

UK Car Accidents 2005-2015

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About

In Great Britain alone there were about 1.7 million car accidents between 2005 and 2015, of which roughly 22.000 were classified as fatal and 230.000 as serious. This calls for an analysis of the data of those accidents.

The goal of this project was to find and extract meaningful patterns, static as well as shifting over time. A dynamic heatmap of all car accidents was also created to visualise the data and make it easier to understand.

Junction accidents

Figure 1: Annual junction accidents from 2005-2015

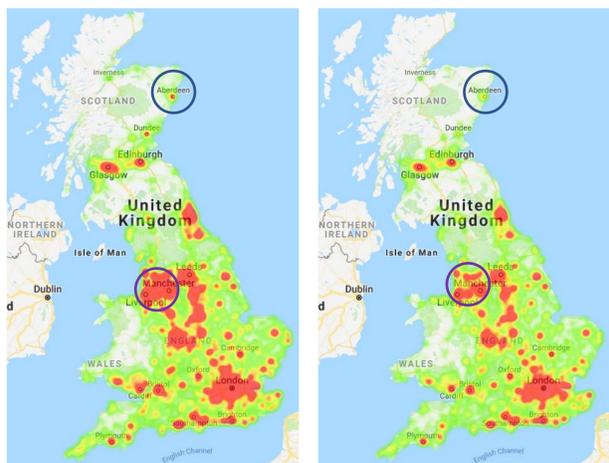
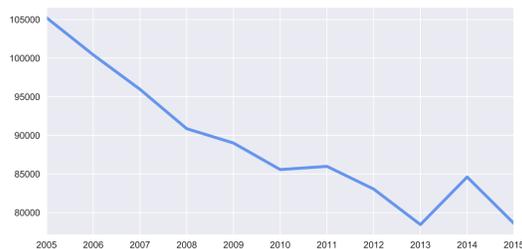


Figure 3: Junction accidents in 2005 and 2015

Data and Preprocessing

A big part of this project was the preprocessing. First, all unnecessary columns were dropped to reduce the size of the dataset and make the analysis easier. Afterwards, the numerical encoded data was mapped to categorical values to increase readability. Then the initial dataset was split into two subsets (junction and non-junction accidents) and to distribute the workload among the team members. The last step of the preprocessing was to drop missing values.

Non-Junction accidents

Figure 2: Annual non-junction accidents from 2005-2015

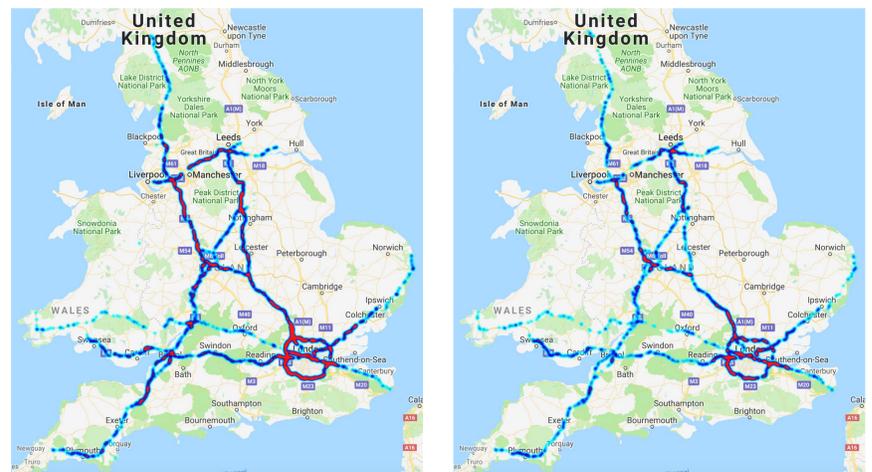
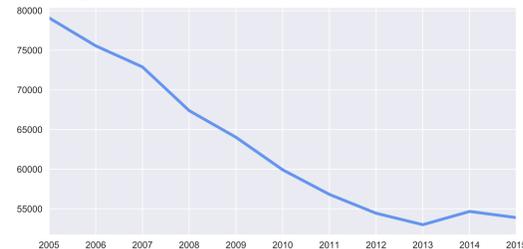
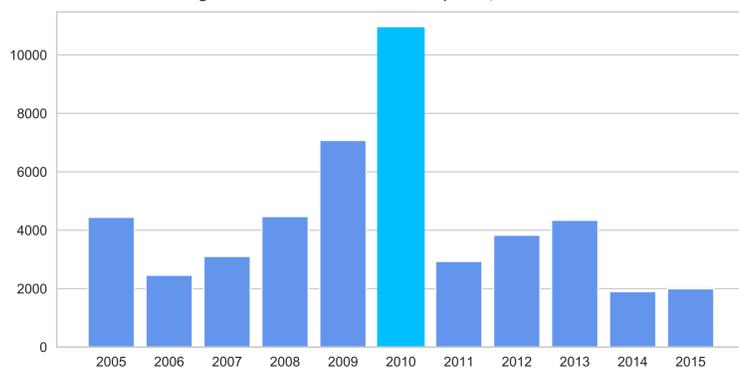


Figure 4: Non-junction accidents in 2005 and 2015 (top 10 roads with the most accidents)

Winter of 2010

Figure 5: Annual accidents caused by snow, ice and frost



Between the 24. November and New Years in 2010, the UK experienced severe snowfalls and the second-lowest temperatures measured in Great Britain and Ireland. The extreme weather conditions caused a huge traffic chaos all over the UK. This event was also detectable in our dataset.

The plot above shows the accidents caused by the road conditions snow, frost and ice. The number of accidents is more than twice as high as the annual average of accidents caused by this conditions.

Source: https://en.wikipedia.org/wiki/Winter_of_2010%E2%80%9311_in_Great_Britain_and_Ireland

Findings

- Junction accidents decreased by around 24% from 2005 to 2015
- Non-junction accidents decreased by around 32% from 2005 to 2015
- Overall, Friday is the day with the most accidents
- Within a day, most accidents happen during the rush hours (7 to 8 am and 4 to 18 pm)
- In the winter of 2010, there was a spike in accidents caused by snow, ice and frost on the road

Conclusion

In hindsight, the findings discovered did not meet the project's expectations. The analysis only revealed facts that are already well-known.

However, the use of heatmaps really helped to get a grasp of the data and to see accident hotspots moving and changing in size over time.

Although the road and weather conditions don't seem to have a high impact on the number of accidents, bigger events like the winter of 2010 are clearly noticeable in the data.

