Road Accident Data Analysis Report

1. How many accidents have occurred in urban areas versus rural areas?

```
SELECT
        area,
COUNT(AccidentIndex) AS "Total Accident"
FROM
        acc
GROUP BY
        area;
```

	area character varying (255)	Total Accident bigint
1	Urban	58533
2	Rural	21999

- The difference in accident rates between urban and rural areas is significant, with urban areas having 58,533 accidents compared to 21,999 in rural areas.

2. which day of the week highest number of accident ?

```
SELECT
        Day,
count (AccidentIndex) as "Total Accident"
FROM
        acc
GROUP BY
        Day
order by Day,
        "Total Accident" DESC;
```

	day character varying (255)	Total Accident bigint
1	Friday	12937
2	Monday	11401
3	Saturday	10388
4	Sunday	8715
5	Thursday	12431
6	Tuesday	12302
7	Wednesday	12358

- The table above shows that Friday has the highest number of accidents, with 12,937 accidents.

3. What is the average age of vehicles involved in accidents based on there type?

```
SELECT
      VehicleType,
      COUNT(AccidentIndex) AS "Total Accident",
      AVG(AgeVehicle) as "AVG Age"
FROM
   vehicle
WHERE AgeVehicle IS NOT NULL
Group by
       VehicleType
ORDER BY
      "Total Accident";
```

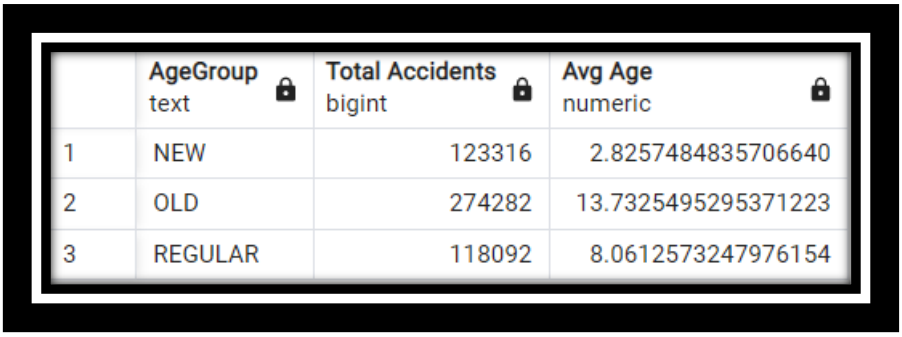
	vehicletype character varying (255)	Total Accident bigint	AVG Age numeric
1	Data missing or out of range	2	4.0000000000000000
2	Mobility scooter	12	2.5000000000000000
3	Motorcycle - unknown cc	240	8.5833333333333333
4	Minibus (8 - 16 passenger seats)	386	7.7512953367875648
5	Agricultural vehicle	608	7.8980263157894737
6	Goods vehicle - unknown weight	630	6.6317460317460317
7	Other vehicle	746	7.8230563002680965
8	Goods over 3.5t. and under 7.5t	1526	6.5583224115334207
9	Motorcycle over 125cc and up to 500cc	3090	10.3779935275080906
10	Motorcycle 50cc and under	3262	6.4954015941140405
11	Goods 7.5 tonnes mgw and over	5934	5.2935625210650489
12	Bus or coach (17 or more pass seats)	8348	7.1439865836128414
13	Taxi/Private hire car	8456	6.3455534531693472
14	Motorcycle over 500cc	11208	10.4557458957887223
15	Motorcycle 125cc and under	13338	6.0905683010946169
16	Van / Goods 3.5 tonnes mgw or under	19606	6.2660410078547383
17	Car	274758	8.2692624054622613

- The table above displays that cars with an average age of 8 years have the highest number of accidents.

4. Can we identify any trends in accident based on age of vehicle involved?

```
SELECT "AgeGroup",
COUNT(AccidentIndex) AS "Total Accidents",
AVG(AgeVehicle) AS "Avg Age"
FROM (
SELECT
        AccidentIndex,
        AgeVehicle,
 CASE
  WHEN AgeVehicle BETWEEN 0 AND 5 THEN 'NEW'
```

```
    WHEN AgeVehicle BETWEEN 6 AND 10 THEN 'REGULAR'
     ELSE 'OLD'
    END AS "AgeGroup"
FROM vehicle
) AS Subquery
GROUP BY "AgeGroup";
```



	AgeGroup text	Total Accidents bigint	Avg Age numeric
1	NEW	123316	2.8257484835706640
2	OLD	274282	13.7325495295371223
3	REGULAR	118092	8.0612573247976154

- The table indicates that older vehicles, with an average age of 13 years, have the highest number of accidents, totaling 274,282."
- However, it's worth noting that this doesn't necessarily mean that new and regular vehicles have significantly fewer accidents; their accident rates are only marginally lower compared to old vehicles.

5 Are there any specific weather conditions that contribute to severe accidents?

```
SELECT
        WeatherConditions,
         Severity,
        "Accident count"
FROM (
   SELECT
            WeatherConditions,
             Severity,
             COUNT(AccidentIndex) AS "Accident count"
   FROM
              acc
   GROUP BY
                 WeatherConditions, Severity
```

) AS subquery

ORDER BY "Accident count" DESC;

	weatherconditions character varying (255)	severity character varying (255)	Accident count bigint
1	Fine no high winds	Slight	57141
2	Fine no high winds	Serious	8706
3	Raining no high winds	Slight	7511
4	Unknown	Slight	1164
5	Raining no high winds	Serious	1050
6	Raining + high winds	Slight	1020
7	Other	Slight	924
8	Fine + high winds	Slight	884
9	Fine no high winds	Fatal	668
10	Snowing no high winds	Slight	257
11	Fog or mist	Slight	251
12	Raining + high winds	Serious	170
13	Fine + high winds	Serious	164
14	Other	Serious	136
15	Unknown	Serious	131
16	Snowing + high winds	Slight	98
17	Raining no high winds	Fatal	84
18	Fog or mist	Serious	65
19	Snowing no high winds	Serious	30
20	Fine + high winds	Fatal	18
21	Raining + high winds	Fatal	17

- "The table reveals that fine weather conditions, without high winds, have contributed to the highest number of accidents, totaling 57,141, with a severity level classified as slight."

6. Do accidents often involve impacts on the left-hand side of vehicles?

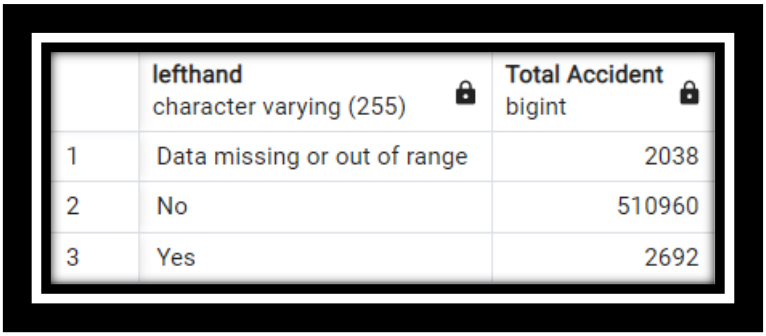
SELECT LeftHand,

COUNT(AccidentIndex) AS "Total Accident"

FROM vehicle

group by LeftHand

HAVING LeftHand is NOT null;



	lefthand character varying (255)	Total Accident bigint
1	Data missing or out of range	2038
2	No	510960
3	Yes	2692

- "The table displays that accidents didn't significantly impact the left-hand side of the vehicle."

7. Are there any relationships between journey purposes and the severity of accidents?

```
SELECT
   v.JourneyPurpose,
   a.Severity,
   COUNT(a.AccidentIndex) AS "Accident Count"
FROM
   acc a
join vehicle v ON  a.AccidentIndex=v.AccidentIndex
GROUP BY
   JourneyPurpose,
   Severity
ORDER BY
   "Accident Count" DESC;
```

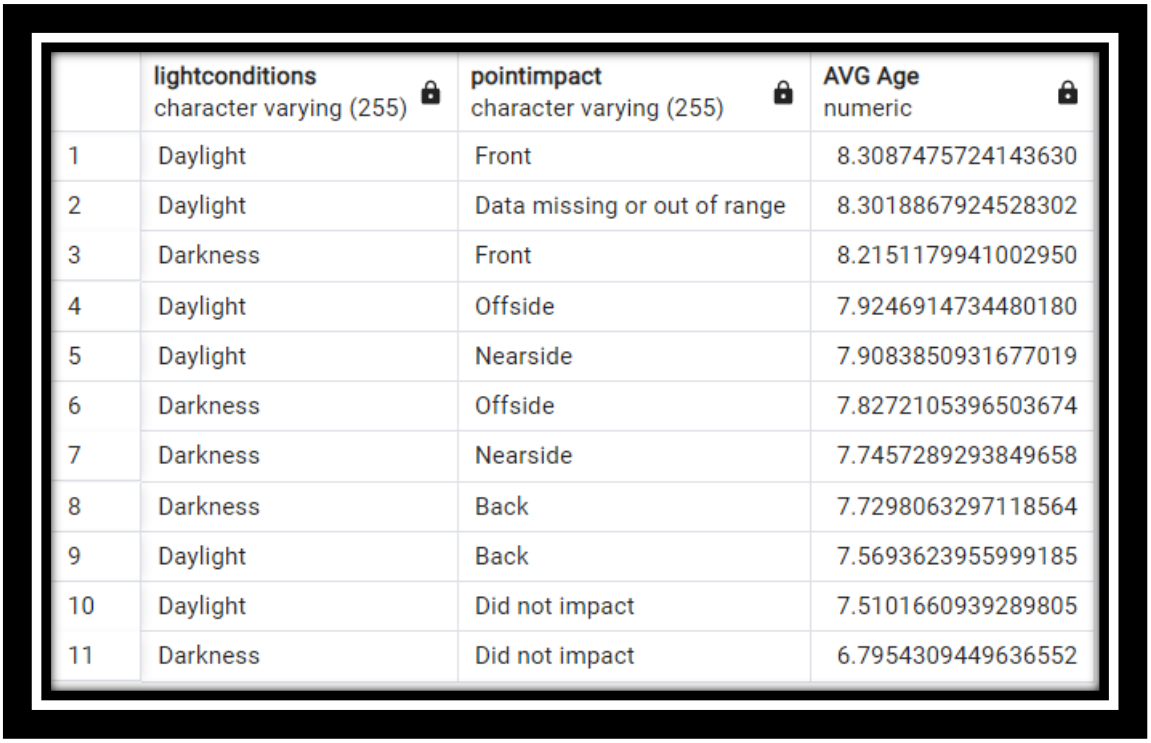
	journeypurpose character varying (255)	severity character varying (255)	Accident Count bigint
1	Not known	Slight	343848
2	Journey as part of work	Slight	73686
3	Commuting to/from work	Slight	50042
4	Not known	Serious	26216
5	Journey as part of work	Serious	5264
6	Taking pupil to/from school	Slight	5018
7	Commuting to/from work	Serious	3666
8	Other	Slight	3146
9	Not known	Fatal	2028
10	Pupil riding to/from school	Slight	1554
11	Journey as part of work	Fatal	620
12	Taking pupil to/from school	Serious	240
13	Commuting to/from work	Fatal	224
14	Pupil riding to/from school	Serious	76
15	Data missing or out of range	Slight	48
16	Taking pupil to/from school	Fatal	10
17	Pupil riding to/from school	Fatal	4

* The table shows that 'Not known' and 'Journey as part of work' are the journey purposes associated with the highest number of accidents. Specifically, 'Not known' as a journey purpose had 343,848 accidents classified as 'slight' severity and 26,216 classified as 'serious' severity."

8.Calculate the average age of vehicles involved in accidents , considering Day light and point of impact?

```
SELECT
        acc.LightConditions,
        vehicle.PointImpact,
        AVG(vehicle.AgeVehicle) AS "AVG Age"
FROM
       acc
JOIN vehicle ON vehicle.AccidentIndex =acc.AccidentIndex
GROUP BY
```

acc.LightConditions,vehicle.PointImpact;



	lightconditions character varying (255)	pointimpact character varying (255)	AVG Age numeric
1	Daylight	Front	8.3087475724143630
2	Daylight	Data missing or out of range	8.3018867924528302
3	Darkness	Front	8.2151179941002950
4	Daylight	Offside	7.9246914734480180
5	Daylight	Nearside	7.9083850931677019
6	Darkness	Offside	7.8272105396503674
7	Darkness	Nearside	7.7457289293849658
8	Darkness	Back	7.7298063297118564
9	Daylight	Back	7.5693623955999185
10	Daylight	Did not impact	7.5101660939289805
11	Darkness	Did not impact	6.7954309449636552

- The highest average age of vehicles involved in accidents is 8 years, and this occurs when the light condition is 'Daylight' and the point of impact is 'Front'.

9. Analyze accident severity in relation to various factors, including weather conditions, road conditions, and lighting conditions.

```
WITH accidents_by_factors AS (
 SELECT
        Severity,
        WeatherConditions ,
        RoadConditions,
        LightConditions,
  COUNT (*) AS accident_count
  FROM
        acc
  WHERE WeatherConditions IS NOT NULL
  GROUP BY
            Severity,
```

```
        WeatherConditions ,
        RoadConditions ,
        LightConditions
)
SELECT
    Severity,
    WeatherConditions,
    RoadConditions,
    LightConditions,
    accident_count
FROM
    accidents_by_factors
ORDER BY
        accident_count DESC;
```

	severity character varying (255)	weatherconditions character varying (255)	roadconditions character varying (255)	lightconditions character varying (255)	accident_count bigint
1	Slight	Fine no high winds	Dry	Daylight	39589
2	Slight	Fine no high winds	Dry	Darkness	10347
3	Serious	Fine no high winds	Dry	Daylight	5736
4	Slight	Raining no high winds	Wet or damp	Daylight	4478
5	Slight	Fine no high winds	Wet or damp	Daylight	4027
6	Slight	Raining no high winds	Wet or damp	Darkness	2911
7	Slight	Fine no high winds	Wet or damp	Darkness	2728
8	Serious	Fine no high winds	Dry	Darkness	1693
9	Slight	Unknown	Dry	Daylight	651
10	Serious	Fine no high winds	Wet or damp	Daylight	635
11	Serious	Fine no high winds	Wet or damp	Darkness	568
12	Serious	Raining no high winds	Wet or damp	Daylight	562
13	Slight	Raining + high winds	Wet or damp	Darkness	534
14	Serious	Raining no high winds	Wet or damp	Darkness	474
15	Slight	Raining + high winds	Wet or damp	Daylight	445
16	Slight	Fine + high winds	Dry	Daylight	356
17	Fatal	Fine no high winds	Dry	Daylight	347
18	Slight	Other	Wet or damp	Daylight	290
19	Slight	Unknown	Dry	Darkness	286
20	Slight	Other	Wet or damp	Darkness	248

- The table shows that the number of accidents was highest when the severity was slight, the weather conditions were fine with no high winds, the road conditions were dry, and the lighting conditions were daylight."

10 "Which area has the highest frequency of accidents for all vehicle types where the number of accidents has reached 1000?

```
SELECT
    a.area,
    v.VehicleType,
 COUNT (v.AccidentIndex ) AS "Accident Frequency"
FROM
     acc a
JOIN
    vehicle v ON a.AccidentIndex = v.AccidentIndex
GROUP BY
     a.area,
     v.VehicleType
HAVING
COUNT(v.AccidentIndex) >= 1000
ORDER BY
      "Accident Frequency" DESC;
```

	area character varying (255)	vehicletype character varying (255)	Accident Frequency bigint
1	Rural	Car	222328
2	Urban	Car	143580
3	Urban	Pedal cycle	19474
4	Rural	Pedal cycle	19406
5	Rural	Van / Goods 3.5 tonnes mgw or under	17280
6	Urban	Motorcycle 125cc and under	10762
7	Urban	Van / Goods 3.5 tonnes mgw or under	10472
8	Rural	Motorcycle over 500cc	9100
9	Rural	Motorcycle 125cc and under	7706
10	Rural	Goods 7.5 tonnes mgw and over	7462
11	Urban	Taxi/Private hire car	7122
12	Urban	Bus or coach (17 or more pass seats)	6492
13	Urban	Motorcycle over 500cc	5008
14	Rural	Bus or coach (17 or more pass seats)	4270
15	Rural	Taxi/Private hire car	3718
16	Rural	Motorcycle over 125cc and up to 500cc	2424
17	Rural	Motorcycle 50cc and under	2292
18	Rural	Goods over 3.5t. and under 7.5t	2228
19	Urban	Motorcycle 50cc and under	2182
20	Urban	Goods 7.5 tonnes mgw and over	2062
21	Urban	Motorcycle over 125cc and up to 500cc	1950

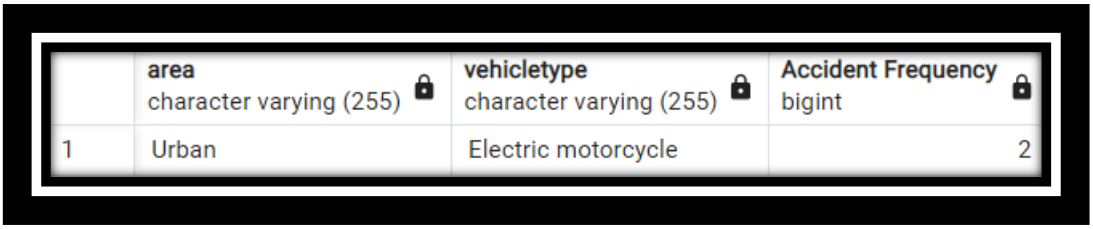
* The table indicates that when considering the vehicle type involved in accidents, cars are more frequently involved in rural areas compared to urban areas.

11. Which area has the Lowest frequency of accidents for a specific vehicle type?

```
WITH AccidentFrequencyCTE AS (
  SELECT
    a. area,
    v.VehicleType,
    COUNT (v. AccidentIndex) AS "Accident Frequency"
  FROM
```

```
    acc a
  JOIN
    vehicle v ON a. AccidentIndex = v. AccidentIndex
  GROUP BY
            a. area,
            v.VehicleType
)

SELECT
        area,
        VehicleType,
       "Accident Frequency"
FROM
       AccidentFrequencyCTE
WHERE
       "Accident Frequency" = (
        SELECT MIN ("Accident Frequency") FROM AccidentFrequencyCTE
  );
```



	area character varying (255)	vehicletype character varying (255)	Accident Frequency bigint
1	Urban	Electric motorcycle	2

- The table above displays that electric motorcycles have the lowest frequency of accidents, with only 2 accidents occurring in urban areas.