


Road Safety in the Greater London Area

Group Project Presentation

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Introduction

- Goal: Visualize London's vehicular accidents and extract meaningful insights that can inform safety measures, urban planning, and policy decisions in the future
 - Understanding of accident landscape, exploring factors such as severity, location, population, and casualty mode
 - The significance of road safety and potential to contribute to the well being of community drove out team to choose this topic
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Technologies Used

Python (to clean and export data)

MongoDB (to store our data)

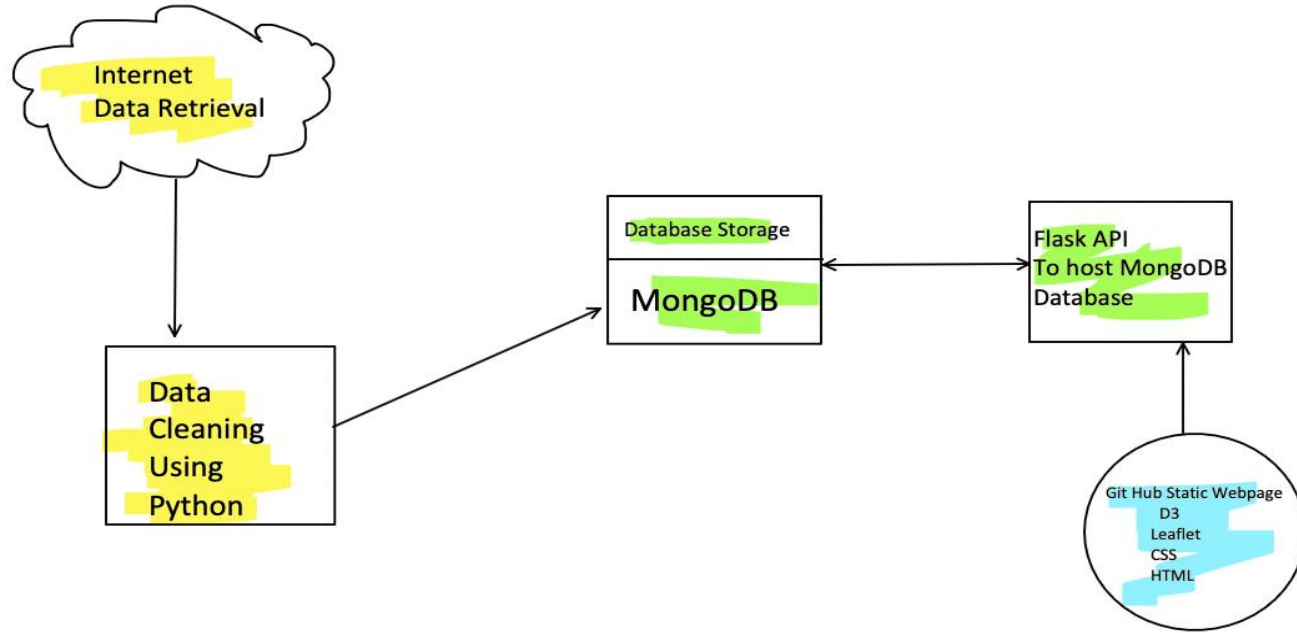
Flask (to create framework for API's)

JavaScript & Chart.js (to visualize data)

HTML & CSS (as basic skeleton of webpage)



Project Architecture



Data Sources

- Accidents API api route: /api/v1.0/accidents

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{
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  "lat": 51.521242, "lon": -0.161989, "location": "On Marylebone Road Near The Junction With Great Central Street", "date": "2019-01-03T19:10:00Z", "severity": "Slight", "borough": "Croydon", "mode": "Power"
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  "lat": 51.505163, "lon": -0.148363, "location": "On Down Street Near The Junction With Brick Street", "date": "2019-01-04T00:15:00Z", "severity": "Slight", "borough": "Croydon", "mode": "Power"
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  "lat": 51.584185, "lon": -0.265824, "location": "On Kinsbury Road Near The Junction With Slough Lane", "date": "2019-01-03T22:43:00Z", "severity": "Slight", "borough": "Croydon", "mode": "Power"
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  "lat": 51.445038, "lon": -0.095033, "location": "On Pymers Mead Near The Junction With Croxted Road", "date": "2019-01-04T01:30:00Z", "severity": "Slight", "borough": "Croydon", "mode": "Power"
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  "lat": 51.605589, "lon": -0.420841, "location": "On Rickmansworth Road 50 metres south of The Junction With New Farm", "date": "2019-01-03T22:45:00Z", "severity": "Slight", "borough": "Croydon", "mode": "Power"
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  "lat": 51.395812, "lon": -0.108363, "location": "On Brigstock Road Near The Junction With Colliers Water Lane", "date": "2019-01-04T00:25:00Z", "severity": "Slight", "borough": "Croydon", "mode": "Power"
}
```

Data Sources

- [London Borough GeoJSON](#) Api Route: /api/v1.0/boroughs

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[{"type": "FeatureCollection",
  "name": "file23f9e20d355f2",
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    {
      "type": "Feature",
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        "id": 1,
        "name": "Kingston upon Thames",
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        "area_hectares": 3726.117,
        "inner_statistical": false
      },
      "geometry": {
        "type": "MultiPolygon",
        "coordinates": [
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Data Sources

- [London Population and Area](#) api route: /api/v1.0/population

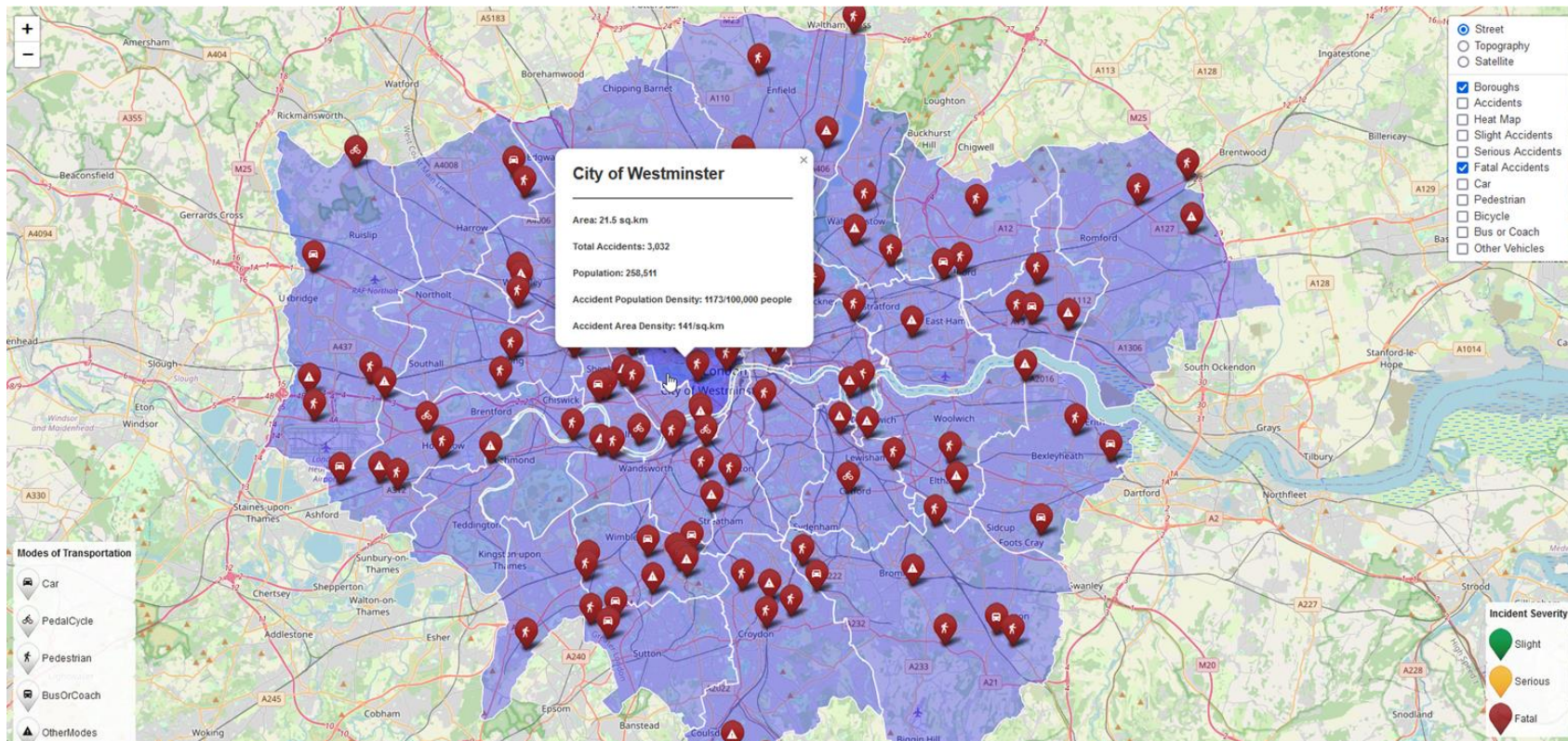
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 {"Borough_Name": "Barking and Dagenham",  
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  "Square_km": 36.1,  
  "Population_per_square_kilometer": 5950.5},  
 {"Borough_Name": "Barnet",  
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  "Square_km": 86.7,  
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 {"Borough_Name": "Bexley",  
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Dashboard Views

- Map of London
- Total Accidents Bar Graph by Borough
- Casualties Pie Chart by Types

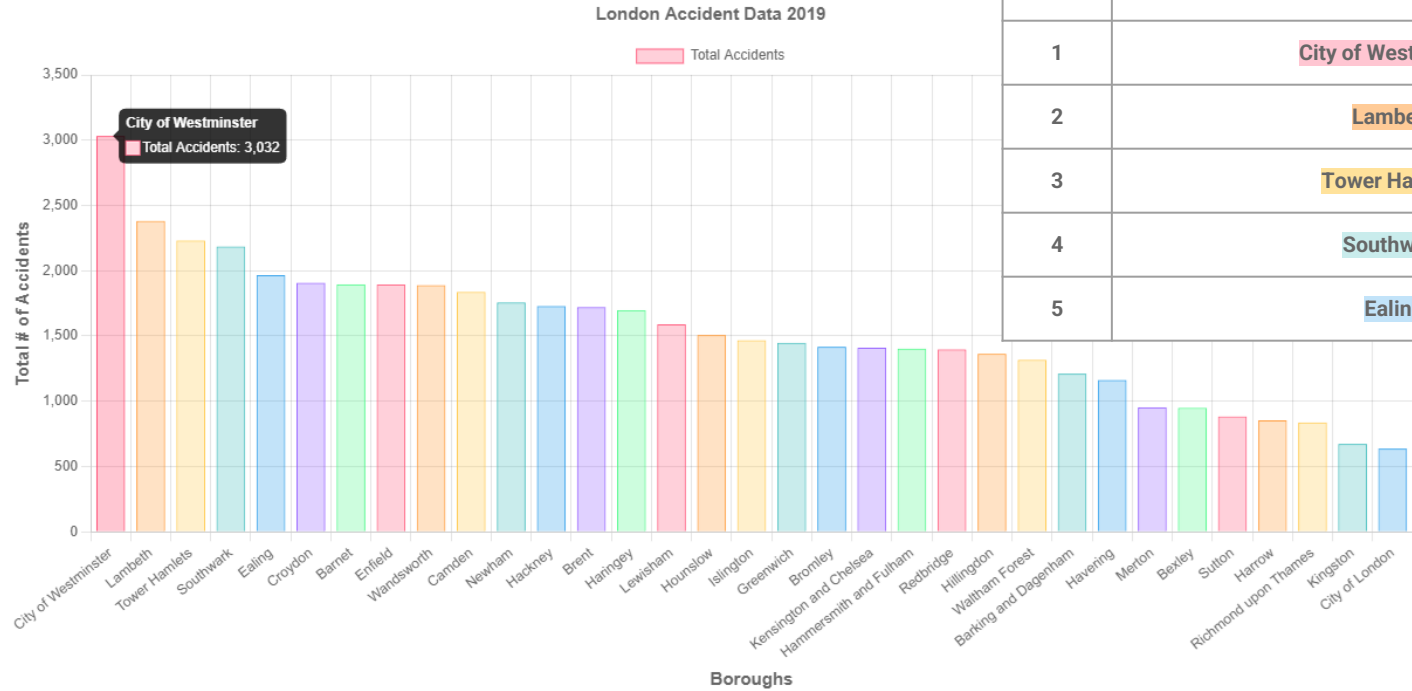


Map of London Demo



London Accident Data by Borough Demo

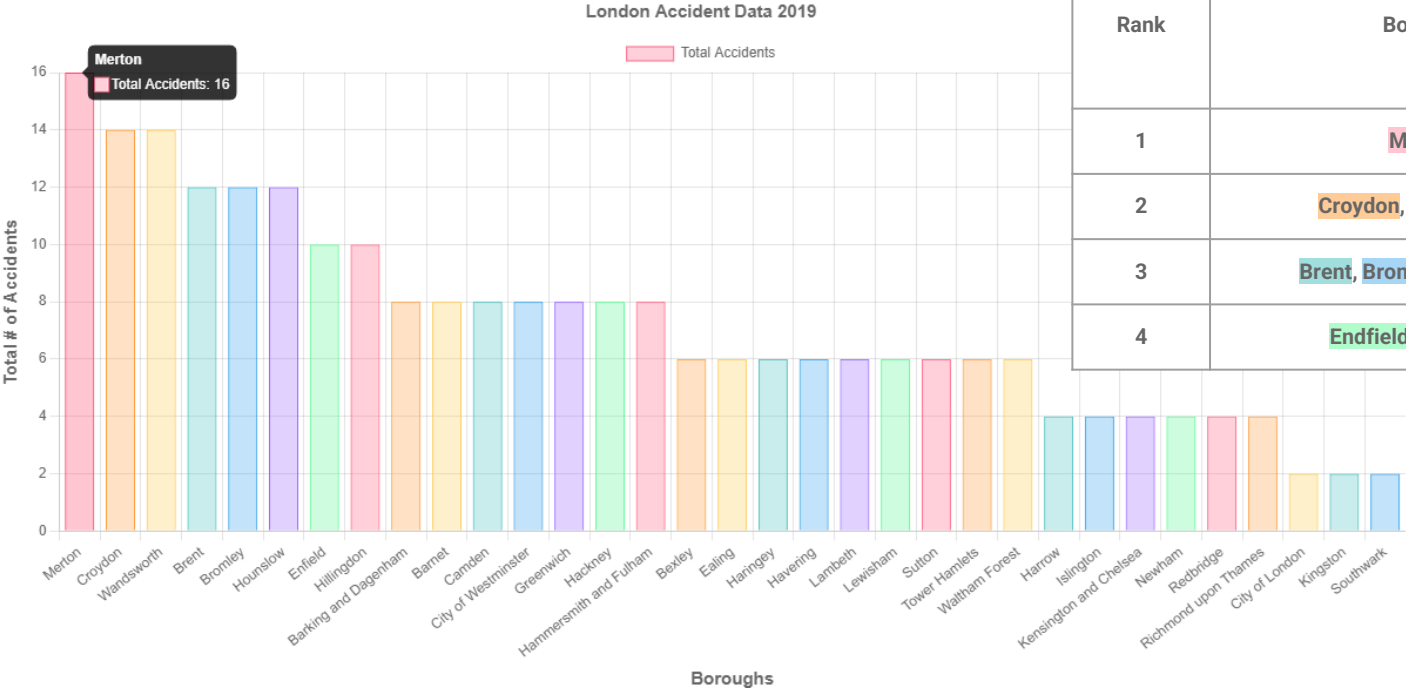
Severity: Sort:



Top 5 Boroughs with Highest Total # of Accidents		
Rank	Borough	Total # of Accidents
1	City of Westminster	3032
2	Lambeth	2382
3	Tower Hamlets	2232
4	Southwark	2186
5	Ealing	1966

London Accident Data by Borough Demo

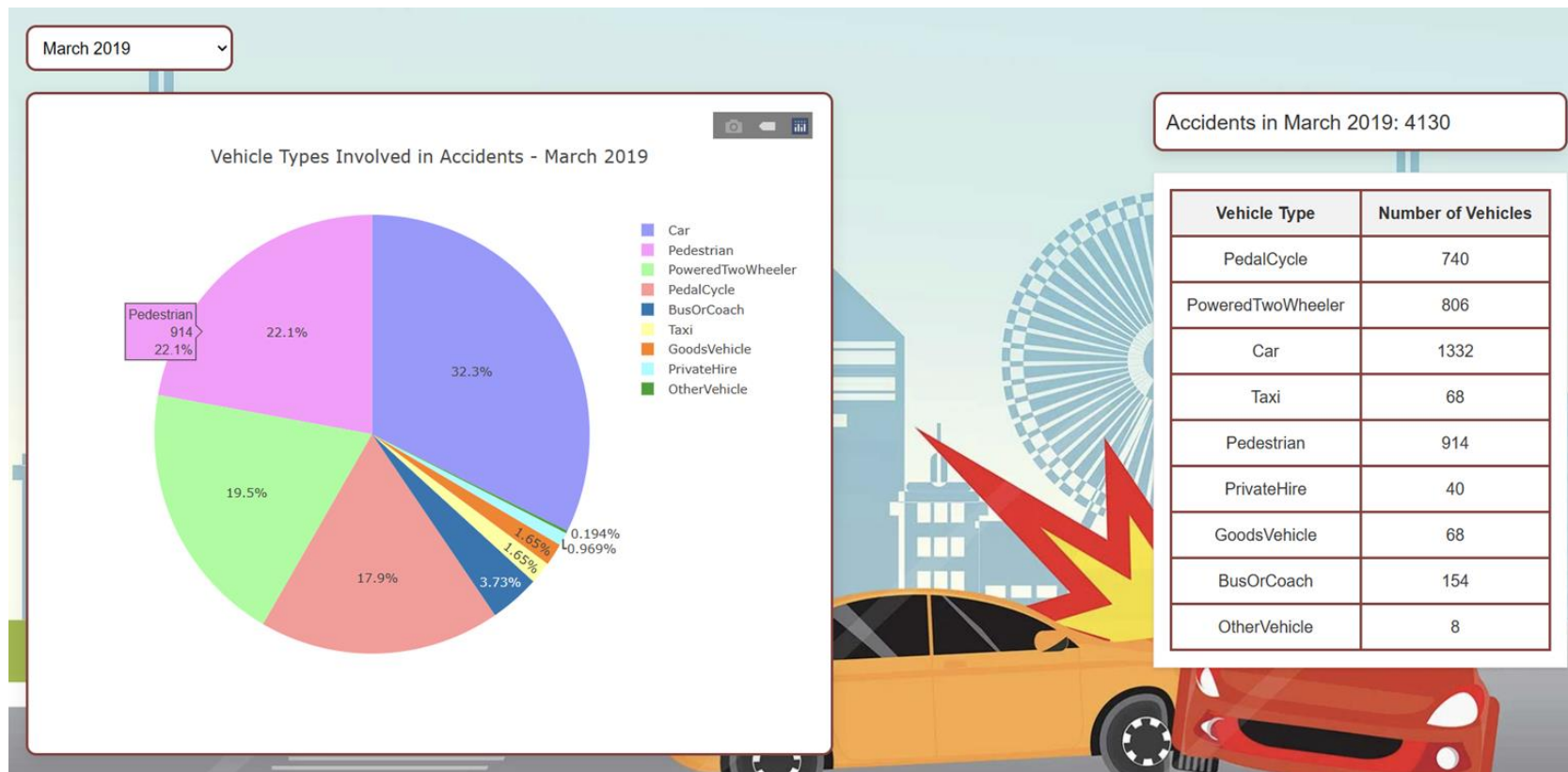
Severity: Fatal Sort: Descending



Top 5 Boroughs with Highest Total # of Fatal Accidents

Rank	Borough	Total # of Accidents
1	Merton	16
2	Croydon, Wandsworth	14
3	Brent, Bromley, Hounslow	12
4	Enfield, Hillingdon	10

London Accident Data by Casualty type Demo



Data Analysis

- Bromley has the **lowest accidents/sq.km of 9**. Bromley - **150 sq.km**
- City of London has the **highest with 220 accidents/sq.km**. City of London - **2.9 sq.km**
- City of Westminster has **highest accidents per 100,000 people - 1173**
- Harrow has **lowest accidents per 100,000 people - 330**



Data Analysis

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Top 5 Boroughs with Highest Total # of Fatal Accidents		
Rank	Borough	Total # of Accidents
1	Merton	16
2	Croydon, Wandsworth	14
3	Brent, Bromley, Hounslow	12
4	Endfield, Hillingdon	10

Data Analysis

- **Peak Accidents:** Most in November (4,694), October (4,594), and June (4,544)
- **Fewest Accidents:** April (3,760), February (3,782), January (3,790)
- **Vehicle Involvement:** Dominated by cars (16,450 accidents), followed by
pedestrians (10,472)



Conclusion

- Inconclusive evidence to relate months with accidents
 - a. Other factors could include road maintenance
 - b. Weather
 - Cars involved in nearly 50% of the accidents
 - Most accidents are only slight accidents: 86% of the accidents being only slight accidents
 - Accident density increases closer to the centre of the city
 - Accident location \neq resident of the borough
- 

Q&A

Open floor for question and discussions.

