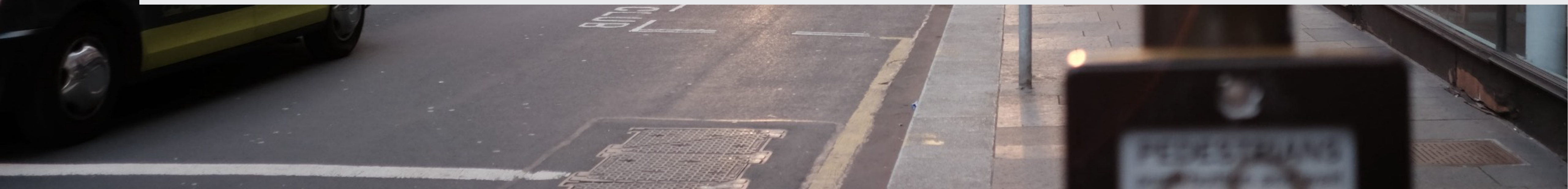




UK Traffic Accidents – A Data Visualization and Machine Learning Model Project

Lukas Bauerschmidt | 28th of April 2023



AGENDA

- 01 Problems in the Governmental Accident Management
- 02 Project Approach
- 03 Data Vizualization Dashboard
- 05 Machine Learning Model

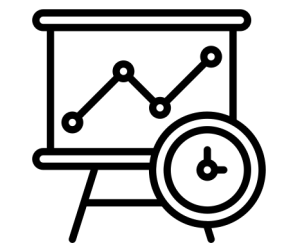




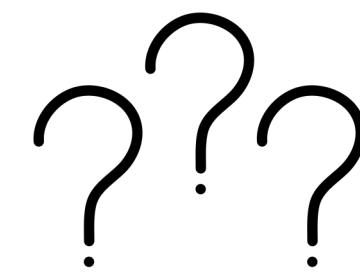
PROBLEMS



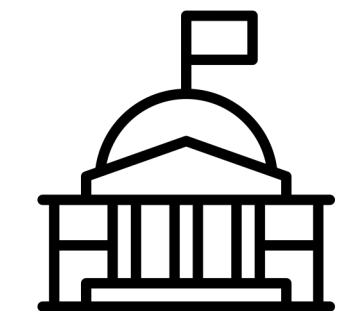
Geographical uncertainty
about where fatal accidents arise



Temporal uncertainty about
when accidents arise



Uncertain **causalities**
of accidents

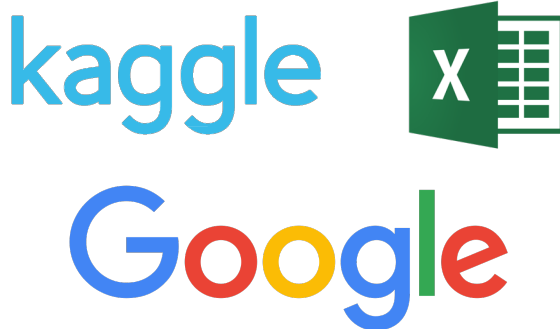


Non data driven
decision making

PROJECT APPROACH

RAW DATASET

Kaggle Dataset
33 Columns x 1.6M Rows
1 Row = 1 Accident



DATA READIN AND CLEANING

Lowercase Headers, Map Data,
Handle Missing Value, Reindex
Rows, Remove Duplicates,
Extract New Features



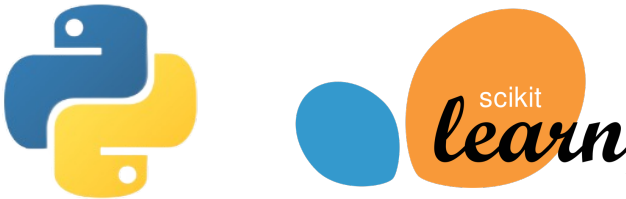
EXPLORATORY DATA ANALYSIS

Dashboard



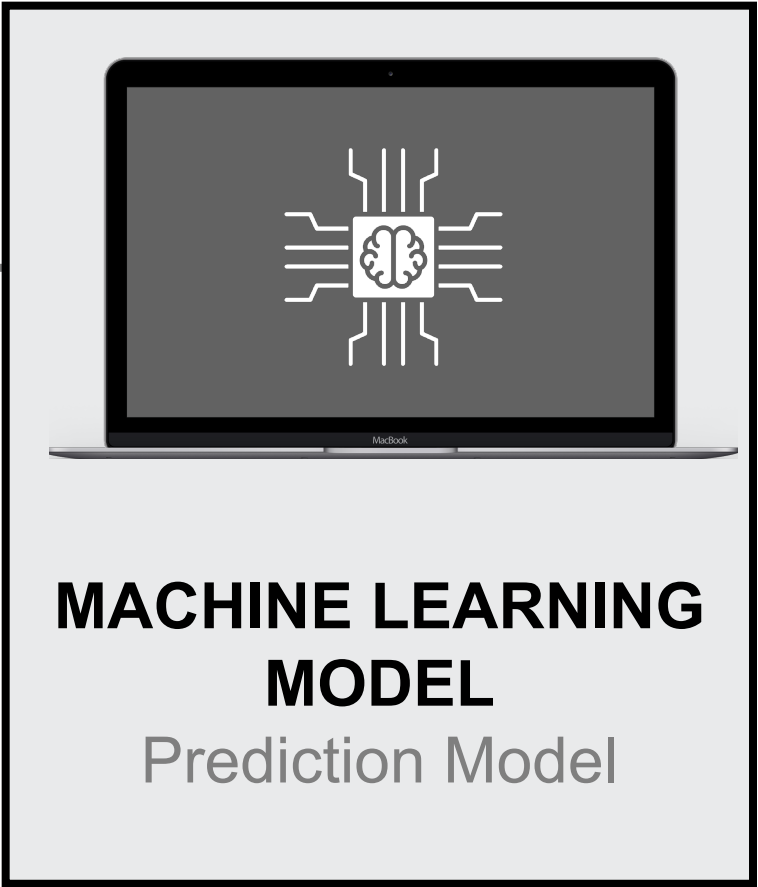
FEATURE SELECTION

Select the right
features and
transform features into
machine readable format



MACHINE LEARNING MODEL

Prediction Model



UK Accidents Dashboard



➤ **Geographical Analysis** that identifies ...

- areas with the most accidents
- most dangerous roads

➤ **Time Analysis** that identifies ...

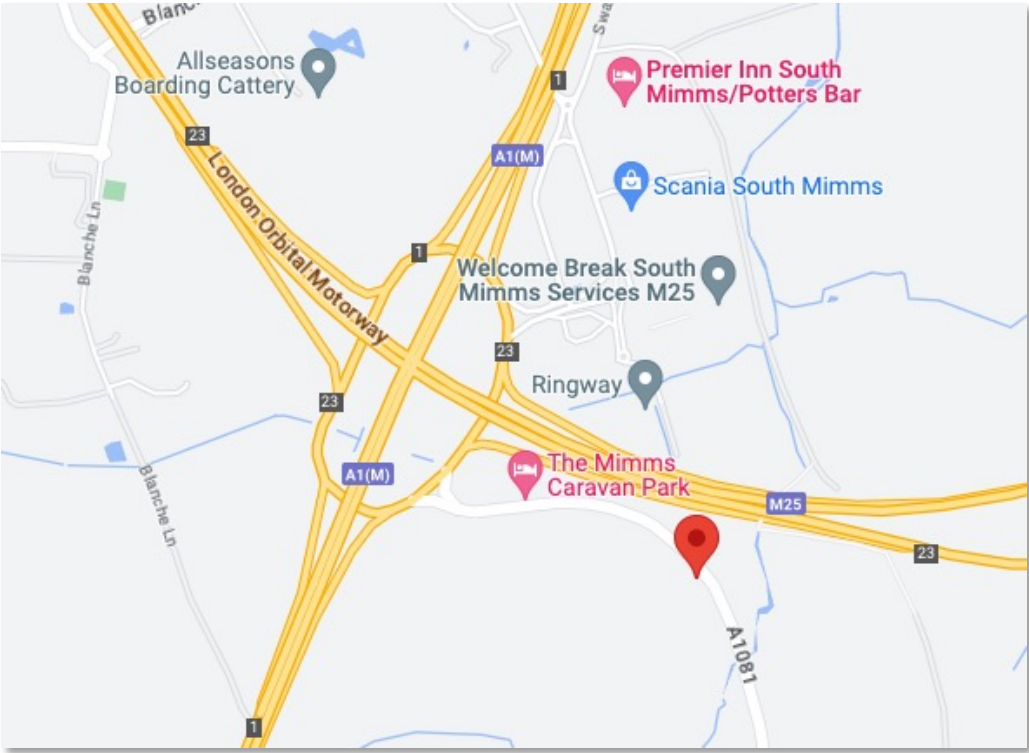
- seasonality effect in the dataset
- most dangerous times of the day

➤ **Causality Analysis** that identifies ...

- most important causes of accidents

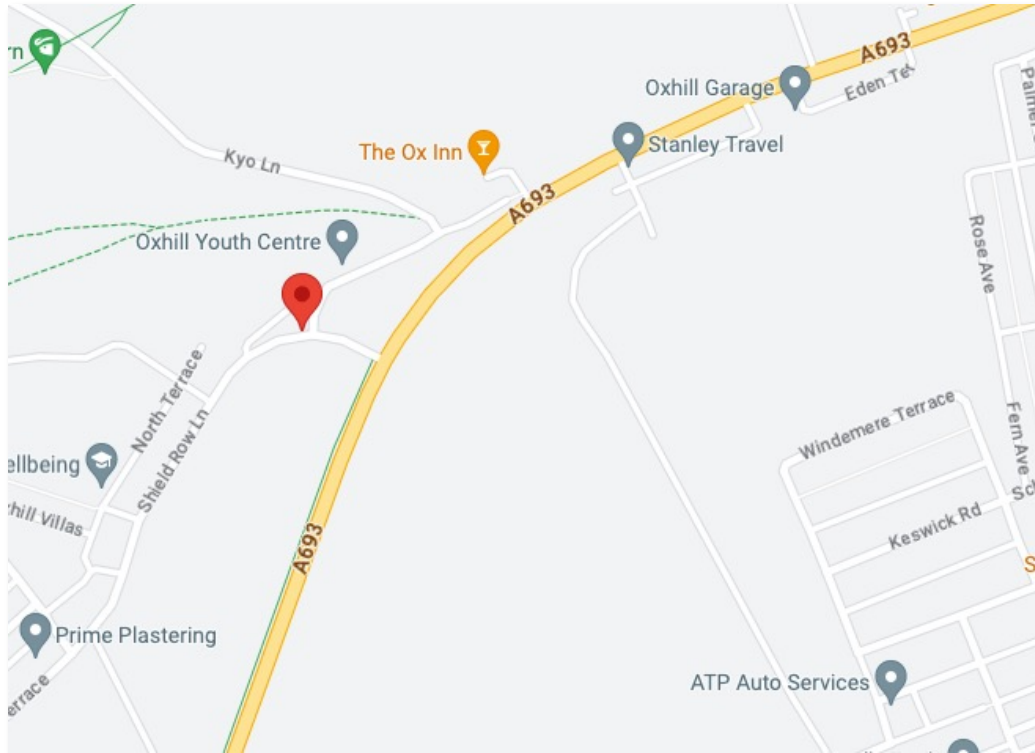
QUESTIONS

PHOTOS OF MOST DANGEROUS ROADS



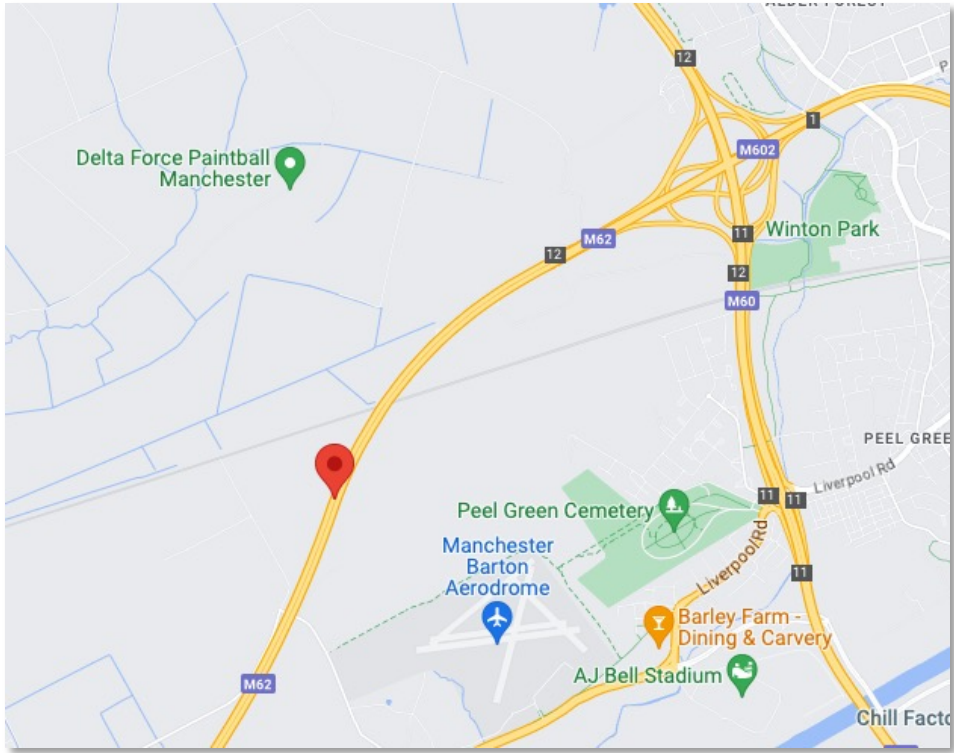
South Mimms, UK

93 Casualties
51.497500, -0.496694




Stanley, UK

87 Casualties
54.8637,
-1.71803



Manchester, UK

87 Casualties
53.4764,
-2.39902



Watford
[https://h](#)

Recap at

Police confirm
Potters Bar.



HamHigh.co.uk
<https://www.hamhigh.co.uk> › news › traffic › 232394...

M25 delays after crash on South Mimms roundabout

9 Jan 2023 — The M25 was experiencing delays following a collision on the S
Mimms roundabout early this morning; The incident involved a lorry and ...



Hertfordshire Mercury
<https://www.hertfordshiremercury.co.uk> › news › live-st-...

St Albans Road in South Mimms closed for several hours .

19 Mar 2023 — A major road in Hertfordshire was closed for several hours closed
overnight following a crash that took place late on Saturday (March 18).



The Northern Echo
<https://www.thenorthernecho.co.uk> › news › 2027443...


Emergency services on scene of two-car crash in Stanley

Emergency services are currently in attendance of a two-vehicle crash on the A693 in s
at the junction of East Street. One of the drivers received minor ...

<https://www.thenorthernecho.co.uk> › news › 2347400...

Teenager described shock following bus crash in Stanley, ..

5 days ago — A teenager who was on a double-decker bus when it overturned on a
has spoken of the shock and horror he experienced.



Manchester Evening News
<https://www.manchestereveningnews.co.uk> › News ›

M62 motorway - Latest news updates, pictures, video ...

Between Manchester and Leeds the M62 traverses the Pennines and its ... LIVE: Long delays
on stretch of M62 towards Manchester after crash - latest updates.

<https://www.manchestereveningnews.co.uk> › ... › M62

Chaos as M62 closed for hours after lorry crash causes ...

11 Apr 2023 — There was motorway chaos on Tuesday (April 11) after a lorry crash caused
huge spillage with one person taken to hospital. The M62 ...