Traffic Data Analysis

Using Power BI

Objectives

- Analyze the given traffic accident data.
- Identify key performance indicators (KPIs), insights and trends in the data

KPIs

- Total number of accidents - **308K**
- Total number of casualties - **418K**
- Casualties with slight intensity accidents - **351K**
- Casualties with serious accidents - **59K**
- Casualties with fatal accidents - **7135**

Analysis

During the week:

- Friday records the highest number of accidents.
- This could happen because of high traffic during Friday rush hour, or travelling for weekend trips.

- Sunday records the lowest number of accidents but has the highest number of fatal cases.
- A possible reason is a misconception of lighter traffic and hence irresponsible driving measures.

Analysis

During the day:

- We see spikes in accidents thrice during the day, once at around 9 am, then around 3 pm and finally around 6 pm.
- These periods seem like office and school hours, and hence rush hours.
- The high traffic and the stress of reaching their destination faster might result in these spikes.

Analysis

Road type

- Around 75% of accidents occur on Single-carriageway roads.
- Single-carriageway roads are those where traffic moves from both sides, with no physical barrier separating the lanes.

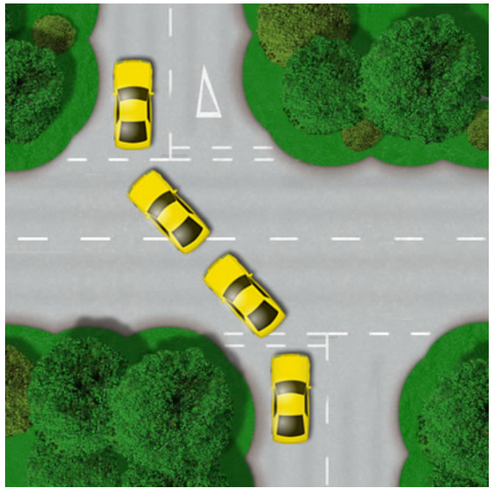
Single-carriageway roads

- In lanes like these, a mistake from even one person could result in a disaster. So these lanes become prone to accidents.

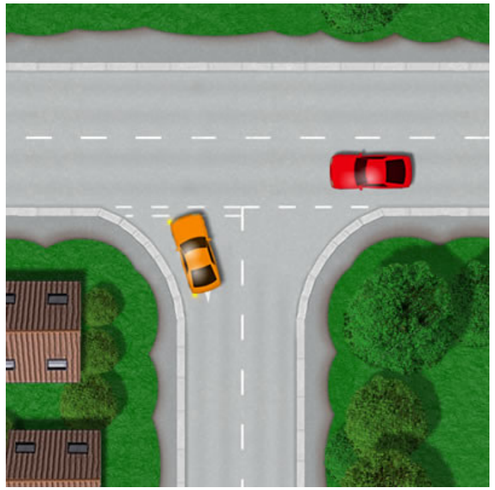
Analysis

Role of junction:

- T-junction or staggered junction records the highest number of accidents.



Staggered Junction



T Junction

- Similar to single-carriageway roads, Staggered/T junctions are prone to accidents, especially if there is a lack of signage.

Analysis

Role of traffic control

- The majority of accidents occur where there is uncontrolled traffic.
- The least accidents occur when there is an authorized person for traffic management.
- Deployment of an authorized person leads to better traffic management and hence, fewer accidents.
- Moreover, it instils a sense of fear among drivers to drive responsibly.

Analysis

Type of vehicles:

- In around 84% of the cases, at least one car (private or taxi) is involved.
- Generally, there are more cars on the roads as compared to any other vehicle, so involvement of at least one car is natural.

Analysis

By months:

- Overall, we see a reduction in number of accidents in 2021 as compared to 2020.
- This suggests the effectiveness of implemented traffic management measures.
- But, as the year progresses, we see an increase in accidents, peaking in November (in both years).
- One possible reason is that November- December marks the beginning of the holiday season, especially in the UK, which might lead to higher traffic.

Suggestions

- Deploying authorized people at strategic locations for traffic management.
- Implementation of Automatic Traffic signals can have a huge impact on reducing accidents.
- Proper signage, especially on single-carriageway roads and T/Staggered junctions, which are prone to accidents.
- Traffic calming measures in areas prone to congestion like office areas.
- Strengthening traffic enforcement laws and penalties.
- Lastly, as we saw that the accidents decreased from last year, we should further investigate to identify successful policies for continuation.

Conclusions

We delved into the data and uncovered its trends and patterns. We saw different factors contributing to accidents and finally some suggestions based on those findings.

Today, with a population like never before, it’s important to implement proactive safety precautions to reduce the number of accidents as well as the impact it creates, both in terms of loss of life and resources.

While authorities play a crucial role in establishing safety measures, it is our duty as well to take care of not just ourselves but also the people around us.

Together, let’s make this world a safer place!