorical attributes — types of crimes, and continental groupings
- Temporal attributes — year-based data from 1990–2023, showing historical and recent changes.

iii. <u>How</u>

Each visualisation idiom was chosen to support a specific goal:

- **Choropleth Map:** Shows the geographic distribution of crime, allowing users to see spatial disparities and identify high-crime regions such as Latin America and South Africa.
- **Donut Charts:** Provide a continental breakdown by crime type, highlighting the differing dominance of drug, economic, or violent offences across regions.
- **Treemap**: Compares relative crime volumes by category and continent, revealing homicide as the most persistent global challenge.
- **Interactive Line Chart:** Tracks time trends in intentional homicide (1990–2018), using a moving average and comparison controls to reveal temporal shifts and regional volatility.
- **Boxplot:** Summarises yearly fluctuations (2019–2023) across continents, visualising variability and improvement over time.
- **Bar Chart:** Illustrates how institutional strength and policy responses changed from 2021–2023, annotated to draw attention to the highest and lowest-performing areas.

Special features include:

- Interactive filters for region, time, and comparison.
- Custom-built annotations and responsive legends that clarify narrative insights.
- Consistent dark-themed design to emphasise contrast and readability.