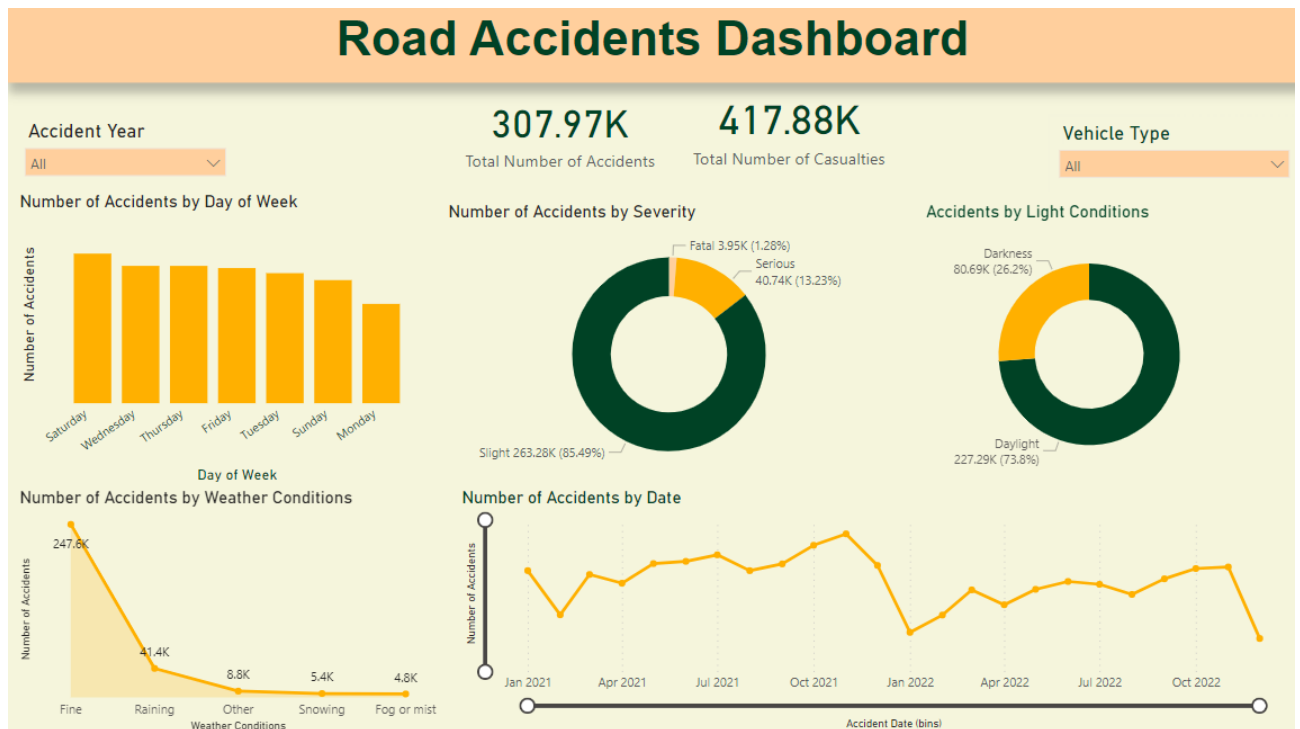


PROJECT

SQL + POWER BI



```
--Show total number of accidents
SELECT COUNT(accident_index) AS total_accidents
FROM accidents.dbo.road_data
```

	total_accidents
1	307973

```
--Show total number of casualties
SELECT SUM(number_of_casualties) AS total_casualties
FROM accidents.dbo.road_data
```

	total_casualties
1	417883

```
--Count average number of casualties and average number of cars involved in accidents
SELECT
    ROUND(AVG(Number_of_Casualties), 3) AS Avg_Casualties,
    ROUND(AVG(Number_of_Vehicles), 3) AS Avg_Vehicles
FROM accidents.dbo.road_data
```

	Avg_Casualties	Avg_Vehicles
1	1.357	1.829

-- Categorize accidents based on the severity and sort by the total number of accidents for each category in descending order

SELECT

accident_severity,

CASE

WHEN accident_severity = 'Fatal' THEN 'Highly Severe'

WHEN accident_severity = 'Serious' THEN 'Moderately Severe'

WHEN accident_severity = 'Slight' THEN 'Less Severe'

ELSE 'Unknown'

END AS severity_category,

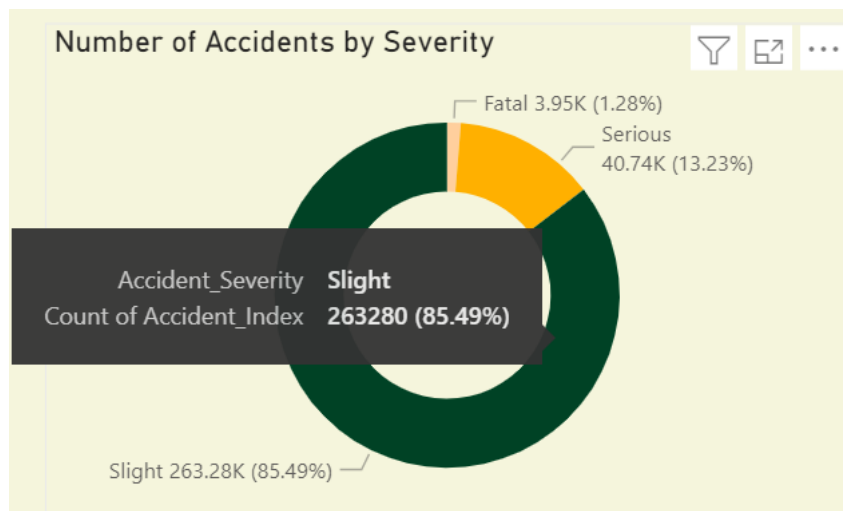
COUNT(*) AS total_accidents

FROM accidents.dbo.road_data

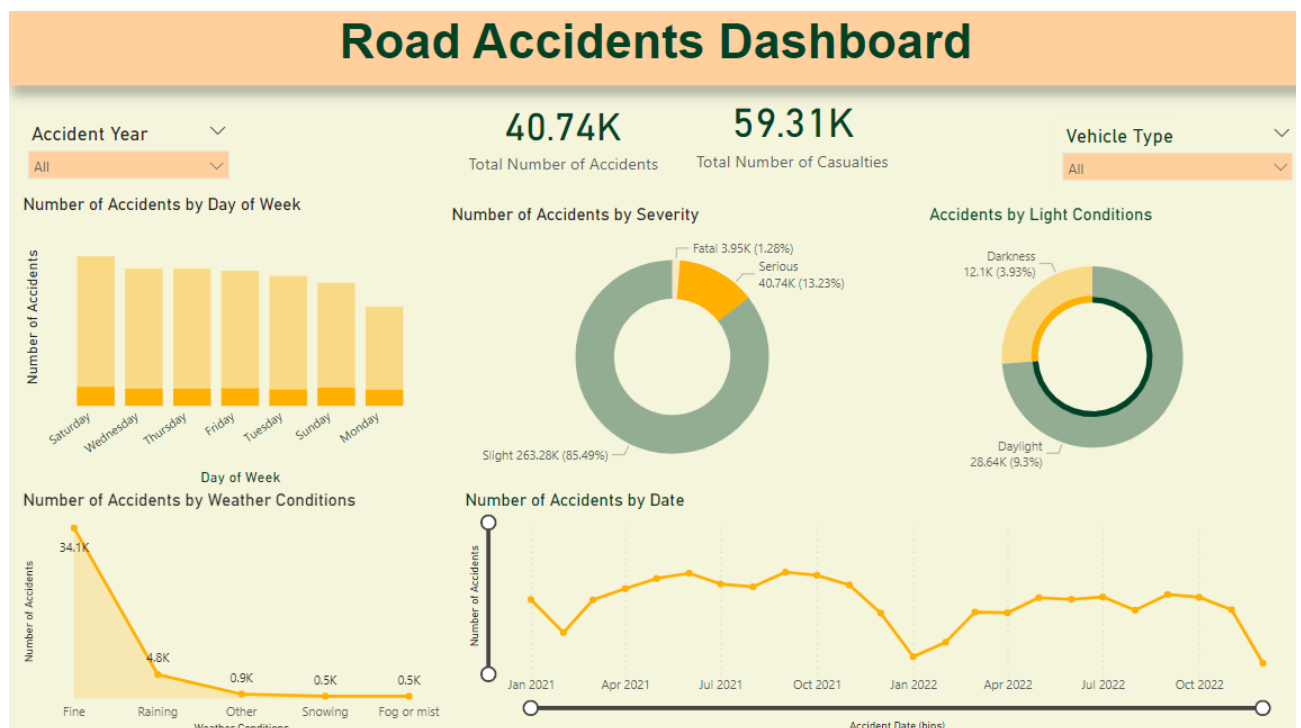
GROUP BY accident_severity

ORDER BY total_accidents DESC

	accident_severity	severity_category	total_accidents
1	Slight	Less Severe	263280
2	Serious	Moderately Severe	40740
3	Fatal	Highly Severe	3953



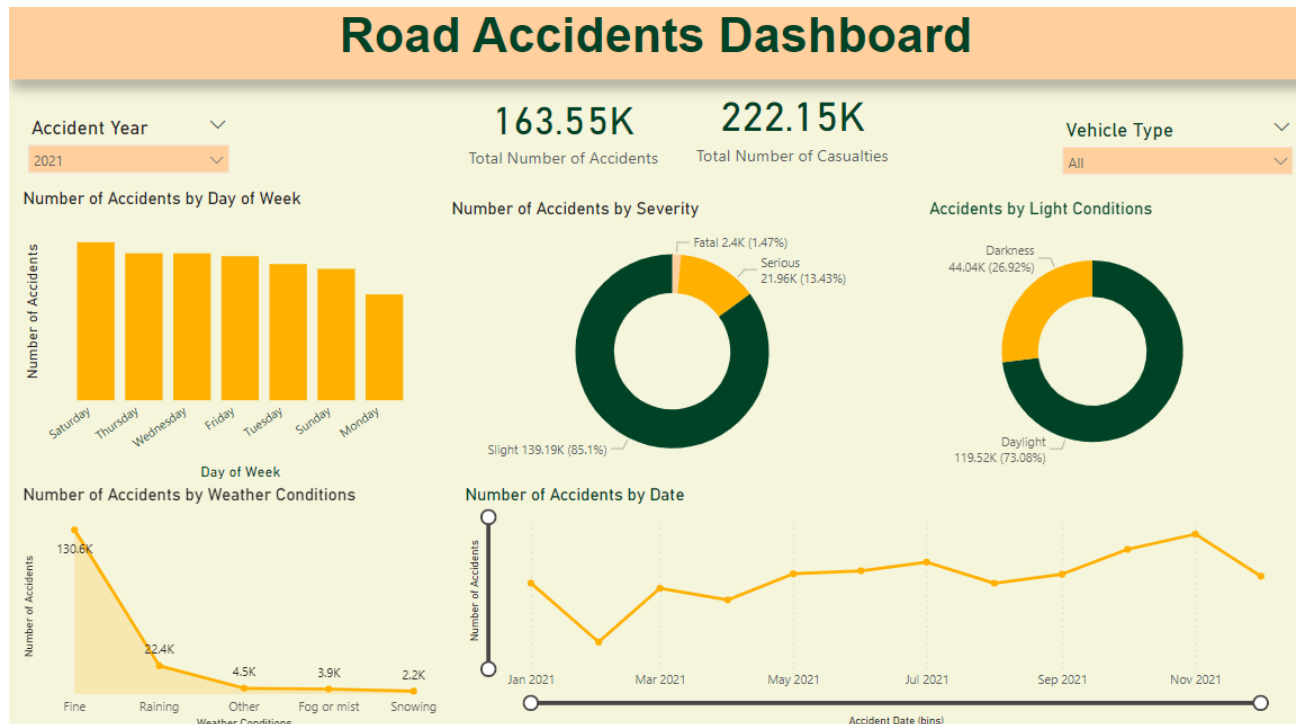
Dashboard filtered to show only serious accidents



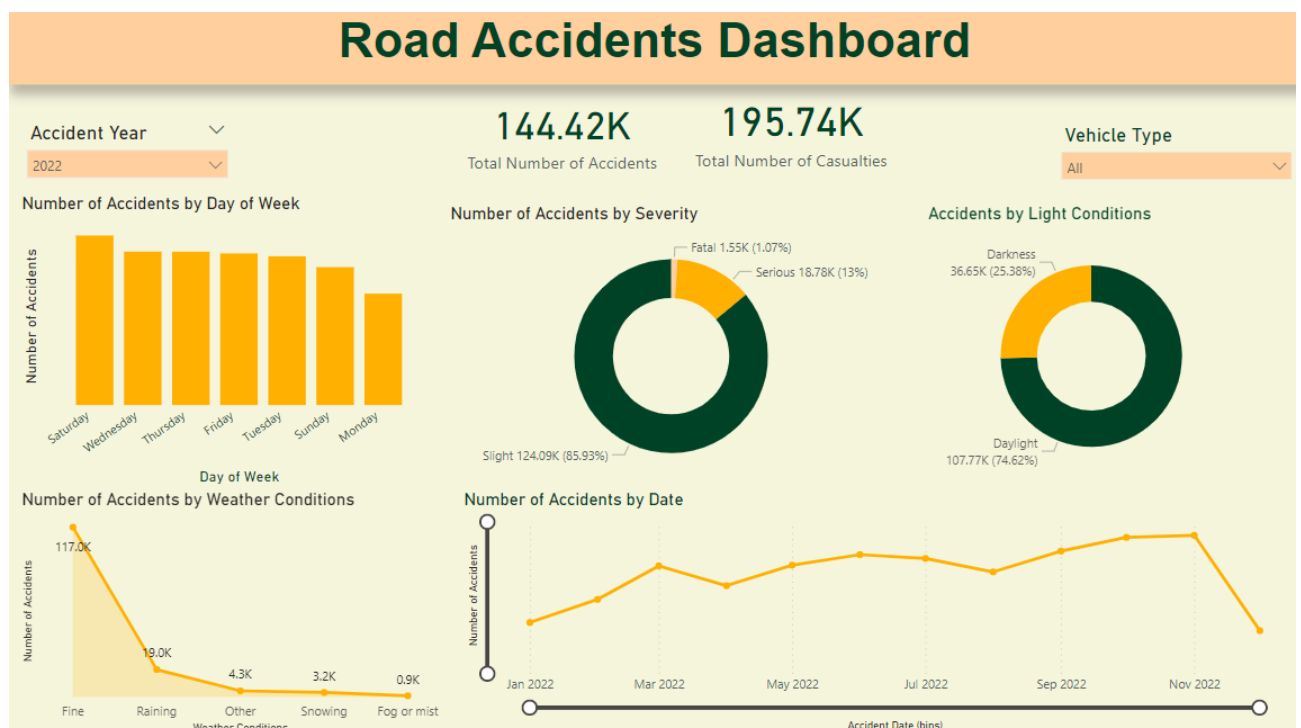
```
--Explore how many accidents were in each year
SELECT YEAR([Accident_Date]) AS date_year, COUNT(*) AS accidents
FROM accidents.dbo.road_data
GROUP BY YEAR(Accident_Date)
```

	date_year	accidents
1	2021	163554
2	2022	144419

Power BI Dashboard- filtered by year(2021)



Year 2022



--See the difference of number of accidents in year 2021 and 2022 in percentage

```
SELECT
    SUM(CASE WHEN YEAR(accident_date) = 2021 THEN 1 ELSE 0 END) AS count_2021,
    SUM(CASE WHEN YEAR(accident_date) = 2022 THEN 1 ELSE 0 END) AS count_2022,
    ((SUM(CASE WHEN YEAR(accident_date) = 2022 THEN 1 ELSE 0 END) - SUM(CASE WHEN
YEAR(accident_date) = 2021 THEN 1 ELSE 0 END)) * 100.0 / NULLIF(SUM(CASE WHEN
YEAR(accident_date) = 2021 THEN 1 ELSE 0 END), 0)) AS percentage_difference
FROM accidents.dbo.road_data
WHERE YEAR(accident_date) IN (2021, 2022);
```

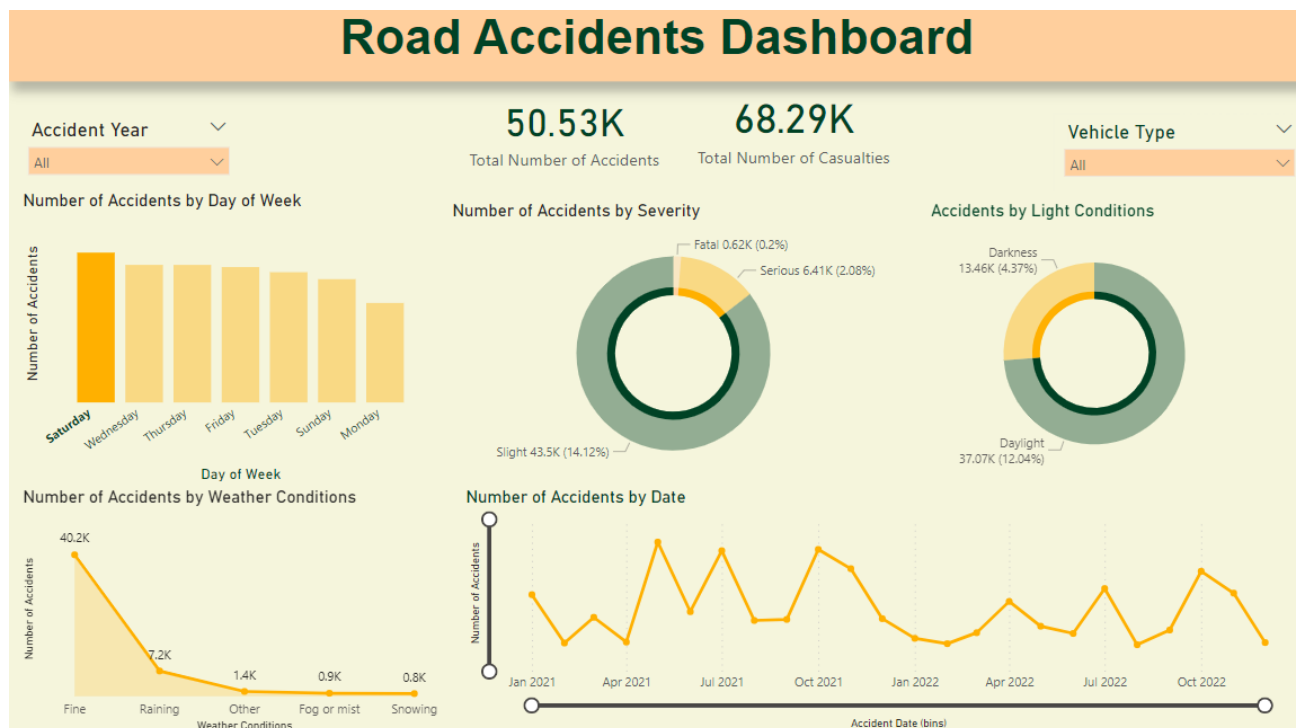
	count_2021	count_2022	percentage_difference
1	163554	144419	-11.699499859373

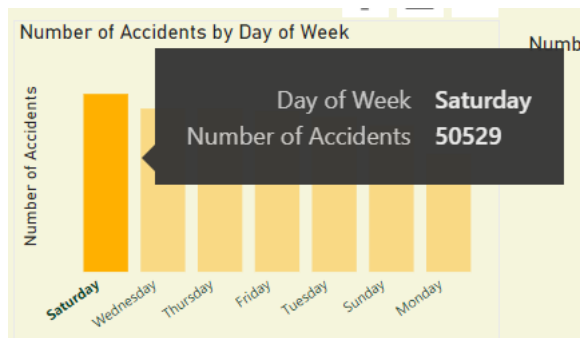
--Total number of accidents per each day of the week

```
SELECT day_of_week, COUNT(*) AS total_accidents
FROM accidents.dbo.road_data
GROUP BY day_of_week
ORDER BY total_accidents DESC
```

	day_of_week	total_accidents
1	Saturday	50529
2	Wednesday	46386
3	Thursday	46381
4	Friday	45649
5	Tuesday	43918
6	Sunday	41566
7	Monday	33544

Power BI Dashboard – Number of Accidents by Day of the Month(Saturday), sorted by number of accidents from highest to lowest





--Show the most common road surface conditions for accidents involving more than 5 vehicles

```
SELECT Road_Surface_Conditions, COUNT(*) AS Total_Accidents
FROM accidents.dbo.road_data
WHERE Number_of_Vehicles > 5
GROUP BY Road_Surface_Conditions
ORDER BY Total_Accidents DESC
```

	Road_Surface_Conditions	Total_Accidents
1	Dry	372
2	Wet or damp	168
3	Frost or ice	36
4	Snow	20
5	Flood over 3cm. deep	3

--CTE to find out total number of accidents per each month

```
WITH AccidentMonthCTE AS
(
    SELECT
        MONTH([Accident_Date]) AS Month,
        YEAR([Accident_Date]) AS Year,
        COUNT(*) AS TotalAccidents
    FROM accidents.dbo.road_data
    GROUP BY YEAR([Accident_Date]), MONTH([Accident_Date])
)
```

```
SELECT Year, Month, TotalAccidents
FROM AccidentMonthCTE
ORDER BY Year, Month;
```

	Year	Month	TotalAccidents
1	2021	1	13417
2	2021	2	10950
3	2021	3	13202
4	2021	4	12715
5	2021	5	13811
6	2021	6	13936
7	2021	7	14300
8	2021	8	13415
9	2021	9	13792
10	2021	10	14834
11	2021	11	15473
12	2021	12	16780

Road Accidents Dashboard

Accident Year

All

10.95K

Total Number of Accidents

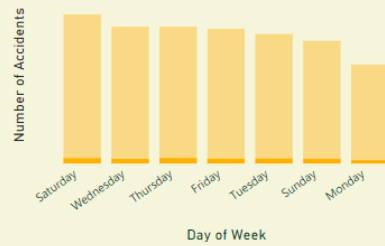
14.65K

Total Number of Casualties

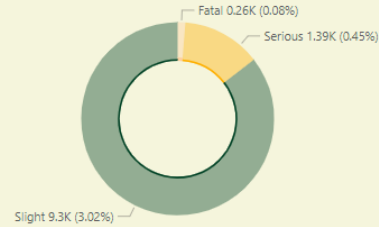
Vehicle Type

All

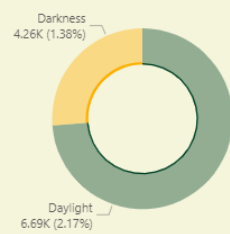
Number of Accidents by Day of Week



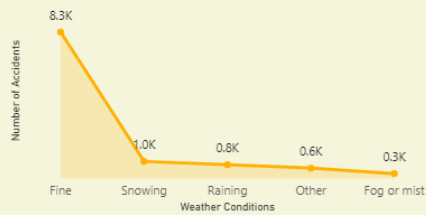
Number of Accidents by Severity



Accidents by Light Conditions



Number of Accidents by Weather Conditions



Number of Accidents by Date

