



# 2023 - 2024

# TRANSPORTATION ENGINEERING

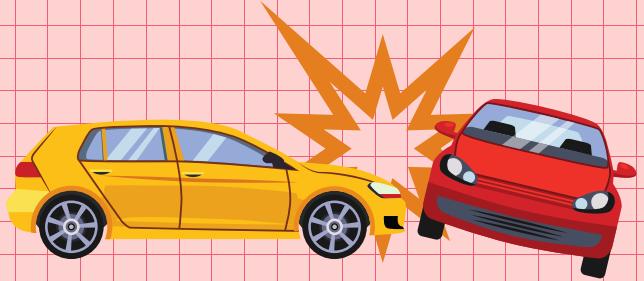
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**GROUP- 1**

# REPORT

## Analysis of Delhi Police Accident Data (2016-2018)



### Introduction



#### Mission and vision

Accidents on the road have always been a matter of grave concern, as they pose significant threats to public safety, property, and human lives. Understanding the factors that contribute to accidents and analyzing the patterns in accident data are critical steps towards improving road safety and reducing the occurrence of accidents.

01



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#### About the assignment

In this assignment, we delve into the comprehensive accident data recorded by the Delhi Police for the years 2016 to 2018. Delhi, India's bustling capital, is notorious for its congested streets and challenging traffic conditions. Examining the accident data for this three-year period can shed light on the key trends, contributing factors, and areas of concern, thereby facilitating evidence-based policy development and safety measures.

#### Aim

This assignment aims to provide an in-depth analysis of the accident data and draw valuable insights that can assist in the formulation of strategies to enhance road safety in the city of Delhi.

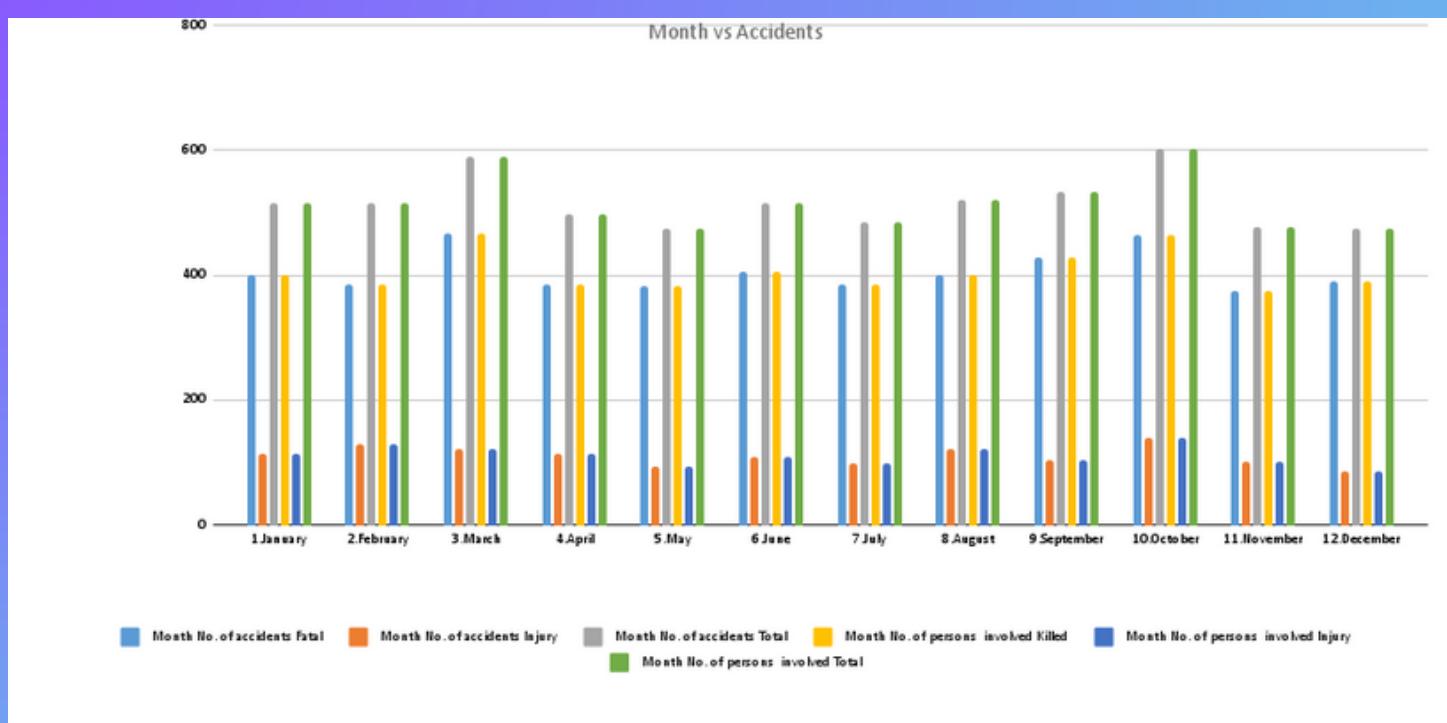


03

# Table 1

Month	No. of accidents			Number of Persons involved (by type of accidents)		
	Fatal	Injury	Total	Killed	Injury	Total
				Killed	Injury	Total
1.January	400	115	515	400	115	515
2.February	384	130	514	384	130	514
3.March	467	122	589	467	122	589
4.April	384	114	498	384	114	498
5.May	382	93	475	382	93	475
6.June	406	108	514	406	108	514
7.July	385	99	484	385	99	484
8.August	399	122	521	399	122	521
9.September	429	104	533	429	104	533
10.October	464	139	603	464	139	603
11.November	375	101	476	375	101	476
12.December	390	85	475	390	85	475

Total Number of accidents classified according to Month of the Year



Plot for Table 1

# Table 2

TIME ZONE	Sum of INJURED	Sum of KILLED	Sum of FATAL
12 am-3 am	258	742	742
3 am-6 am	173	471	471
6 am-9 am	139	560	560
9 am-12 pm	104	496	496
12 pm-3 pm	111	453	453
3 pm-6 pm	128	473	473
6 pm-9 pm	135	615	615
9 pm-12 am	284	1055	1055
<b>Grand Total</b>	<b>1332</b>	<b>4865</b>	<b>4865</b>

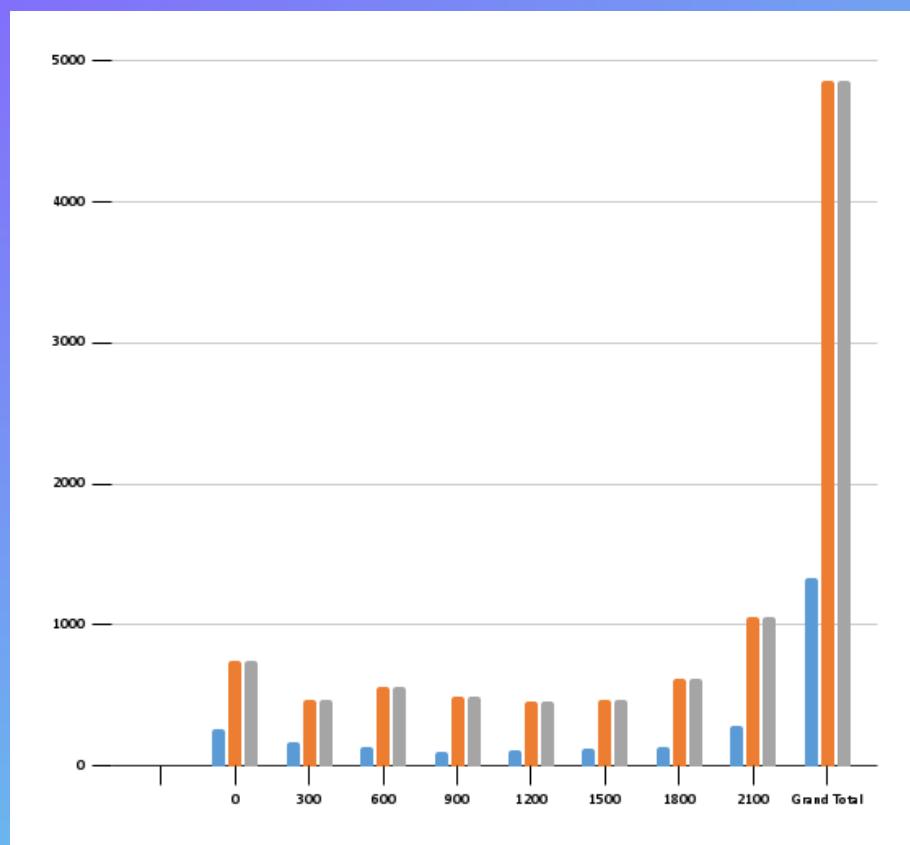
**Accident classified according to Time of Day**

# Table 3

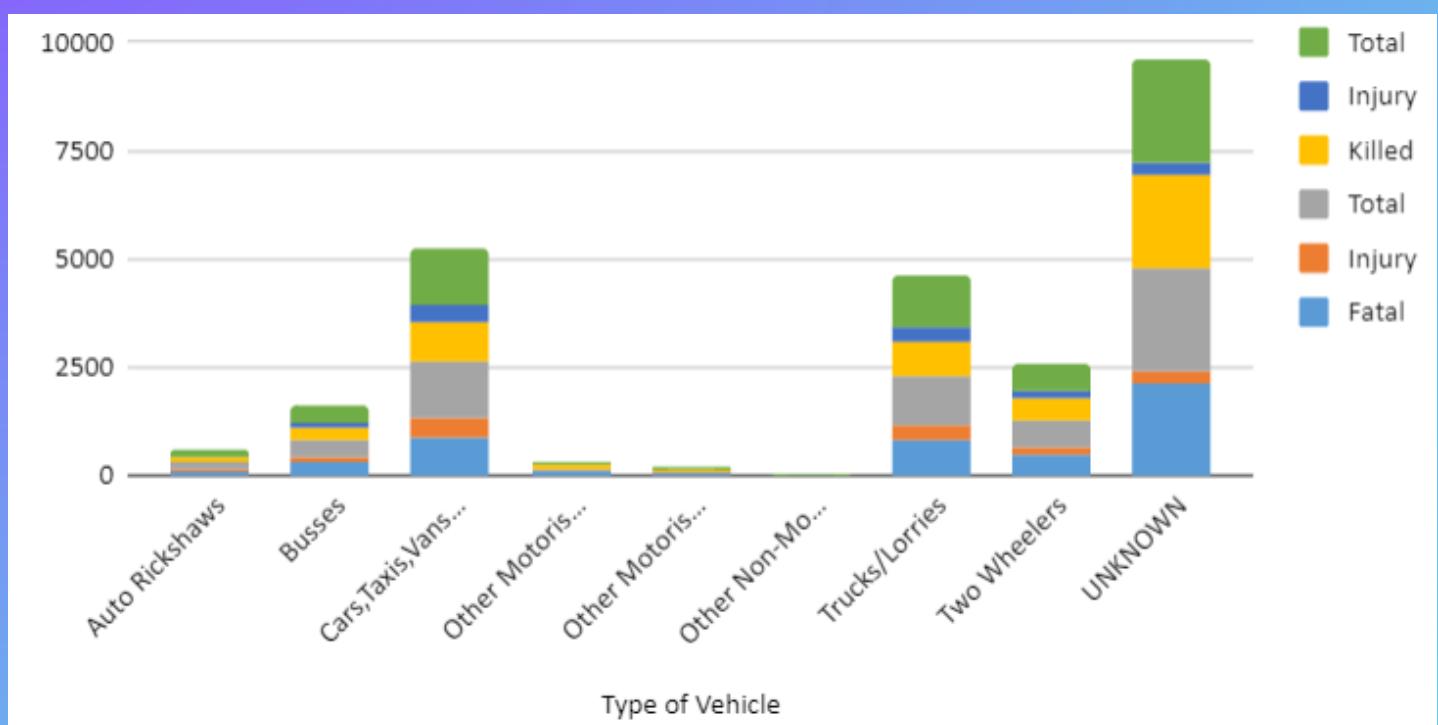
Type of Vehicle	No. of accidents			Number of Persons		
	Fatal	Injury	Total	Killed	Injury	Total
Auto Rickshaws	105	47	152	105	47	152
Busses	319	83	402	319	83	402
Cars,Taxis,Vans & LMV	904	405	1309	904	405	1309
Other Motorised Vehicle	67	15	82	67	15	82
Other Motorised Vehicles	45	9	54	45	9	54
Other Non-Motorised Vehicles	1	0	1	1	0	1
Trucks/Lorries	816	332	1148	816	332	1148
Two Wheelers	475	176	651	475	176	651
UNKNOWN	2133	265	2398	2133	265	2398

**Accidents Classified According to Type of Impacting Vehicle/Objects**

## Plot for Table 2



## Plot for Table 3



# Table 4

Type of Vehicle	No. of accidents			No. of persons involved		
	Fatal	Injury	Total	Killed	Injury	Total
1.Vehicle-Vehicle	2116	897	2116	2116	897	2116
2.Vehicle-Pedestrian	2511	392	2511	2511	392	2511
3.Vehicle-bicycle/Cycle Rickshaw	173	13	173	173	13	173
4.Vehicle-animal	65	30	65	65	30	65

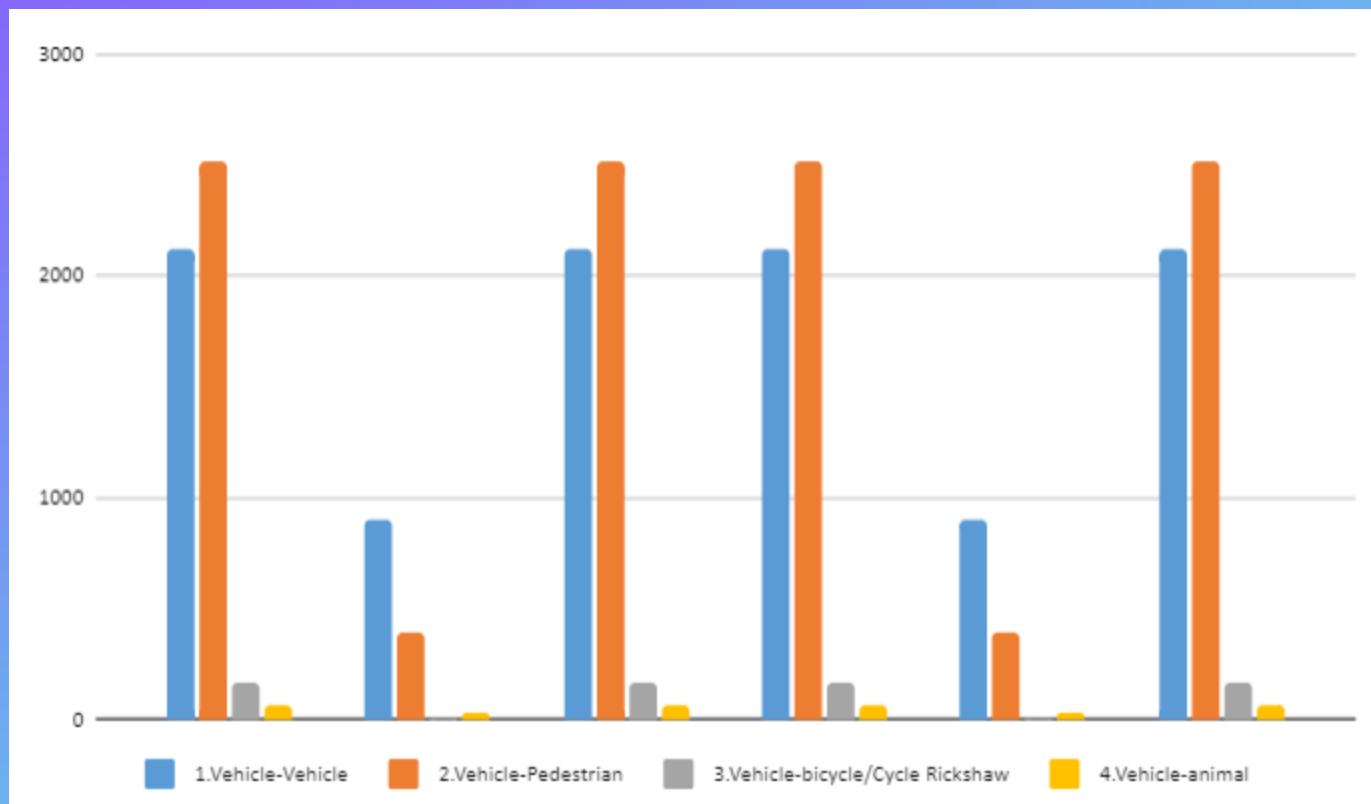
## Accident Classified According to Type of Collision

# Table 5

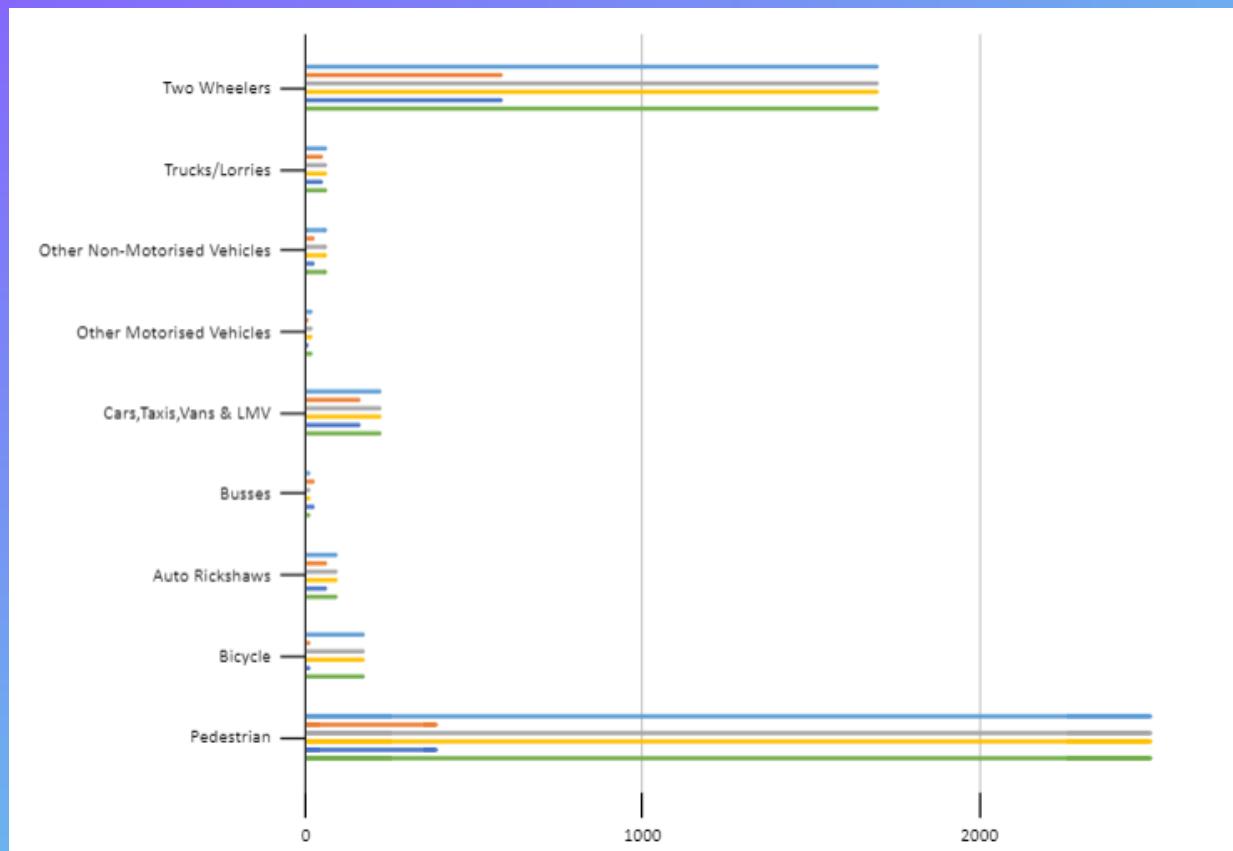
Victim Vehicle	No. of accidents			No. of persons involved		
	Fatal	Injury	Total	Killed	Injury	Total
Pedestrian	2511	392	2511	2511	392	2511
Bicycle	173	13	173	173	13	173
Auto Rickshaws	98	62	98	98	62	98
Busses	13	28	13	13	28	13
Cars,Taxis,Vans & LMV	223	162	223	223	162	223
Other Motorised Vehicles	19	10	19	19	10	19
Other Non-Motorised Vehicles	65	30	65	65	30	65
Trucks/Lorries	64	50	64	64	50	64
Two Wheelers	1699	585	1699	1699	585	1699

## Accidents Classified According to Type of Road User

## Plot for Table 4



## Plot for Table 5



# Table 6

Victim vehicle	Bicycle	Two wheelers	Auto rickshaws	Cars, taxis,vans & LMV	Trucks/Lorries	Buses	Other motorised vehicles	Other non motorised vehicles	Pedestrian
Bicycle	0	0	0	0	0	0	0	0	0
Two Wheelers	13	84	1	1	2	1	1	1	13 359
Auto Rickshaws	4	19	2	4	1	1	1	1	1 72
Cars,Taxis,Vans & LMV	46	297	28	51	3	1	8	8	28 442
Trucks/ Lorries	47	358	23	63	38	7	3	3	5 272
Buses	14	138	7	15	2	2	2	2	2 137
Other motorised vehicles	4	41	1	6	0	0	0	0	0 60
Other non-motorised vehicle	0	0	0	0	0	0	0	0	0 1

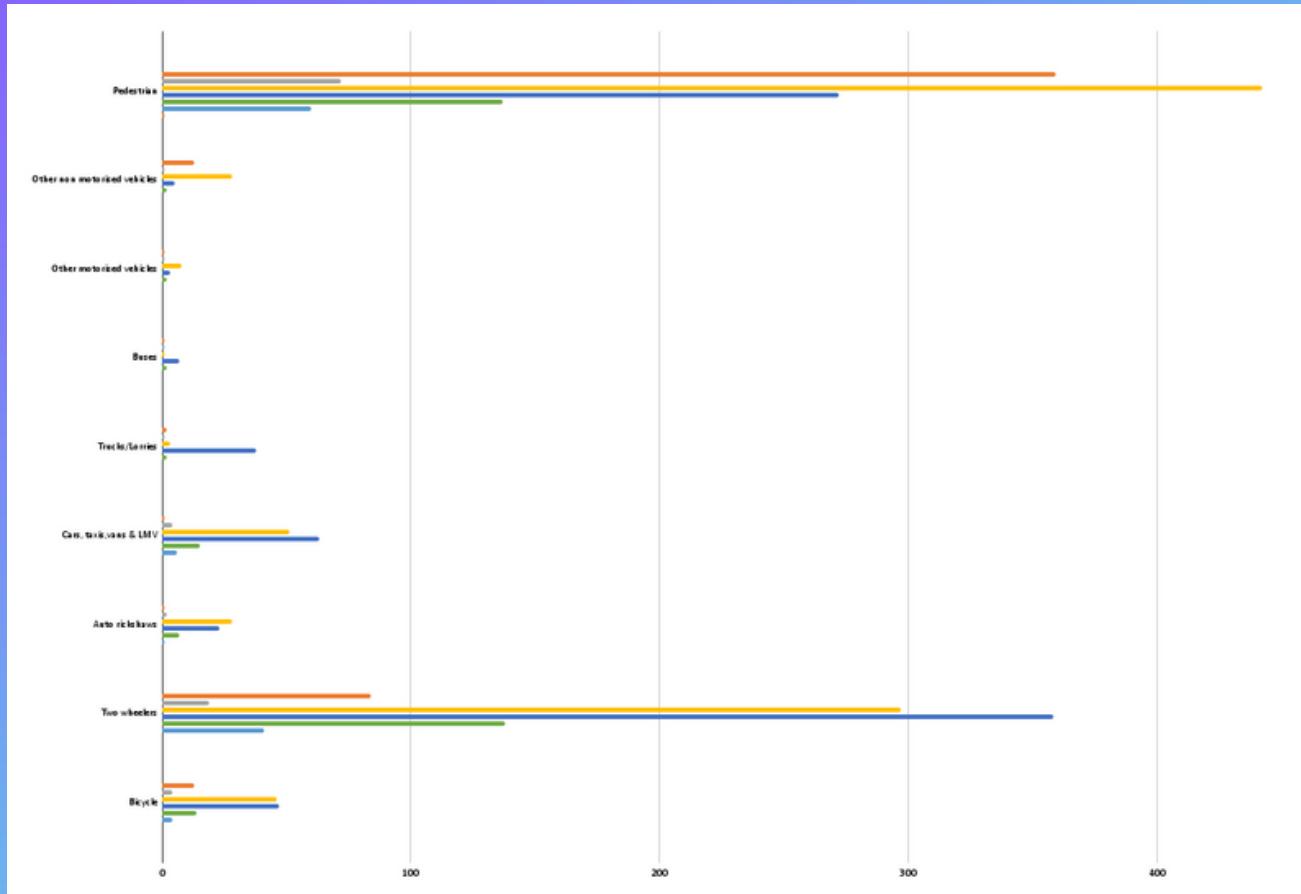
**Fatalities by type of vehicle involved :- Impacting Vehicle vs Victim**

# Table 7

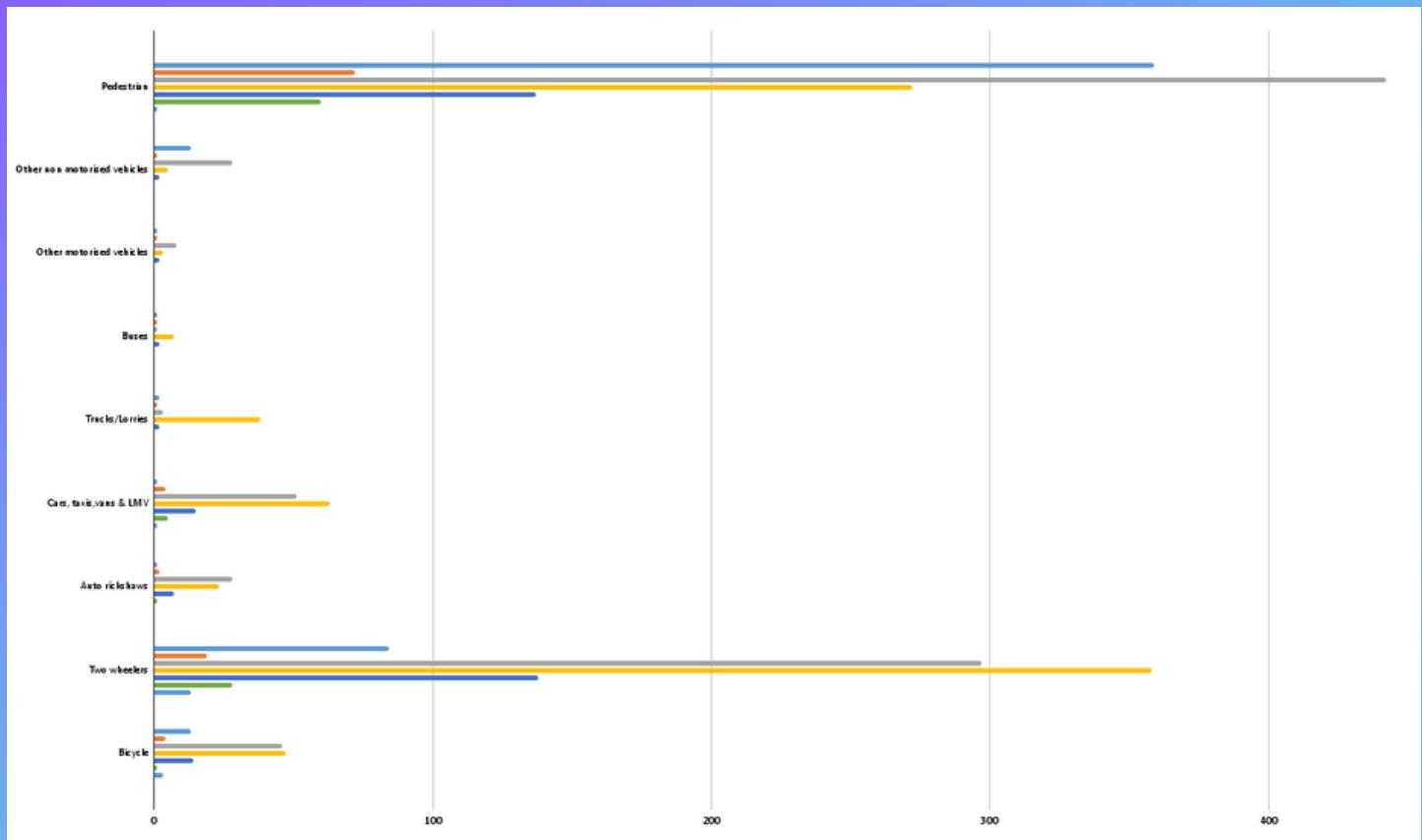
Victim Vehicle	Bicycle	Two wheelers	Auto rickshaws	Cars, taxis,vans & LMV	Trucks/Lorries	Buses	Other motorised vehicles	Other non motorised vehicles	Pedestrian
Two Wheelers	13	84	1	1	2	1	1	1	13 359
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Trucks/ Lorries	47	358	23	63	38	7	3	3	5 272
Buses	14	138	7	15	2	2	2	2	2 137
Other motorised vehicles	1	28	1	5	0	0	0	0	0 60
Other non-motorised vehicle	3	13	0	1	0	0	0	0	0 1

**Number of accidents by type of vehicles involved:- Impacting Vehicle vs Victim**

## Plot for Table 6

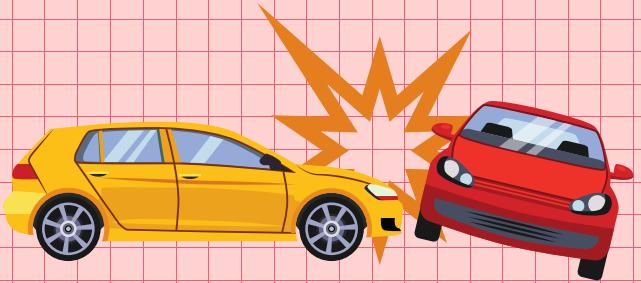


## Plot for Table 7



# REPORT

## Analysis of Delhi Police Accident Data (2016-2018)



### Analysis



The months of March and October have seen a staggering influx of accidents, shattering records with a relentless surge of injuries and fatalities that boggles the mind.

What could possibly explain this phenomenon? Well, in March, government offices are closing up shop, and in October, it's a non-stop carnival of festivals that turns the world upside down.



The clock strikes 9 PM, and boom, chaos ensues with accidents that reach unprecedented heights from 6 PM to 9 PM. The cause? It's like a Hollywood blockbuster plot – the great office exodus!



Hold onto your hats, because when it comes to accidents, those behemoth trucks and lorries take the crown, leaving destruction in their wake. And poor pedestrians, they bear the brunt of it all, accounting for a mind-blowing 55% of the accidents – they practically have target signs on their backs!

# SUGGESTIONS

- 1. Identification of High-Risk Areas:** Identify the specific locations, intersections, and stretches of roads with a high frequency of accidents. Allocate resources for targeted safety measures, such as improved signage, traffic calming measures, and enhanced law enforcement in these areas.
- 2. Improved Road Infrastructure:** Invest in infrastructure improvements, including better road design, maintenance, and repair. Focus on addressing issues such as potholes, damaged road surfaces, and inadequate lighting, which can contribute to accidents.
- 3. Traffic Management and Enforcement:** Strengthen traffic management and enforcement efforts to reduce violations such as speeding, reckless driving, and driving under the influence. Consider using technology, such as traffic cameras and automated ticketing systems, to enhance enforcement capabilities.
- 4. Public Awareness Campaigns:** Launch public awareness campaigns to educate drivers, pedestrians, and cyclists about road safety, the dangers of distracted driving, and the importance of adhering to traffic rules and regulations.
- 5. Vehicle Safety Standards:** Advocate for stricter vehicle safety standards, including mandatory safety features such as airbags, anti-lock brakes, and electronic stability control. Encourage vehicle manufacturers to prioritize safety in their designs.
- 6. Driver Training and Licensing:** Enhance driver training and licensing programs to ensure that drivers are adequately prepared to operate vehicles safely. Introduce regular retesting for drivers to assess their continued fitness to drive.
- 7. Pedestrian and Cyclist Safety:** Implement measures to improve the safety of pedestrians and cyclists, including dedicated lanes, pedestrian crossings, and pedestrian-friendly infrastructure. Encourage walking and cycling as alternatives to reduce road congestion.
- 8. Emergency Response and Medical Care:** Strengthen emergency response systems to reduce the response time to accident scenes. Ensure that victims receive prompt medical care, which can be critical in reducing fatalities and long-term disabilities.
- 9. Data Collection and Analysis:** Continue to collect and analyze accident data to monitor trends, assess the effectiveness of safety measures, and adapt policies as needed. This includes leveraging technology and data-driven approaches to identify patterns and areas in need of attention.
- 10. Legal Reforms:** Review and update traffic laws and regulations to address emerging challenges, such as regulating ride-sharing services, electric scooters, and other new forms of transportation.
- 11. Research and Innovation:** Invest in research and innovation to develop and implement new technologies and strategies for accident prevention, including autonomous vehicles and intelligent transportation systems.
- 12. Public Transportation and Alternate Modes:** Encourage the use of public transportation and alternative modes of transportation to reduce the overall volume of vehicles on the road, which can help alleviate congestion and reduce the likelihood of accidents.
- 13. Evaluation of Existing Policies:** Continuously evaluate the impact of existing policies and adjust them as necessary based on the data and outcomes.



# SUMMARY

Accident data recorded by the Delhi Police for the years 2016 to 2018 reveals important insights into road safety and traffic incidents in the Indian capital during that period. Here is a summary of the key findings and trends:

- 1. Total Accident Counts:** The data shows the total number of accidents reported during this period, which can be further categorized into various types such as road accidents, hit-and-run cases, and more.
- 2. Fatalities:** The data would include information about the number of fatalities resulting from these accidents. This information is crucial for understanding the severity of accidents and their impact on public safety.
- 3. Injuries:** The number of injuries recorded in these accidents is also a significant metric, as it indicates the extent of human suffering and the burden on healthcare facilities.
- 4. Time and Location:** The data may provide details about the time and location of accidents, helping to identify high-risk areas and times. This information is essential for law enforcement and city planning.
- 5. Types of Vehicles:** It's important to know the types of vehicles involved in accidents, whether they are private cars, motorcycles, buses, or other forms of transportation. This can shed light on the causes of accidents and help tailor safety measures.
- 6. Causes of Accidents:** Understanding the causes of accidents, such as speeding, drunk driving, weather conditions, or road infrastructure issues, is crucial for developing targeted safety initiatives and regulations.
- 7. Trends Over Time:** Analyzing the data across the three years may reveal trends. For instance, whether the number of accidents, fatalities, or injuries increased, decreased, or remained stable over time.
- 8. Demographics:** Information about the demographics of the individuals involved in accidents, such as age, gender, and driver's license status, can be insightful for designing educational campaigns and enforcement strategies.

# Comparison of data with International benchmarks

In conclusion, there are notable differences in road safety rules and enforcement between the USA and Delhi, and the specific accident data recorded by Delhi Police for 2016 to 2018 are valuable in identifying areas for improvement in Delhi's road safety efforts. It's essential for local authorities in Delhi to continuously analyze this data and implement targeted measures to enhance road safety for its citizens.

Comparing road safety rules in the USA and Delhi, India, and using internal benchmarks based on accident data recorded by the Delhi Police for the years 2016 to 2018, we can identify several key differences and similarities.

## 1. Traffic Regulations and Enforcement:

- In the USA, traffic regulations are typically enforced by state and local authorities. Seat belt usage and speed limits are strictly enforced, and DUI (Driving Under the Influence) laws are stringent. Traffic police often use advanced technology such as speed cameras and breathalyzers to monitor compliance.
- In Delhi, traffic regulations are enforced by the Delhi Traffic Police. While there are traffic laws in place, enforcement can vary, and violations such as not wearing seat belts, helmetless riding, and running red lights are common. DUI cases are also prevalent.

## 2. Speed Limits:

- In the USA, speed limits are generally well-marked and strictly enforced, with specific limits for different types of roads. Speed limits are often set with an emphasis on safety.
- In Delhi, speed limits are posted but not always well-marked or consistently enforced. Road conditions and traffic congestion can make it challenging to maintain speed limits.

## 3. Infrastructure and Road Conditions:

- In the USA, the road infrastructure is generally well-maintained and designed with safety in mind. Roads are wide, well-marked, and equipped with proper signage.
- In Delhi, road conditions can be suboptimal, with potholes, uneven surfaces, and inadequate signage in some areas. This can contribute to accidents and make road safety challenging.

## 4. Public Awareness and Education:

- In the USA, there is a strong emphasis on public awareness campaigns to educate people about road safety. Programs for promoting safe driving and seat belt use are common.
- In Delhi, while there are public awareness campaigns, there is often a need for more robust education and awareness efforts, particularly given the diverse traffic mix and road conditions.

## 5. Data Collection and Reporting:

- In the USA, accident data collection and reporting are generally well-organized, and accurate statistics are available at the national, state, and local levels.
- In Delhi, data collection can be less consistent, and there may be underreporting of accidents, especially those involving minor injuries or property damage only.

# GROUP-1

## Meet Our Team



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