Technical brief 2: Fire

Data Source: Fire statistics incident level datasets via UK Government Research and statistics

Dataset: The **Casualties in fires dataset** and the **Fire-related fatalities dataset** were merged. This dataset provides detailed information on incidents attended by Fire and Rescue Services in England (specifically casualties and fatalities).

The data relate to location, type of fire, in which hour of the day the fire happened, whether the fire was accidental or deliberate, the cause of fire, source of ignition, victim information (age group and gender), and whether it resulted in casualty or fatality. More information on the variables can be found Casualties in fires dataset guidance and Fire-related fatalities dataset guidance.

The charity "Fire Safety" has funding to run a campaign to increase awareness of fire hazards and reduce fires. They have asked for recommendations how their funding would be spent most appropriately based on the above dataset.

Your report should contain statistics and visualisations that you interpret to provide the following key insights:

1. Collapsing across all years, what were the top 3 causes of fire, and how many incidents were recorded for each cause?
2. How have the incident counts for the causes of fire changed each year between 2010/11 and 2020/21. What are the key trends?
3. How does the number of casualties and fatalities change depending upon the hour of the day?
4. How have the incident counts changed for the different victim age groups each year between 2010/11 and 2020/21. How do these trends differ in regard to the different alarm system categories?
5. One original insight of your own, based on your exploration of the data.

Based upon all the above, what public safety campaign would you recommend the charity "Fire Safety" focus on if they wish to have an impact in reducing fires?

Notes.

1. Before you start writing any code, go through each dataset and identify which variables you will need to work with to answer the questions. This will take longer than you think but will save you huge amounts of time in the long-run.
2. The casualty and fatality dataframes were merged for this exercise. The columns "INJURY_TYPE", "INJURY_SEVERITY", "FATALITY_CAUSE", and "FATALITY_CIRCUMSTANCES_DESCRIPTION" were removed from the data. The column "TOTAL" is a combined column of data shown in "CASUALTY_TOTAL" and "FATALITY_TOTAL" for the casualty and facility data respectively. A column "INCIDENT_COUNT" has been added to assist with calculations.
3. In reality, we would probably need more information about the cause of fires to draw more accurate conclusions. However, for this assignment you should base your decision on the data alone.