UK Police Force | Street Crime Data

Monitoring Trends and Hotspots | Jan-Apr 2024

Dashboard Overview

Designed and Presented by
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Motivation for working with this Data

I chose to work with this dataset due to my keen interest in analyzing real-life data that directly impacts community safety and well-being. As a member of the neighborhood watch community, my initial goal is to contribute meaningful insights that can enhance our understanding of local crime trends and aid in developing effective crime prevention strategies.

01

Purpose & Objectives

PURPOSE

To monitor trends in street crime and pinpoint geographical hotspots to enhance community safety and optimize law enforcement efforts.

OBJECTIVES

Identify hotspots of street crime to inform neighborhood watch efforts and enhance community safety measures.

02

Questions

Questions the Dashboard Should Answer

What are the trends in street crime over the specified period?

Objective: Identify overall trends in street crime incidents from January to April 2024.

Insights: Analyze whether street crime incidents are increasing, decreasing, or remaining stable over time.

Visualization: Present trends through time series using heat map table, comparing monthly incident rates.

Where are the hotspots of street crime located?

Objective: Pinpoint geographical areas with high concentrations of street crime incidents.

Insights: Identify specific neighbourhoods, boroughs, or councils where street crime is most prevalent.

Visualization: Use maps with heat maps or cluster analysis to visualize hotspot locations clearly.

03
Decisions

Decisions Informed by the Dashboard

Deployment of Police Resources

Action: Identify high-crime areas through hotspot analysis to allocate resources effectively.

Impact: Enhance neighbourhood watch efforts and collaborate with local law enforcement to improve response times and deterrence.

Asjustment of Crime Prevention Strategies

Action: Tailor prevention strategies based on identified crime types and locations.

Impact: Implement targeted interventions and community engagement initiatives to address specific crime challenges effectively.

Contribution to Neighbourhood Watch Community

Goal: Provide actionable insights and visualizations that empower neighbourhood watch volunteers with the knowledge to contribute proactively to community safety.

Impact: Foster a safe environment through informed decision-making and collaborative efforts with local authorities and residents.

04

Target Audience

Target Audience

Primary Audience

Neighbourhood Watch members: Engaged community members interested in local crime trends and prevention strategies.

Secondary Audience

Policymakers, law enforcement agencies, analysts, researchers, and potentially the general public interested in understanding crime patterns.

05
Dataset

5.1 About the Dataset

For this project, an Excel sheet containing data on 42 Territorial UK Police Force was provided. An Excel sheet containing 330 UK Boroughs/Councils was also provided. The dataset includes various attributes related to crime demographics, crime types and investigative outcomes. Key columns in the dataset are:

List of key columns in the dataset are:

- **Crime ID**
- **Month**
- **Reported by**
- **Falls Within**
- **Longitude**
- **Latitude**
- **Location**
- **LOSA code**
- **LSOA name**
- **Borough/Council**
- **Crime type**
- **Last outcome category**

Data Source:

data.police.uk

List of excluded rows due to the number of empty cells:

- **Anti-social Behaviour** – missing Crime ID, location, latitude and longitude, and last outcome

List of excluded Territorial UK Police Force:

- **Greater Manchester Police** – due to a change in IT systems, no crime data is available from July 2019 onwards. The force are working to rectify this issue and provide the missing data over the coming months.

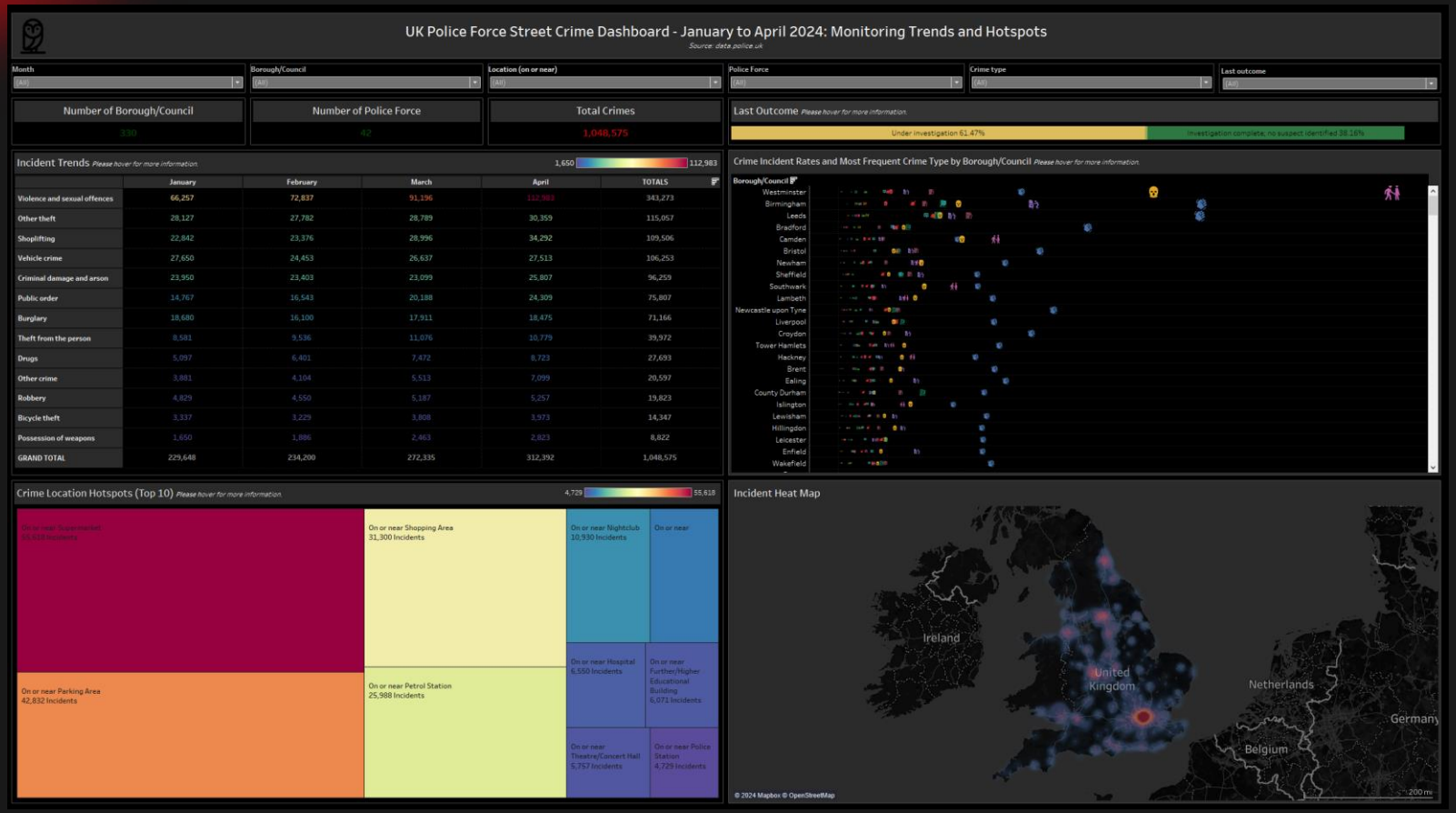
5.2 Tools Used for this Project

In this project, I utilized a combination of powerful tools to ensure a comprehensive and visually appealing analysis:

- **Tableau** – for creating insightful and interactive visualizations
- **Excel** – data cross-checking and validation
- **Power BI** – data cleaning and merging tasks
- **Python** – for preliminary data analysis, including examining data types

06

The Dashboard



[View the dashboard]

07
Dashboard Components

7.1 Filters

Utilize filters such as "**Month**," "**Borough/Council**," "**Location (on or near),**" "**Police Force**," "**Crime Type**" and "**Last outcome**" to provide comprehensive insights based on specific criteria.

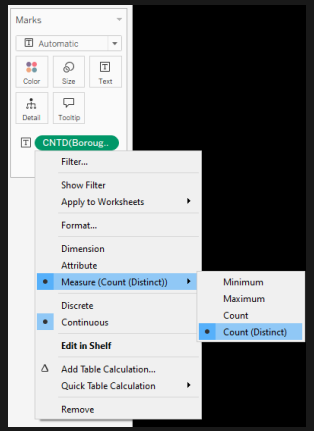
Purpose: To allow users to filter data based on specific criteria for more detailed insights.

Implementation:

- Add filters for "Month," "Borough/Council," "Location (on or near)," "Police Force," "Crime Type," and "Last outcome."
- Drag each relevant field to the Filters shelf.
- Customize filter settings to allow users to select multiple values or specific ranges.

7.2 Info Cards

Number of Borough/Council	Number of Police Force	Total Crimes
330	42	1,048,575



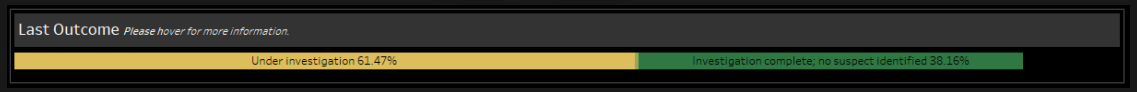
Purpose: To provide a summary of key metrics.

Creating the Visualization:

- Drag Field to Text Box: Drag the field representing the number of boroughs/councils to the Text box in Tableau.
- **Set Measure to Count (Distinct):** Ensure that the measure is set to Count (Distinct) to accurately count the unique number of boroughs/councils.
- **Verify Continuous Data:** Make sure the data is set to continuous if needed for the analysis context.
- Apply the above for the number of police force and total crimes.

- Display total crimes recorded during the specified period.
- Show the number of boroughs/councils and police forces covered in the dataset to give context to the breadth of coverage.

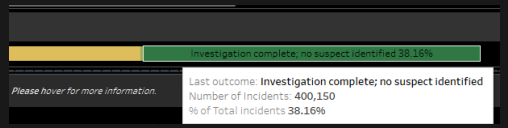
7.3 Last Outcome

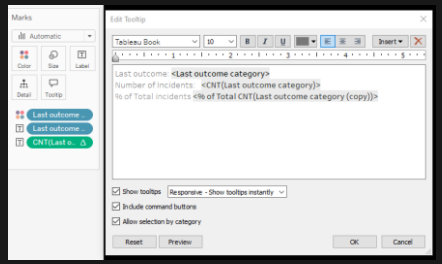


Purpose: To display the status of crime investigations.

Implementation:

- Add a new field for “Last Outcome” (e.g., under investigation, unable to prosecute suspect, investigation complete; no suspect identified.
- Drag the “Last Outcome” field to the Text shelf or create a new visualization component.
- Use distinct counts and filters to show the distribution of different outcomes.





Adding extra layers

Gather more information when you hover over the components.

Implementation:

- Insert existing measurements or dimensions into the Tooltip.
- In this case I have inserted “Last outcome, Number of incidents and %of Total incidents.

7.4 Incident Trends (heat map table)

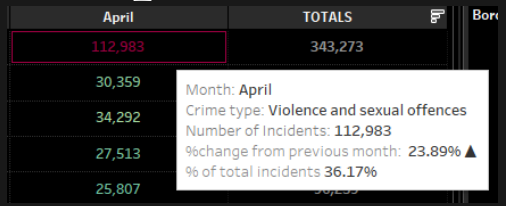
Purpose: To visualize crime trends over time.

Implementation:

- Use heatmap tables.
- Drag the date field to the Columns shelf and the crime incident measure to the Rows shelf.
- Use colour to represent the intensity of crime incidents over time (hot and cold), highlighting seasonal or temporal patterns.

Incident Trends *Please hover for more information.* 1,650 — 112,983

	January	February	March	April	TOTALS
Violence and sexual offences	66,257	72,837	91,196	112,983	343,273
Other theft	28,127	27,782	28,789	30,359	115,057
Shoplifting	22,842	23,376	28,996	34,292	109,506
Vehicle crime	27,650	24,453	26,637	27,513	106,253
Criminal damage and arson	23,950	23,403	23,099	25,807	96,259
Public order	14,767	16,543	20,188	24,309	75,807
Burglary	18,680	16,100	17,911	18,475	71,166
Theft from the person	8,581	9,536	11,076	10,779	39,972
Drugs	5,097	6,401	7,472	8,723	27,693
Other crime	3,881	4,104	5,513	7,099	20,597
Robbery	4,829	4,550	5,187	5,257	19,823
Bicycle theft	3,337	3,229	3,808	3,973	14,347
Possession of weapons	1,650	1,886	2,463	2,823	8,822
GRAND TOTAL	229,648	234,200	272,335	312,392	1,048,575

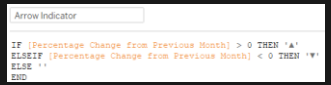


Adding extra layers

Gather more information when you hover over the components.

Implementation:

- Insert existing measurements or dimensions into the Tooltip.
- In this case I have inserted “Month, Crime type, Number of incidents, %change from previous month and %of Total incidents.
- I have also added an *Arrow Indicator* to indicate a decrease/increase in crime rate.
- Please see *calculated fields* below.

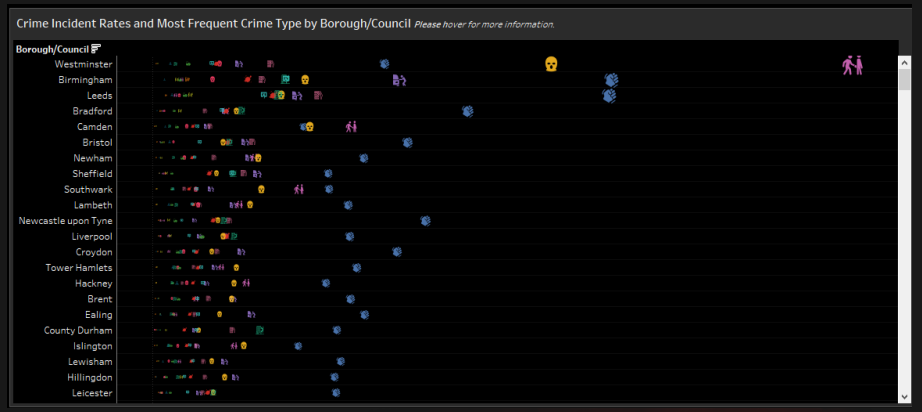


7.5 Crime Incident Rates and Most Frequent Crime Type by Borough/Council (modified scatter plot)

Purpose: To identify and highlight the most common crime types in different areas.

Implementation:

- Drag “CNT(Crime type)” to the Columns shelf and “Borough/Council to the Rows shelf.
- Select *Shape* to show individual icons (uploaded via My Tableau Repository) for each crime type.
- Apply sorting to show the most common crimes at the top.



Icons used for each Crime type:

- Violence and sexual offenses
- Other theft
- Shoplifting
- Vehicle crime
- Criminal damage and arson
- Public Order
- Burglary
- Theft from the person
- Drugs
- Other crime
- Robbery
- Bicycle theft
- Possession of weapons

7.6 Crime Location Hotspots (Tree map – top 10)

Purpose: To pinpoint areas with the highest frequency of crime incidents.

Implementation:

- Use a tree map.
- Drag “Location” to the Columns shelf and the crime count measure to the Text shelf.
- Filter to show the top 10 locations based on crime frequency.
- Adjust colours to represent the intensity of crime incident numbers.

Calculated field used to achieve this.

Top 10 Locations

Results are computed along Table (across).

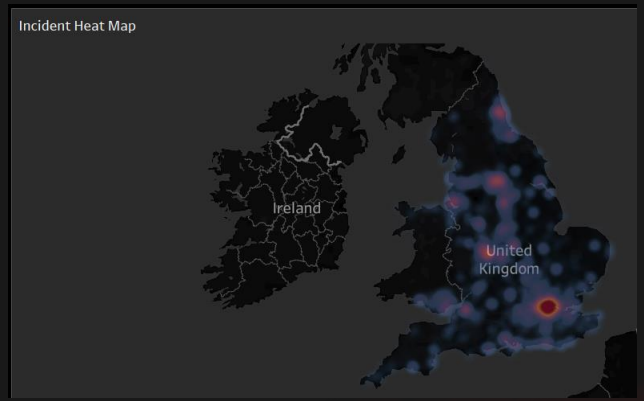
```
IF RANK_UNIQUE(COUNT([Location])) <= 10 THEN [Rank Calculation] END
```

7.7 Incident Heat Map

Purpose: To provide a spatial understanding of crime hotspots.

Implementation:

- Create an interactive map.
- Drag “Longitude” to the Columns shelf and the Latitude to the Rows shelf.
- Use size and colour to represent the frequency and severity of crime incidents dynamically.
- Select Background maps as Dark to match the theme.
- Ensure the map updates based on the applied filters (all).



The above figure shows the interactive map when it is drilled down to Borough/Council (City of London).

The Tooltip shows the Date, Latitude and Longitude, Borough/Council, Location, Crime type and Number of incidents.

08
Conclusion

By leveraging real-life data to analyze street crime trends and hotspots, this dashboard not only supports community safety initiatives but also aligns with my personal commitment to making a positive impact within the neighborhood watch community. This comprehensive analysis allows us to:

- **Enhance Community Awareness**: By providing clear, data-driven insights into crime patterns, we can raise awareness among community members about prevalent issues and areas of concern. This knowledge empowers residents to be more vigilant and proactive in safeguarding their surroundings.
- **Guide Law Enforcement Efforts**: The detailed breakdown of crime types and locations assists law enforcement agencies in allocating resources more effectively. By focusing on identified hotspots and the most frequent types of crime, police forces can implement targeted strategies to prevent and reduce criminal activities.
- **Foster Collaboration**: The shared understanding of crime dynamics fosters collaboration between community members, neighborhood watch groups, and law enforcement. This collective effort strengthens the community's resilience against crime and enhances overall safety.
- **Drive Preventive Measures**: Insights into the most common types of crime in specific boroughs or councils allow for tailored preventive measures. Whether it's increasing street lighting in high-crime areas or organizing community patrols, the data guides strategic actions to deter potential offenders.
- **Support Policy Making**: Policymakers can utilize this data to craft informed policies that address root causes of crime. From improving social services to enhancing urban planning, data-driven decisions can lead to sustainable improvements in community safety.
- **Measure Impact**: Continuously monitoring crime trends and the effectiveness of implemented strategies ensures that initiatives are making a positive impact. This iterative process helps refine approaches and sustain long-term safety improvements.

In summary, this dashboard serves as a vital tool for driving community-led safety initiatives, enhancing collaboration with law enforcement, and ultimately contributing to a safer and more secure neighborhood. By harnessing the power of data, we can make informed decisions that foster a stronger, more vigilant community dedicated to preventing crime and promoting peace.

THANKS!

DO YOU HAVE ANY QUESTIONS?

GitHub