

# REGULATORY AFFAIRS OF ROAD ACCIDENT DATA 2020

ROAD SAFETY IS A CRITICAL CONCERN IN URBAN AREAS, ESPECIALLY IN CITIES WITH HIGH TRAFFIC DENSITY. ANALYZING ACCIDENT DATA HELPS IN IDENTIFYING TRENDS, CAUSES, AND OUTCOMES OF INCIDENTS, ALLOWING AUTHORITIES TO IMPLEMENT EFFECTIVE SAFETY MEASURES. THIS PROJECT FOCUSES ON UNDERSTANDING THE DISTRIBUTION OF ROAD ACCIDENT OUTCOMES, PARTICULARLY MINOR INJURIES, ACROSS VARIOUS CITIES. BY ANALYZING THIS DATA, WE CAN GAIN INSIGHTS INTO WHICH CITIES EXPERIENCE HIGHER INCIDENTS OF MINOR INJURIES AND ASSESS THE IMPACT OF DIFFERENT CAUSE CATEGORIES ON ROAD SAFETY.

-- BY Bandana

# PROJECT OVERVIEW

- ▶ This project focuses on studying how incident cases are spread across multiple cities, considering only those locations where the number of incidents is greater than 15. By applying filters and ranking these cities according to their incident counts, we can highlight areas that experience more minor injuries and explore the possible reasons behind these accidents. Identifying such patterns is important for detecting urban regions that are more accident-prone and for improving road safety measures.
- ▶ Using **SQL-driven analytical techniques**, the project examines road accident data by grouping incidents based on both city and cause. This systematic analysis helps identify which cities report a higher number of minor injury cases and reveals the most common categories of causes. The insights gained from this study can guide policymakers, traffic departments, and city planners in designing focused safety initiatives, enhancing traffic control, and reducing the overall number of road accidents.

# TECHNOLOGY USED

This project mainly uses **SQL** to study and analyze road accident data. With SQL, we filter, group, and sort cities based on how many incidents they have. Functions like COUNT(), GROUP BY, ORDER BY, and different conditions help us find patterns and understand which cities have the most minor injury cases and what factors may be causing them.

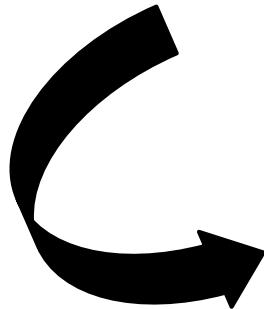
Excel is used first to quickly look at the dataset—to see the columns, structure, and basic information. This makes it easier to plan the SQL queries.

Finally, PowerPoint is used to present the results in a clear and visual way, so the insights and recommendations can be easily understood. By using **SQL**, **Excel**, and **PowerPoint** together, the project follows a well-organized method for analyzing data and sharing the findings.

# QUIRES

## 1]Create Database

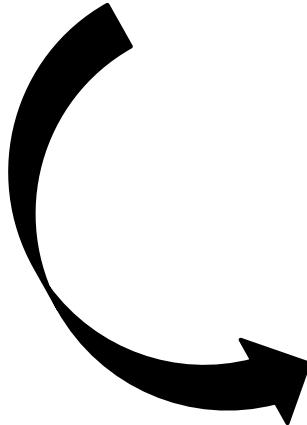
```
1  create database record;  
2 • use record;  
3 • select * from df;
```



	Cities	category	Subcategory	Incident	Count
▶	Agra	Traffic Control	Flashing Signal/Blinker	Previously Injured	0
	Agra	Traffic Control	Flashing Signal/Blinker	Minor Injury	0
	Agra	Traffic Control	Flashing Signal/Blinker	Persons Killed	0
	Agra	Traffic Control	Flashing Signal/Blinker	Total Injured	0
	Agra	Traffic Control	Flashing Signal/Blinker	Total number of Accidents	0
	Agra	Traffic Control	Others	Previously Injured	175
	Agra	Traffic Control	Others	Minor Injury	91
	Agra	Traffic Control	Others	Persons Killed	373
	Agra	Traffic Control	Others	Total Injured	266
	Agra	Traffic Control	Others	Total number of Accidents	470
	Agra	Traffic Control	Police Controlled	Previously Injured	0
	Agra	Traffic Control	Police Controlled	Minor Injury	0
	Agra	Traffic Control	Police Controlled	Persons Killed	0
	Agra	Traffic Control	Police Controlled	Total Injured	0
	Agra	Traffic Control	Police Controlled	Total number of Accidents	0
	Agra	Traffic Control	Stop Sign	Previously Injured	0
	Agra	Traffic Control	Stop Sign	Minor Injury	0
	Agra	Traffic Control	Stop Sign	Persons Killed	0
	Agra	Traffic Control	Stop Sign	Total Injured	0
	Agra	Traffic Control	Stop Sign	Total number of Accidents	0

## 2]Rename The Table

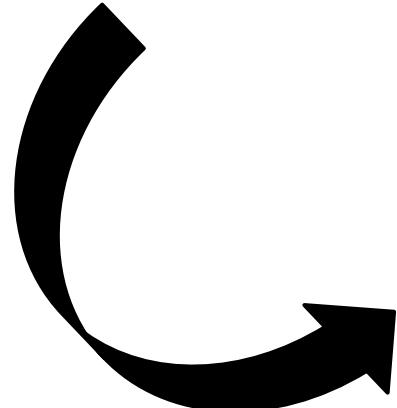
```
5 #Rename table Name  
6 • rename table df to Road_Accident_Record;  
7 • select * from Road_Accident_Record ;
```



Cities	category	Subcategory	Incident	Count
Agra	Traffic Control	Flashing Signal/Blinker	Persons Killed	0
Agra	Traffic Control	Flashing Signal/Blinker	Total Injured	0
Agra	Traffic Control	Flashing Signal/Blinker	Total number of Accidents	0
Agra	Traffic Control	Others	Greviously Injured	175
Agra	Traffic Control	Others	Minor Injury	91
Agra	Traffic Control	Others	Persons Killed	373
Agra	Traffic Control	Others	Total Injured	266
Agra	Traffic Control	Others	Total number of Accidents	470
Agra	Traffic Control	Police Controlled	Greviously Injured	0
Agra	Traffic Control	Police Controlled	Minor Injury	0
Agra	Traffic Control	Police Controlled	Persons Killed	0
Agra	Traffic Control	Police Controlled	Total Injured	0

### 3]Count of accident according to city

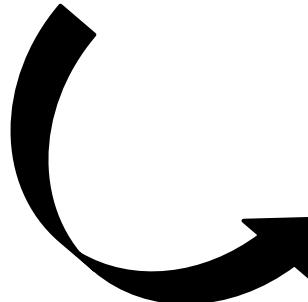
```
9 #Count of Accidents According to City
10 • SELECT Cities, Count(*) AS Total_Accidents
11 From road_accident_record
12 GROUP BY Cities
13 ORDER BY Total_Accidents DESC;
```



Cities	Total_Accidents
Agra	191
Ahmedabad	191
Allahabad(Prayagraj)	191
Amritsar	191
Asansol Durgapur	191
Aurangabad	191
Bengaluru	191
Bhopal	191
Chandigarh	191
Chennai	191
Coimbatore	191
Delhi	191
Dhanbad	191
Faridabad	191
Ghaziabad	191
Vizag	191
Hyderabad	191
Indore	191
Jabalpur	191
Jaipur	191

#### 4]Check Null Values

```
16 • SELECT * from road_accident_record  
17 where cities is null or category is null or Subcategory  
18 or Incident is null or TRIM('Cities') is null;  
19 -- OR  
20 • SELECT * from road_accident_record  
21 where Cities = '' or category = '' or Subcategory or  
22 Incident = '' or Count = '';  
--
```



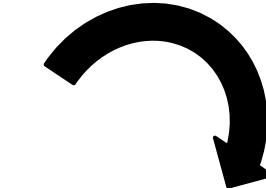
Result Grid					Filter Rows:	Export:	Wrap Cell Content:
Cities	category	Subcategory	Incident	Count			

## 5]Top Cities with Highest incident cause

```
24    #Top cities with highest incident cause
25 •  SELECT cities ,count(*) as Highest_Incident_Count_cities
26  From road_accident_record
27  group by Cities
28  order by Highest_Incident_Count_cities desc;
29
30  -- Agra Incident Count
31 •  select Cities,count(*) AS incident_count
32  from road_accident_record
33  where Cities = "Agra"
34  group by Cities;
```



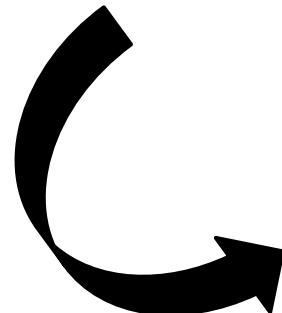
	Cities	incident_count
▶	Agra	191



	cities	Highest_Incident_Count_cities
▶	Agra	191
	Ahmedabad	191
	Allahabad(Prayagraj)	191
	Amritsar	191
	Asansol Durgapur	191
	Aurangabad	191
	Bengaluru	191
	Bhopal	191
	Chandigarh	191
	Chennai	191
	Coimbatore	191
	Delhi	191
	Dhanbad	191
	Faridabad	191
	Ghaziabad	191
	Vizag	191
	Hyderabad	191

## 6]Distribution of minor injury incident across cities (grater than 15)

```
36 # Distribution of "Minor Injury" Incident Outcomes Across Cities(Greater Than 15)
37 • SELECT Cities ,Incident ,count(*) AS Incident_count
38   from road_accident_record
39   where Incident = "Minor Injury"
40   group by Cities , Incident
41   having Incident_count > 15
42   order by Cities ,Incident_count desc;
```



	Cities	Incident	Incident_count
▶	Agra	Minor Injury	40
	Ahmedabad	Minor Injury	40
	Allahabad(Prayagraj)	Minor Injury	40
	Amritsar	Minor Injury	40
	Asansol Durgapur	Minor Injury	40
	Aurangabad	Minor Injury	40
	Bengaluru	Minor Injury	40
	Bhopal	Minor Injury	40
	Chandigarh	Minor Injury	40
	Chennai	Minor Injury	40
	Coimbatore	Minor Injury	40
	Delhi	Minor Injury	40
	Dibrugarh	Minor Toxicous	40

Result 27 X

## 7]Most common outcome of incidents across all Cities

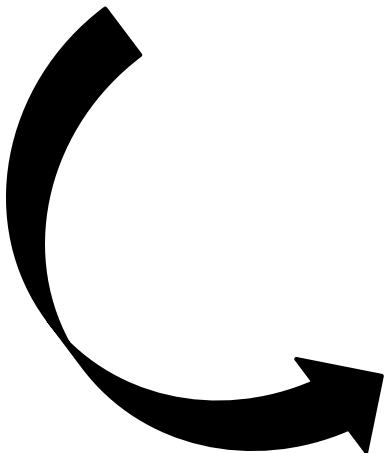
```
44  # Most Common Outcome of incident across all cities
45 • select Incident , count(*) as outcome_count
46  from road_accident_record
47  group by Incident
48  order by outcome_count desc
49  limit 1;
50  # if i get multiple output then i will use rank function to get only one outcome
```



Incident	outcome_count
Total number of Accidents	2000

## 8] City wise distribution of incident causes

```
52  #City-wise Distribution of Incident Causes
53 • select Cities , category,count(*) as City_wise_Distribution_Incident
54  from road_accident_record
55  group by Cities , category
56  order by City_wise_Distribution_Incident desc;
--
```



	Cities	category	City_wise_Distribution_Incident
▶	Agra	Road Features	40
	Ahmedabad	Road Features	40
	Allahabad(Prayagraj)	Road Features	40
	Amritsar	Road Features	40
	Asansol Durgapur	Road Features	40
	Aurangabad	Road Features	40
	Bengaluru	Road Features	40
	Bhopal	Road Features	40
	Chandigarh	Road Features	40
	Chennai	Road Features	40
	Coimbatore	Road Features	40
	Delhi	Road Features	40

Result 29 ×

## 9]Total Incident count by cause category and subcategory

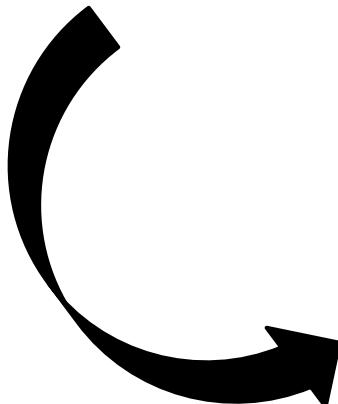
```
58  #Total incident count by cause category and subcategory
59 • select category , Subcategory , count(*) as incident_count
60  from road_accident_record
61  group by category , subcategory
62  order by incident_count desc;
```



	category	Subcategory	incident_count
▶	Traffic Control	Flashing Signal/Blinker	250
	Traffic Control	Others	250
	Traffic Control	Police Controlled	250
	Traffic Control	Stop Sign	250
	Traffic Control	Traffic Light Signal	250
	Traffic Control	Uncontrolled	250
	Junction	Four arm Junction	250
	Junction	Others	250
	Junction	Round about Junction	250
	Junction	Staggered Junction	250

## 10] Identify cities with the lowest number of incidents

```
64  #Identify cities with the lowest number of incidents
65 • select Cities ,count(*) as incident_count
66  from road_accident_record
67  group by Cities
68  order by incident_count asc
69  limit 5;
```



	Cities	incident_count
▶	Gwalior	188
	Agra	191
	Ahmedabad	191
	Allahabad(Prayagraj)	191
	Amritsar	191

Result 32 ×

## 11]Find the most Frequent cause-outcome pair Across Cities

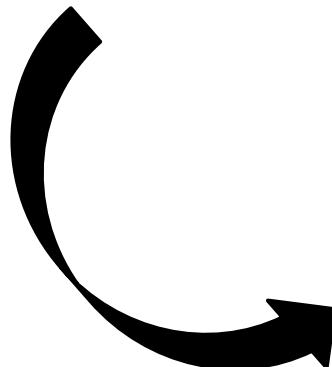
```
71 #Find the most frequent cause outcome pair across cities
72 • select category , Incident , count(*) as frequency
73 from road_accident_record
74 group by category , Incident
75 order by frequency desc
76 limit 1;
```



Result Grid			
	category	Incident	frequency
▶	Impacting Vehicle/Object	Total number of Accidents	450
Result 33 ×			

## 12]Percentage o each Outcome type in total incidents

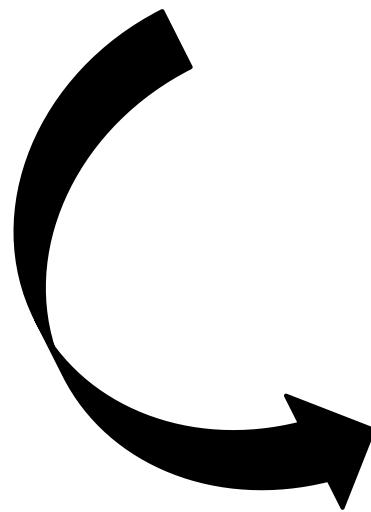
```
78 #Percentage of each outcome type in total incidents
79 • select Incident, count(*) as Total_count,
80 (count(*) * 100.0 / sum(count(*)) over ()) as output_percentage
81 from road_accident_record
82 group by Incident
83 order by output_percentage desc;
```



Incident	Total_count	output_percentage
Total number of Accidents	2000	20.94899
Previously Injured	1999	20.93851
Minor Injury	1999	20.93851
Persons Killed	1999	20.93851
Total Injured	1550	16.23547

### 13]City with the highest incident for a specific cause category

```
85 #city with the highest incidents for a specific cause category
86 • select Cities ,count(*) as incident_count,
87 rank () over (order by count(*) desc) as city_rank
88 from road_accident_record
89 group by Cities
90 order by city_rank;
```



	Cities	incident_count	city_rank
▶	Agra	191	1
	Ahmedabad	191	1
	Allahabad(Prayagraj)	191	1
	Amritsar	191	1
	Asansol Durgapur	191	1
	Aurangabad	191	1
	Bengaluru	191	1
	Bhopal	191	1
	Chandigarh	191	1
	Chennai	191	1
	Coimbatore	191	1
	Delhi	191	1
	Dhanbad	191	1
	Faridabad	191	1
	Ghaziabad	191	1
	Vizag	191	1
	Hyderabad	191	1

# SUMMARY

- ▶ This project analyzed road accident data to examine the distribution of incidents across cities.
- ▶ Using SQL, we identified cities with more than 15 minor injury cases and ranked them based on incident count.
- ▶ The study highlighted high-risk cities and provided insights into the most common causes of minor injuries.
- ▶ Findings from the analysis can help policymakers and traffic authorities implement targeted road safety measures.
- ▶ The results have been presented in a structured format to support data-driven decision making.

# THANK YOU !

- ▶ •Thank you for your time and attention!
- ▶ •Feel free to ask any questions or share your thoughts.
- ▶ •Looking forward to discussions and insights