

Traffic Incidents in the UAE – An Analysis

IBM Data Science Professional –
Applied Data Science Capstone

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Introduction -Business Problem

Based on information that is available on past accidents, is it possible to prevent accidents or response from emergency responders once an accident has occurred

- What are the major causes of accidents in UAE?
- Are there locations that are more accident prone than others?
- Can emergency responder hubs be established at strategic locations to improve response time once a distress call is placed after an accident?

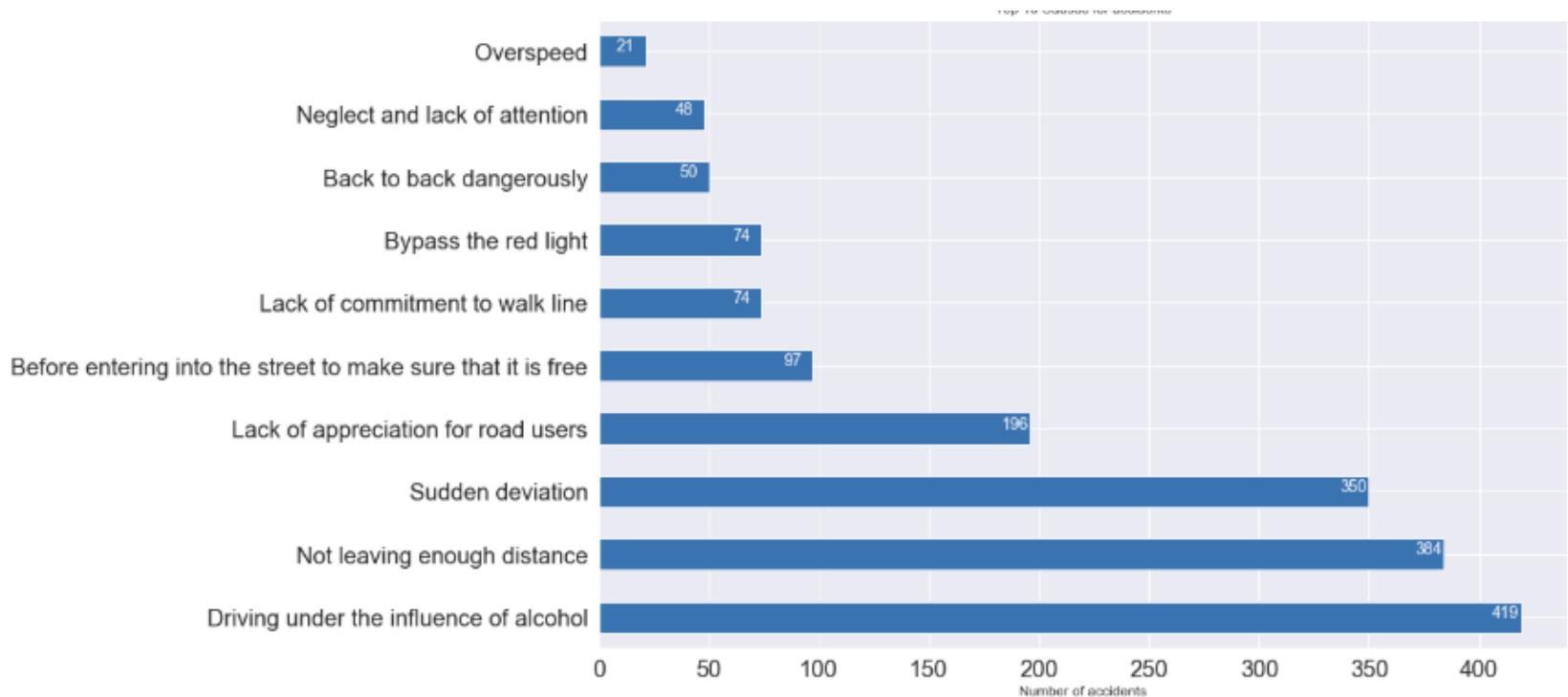
Data

- Three sources of data has been used in this analysis
 - Traffic incidents report – 2018 - 2020
 - Traffic accidents report – 2017 (already investigated and closed by Dubai Police)
 - Foursquare API

Methodology

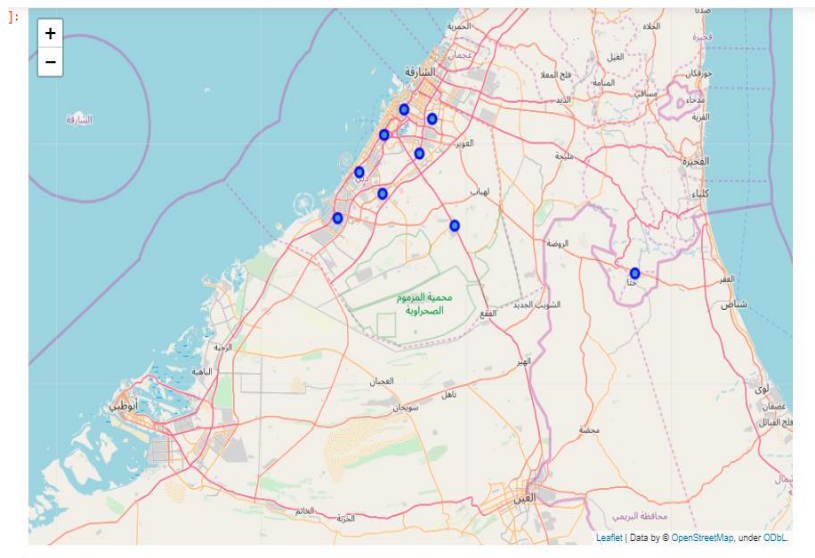
- The popular data science methodology has been followed
 - Data Cleansing
 - Exploratory Data Analysis and Visualisation
 - Modeling and Inference

Top 10 Causes of Accidents



Top Locations where accidents occur

- K means Clustering - Reduced the 50K + dataset to a representative set of 9 locations which can be used to centralize law and order and emergency response operations



| | lat | lon | Address |
|---|-----------|-----------|--|
| 0 | 25.032290 | 55.258984 | دبي |
| 1 | 25.233073 | 55.428960 | Arabian Center |
| 2 | 25.188147 | 55.264635 | Vision Tower, Business Bay |
| 3 | 24.821953 | 56.123525 | Hatta (حـتـا) |
| 4 | 24.968097 | 55.105461 | دبي |
| 5 | 25.139928 | 55.385820 | Shk Mohd Bin Zd Rd, E 311, after Repton School |
| 6 | 25.257884 | 55.331477 | دبي |
| 7 | 25.090644 | 55.178619 | First Al Khail Street (Barsha Heights) |
| 8 | 24.948172 | 55.504635 | دبي |

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Results

- A significant number of accidents are caused due to driving under the influence of alcohol. Law enforcement authorities need to perform occasional inspections for driving under the influence
- The second major cause of accidents is tailgating or not leaving enough distance with the vehicle in front. Improving surveillance regarding this and effecting fines can be measure to curb this habit of drivers.
- There are certain locations around which accidents are more frequent. Measures for improved monitoring and surveillance, quicker emergency response maybe set up around these locations to effect overall improvement

Conclusion

- This project helps provide insights to the driver behavior in UAE and patterns of accidents/incidents. Locations that are more dangerous and which require improved surveillance/monitoring has been identified and adopting measures can improve the overall experience on UAE roads