The vehicle and accident tables connect via the primary key of Accident\_Index. The Weather table connects to the accident table via year and month. This can be seen in the schema diagram below:

Graphical user interface, text, application

Description automatically generated

In each category, the result types are as follows:

Vehicle Table

|  |  |
| --- | --- |
| Category | Result type |
| Age\_Band\_Of\_Driver | 0-5  16-20  21-25  26-35  36-45  46-55  56-65  66-75  66-75  Over 75 |
| Age\_of\_Vehicle | Between 1 and 95 |
| Hit\_Object\_in\_Carriageway |  |
| Hit\_Object\_off\_Carriageway |  |
| Make |  |
| Model |  |
| Sex\_of\_Driver |  |
| Skidding\_and\_Overturning |  |
| Towing\_and\_Articulation |  |
| Vehicle\_Manoeuvre |  |
| Vehicle\_Type |  |
| Was\_Vehicle\_Left\_Hand\_Drive |  |
| Year |  |
| Year |  |

Accident Table

|  |  |
| --- | --- |
| Category | Result type |
| Accident\_Index |  |
| Date |  |
| Day\_of\_Week |  |
| Light\_Conditions |  |
| Local\_Authority\_(District) |  |
| Number\_of\_Casualties |  |
| Number\_of\_Vehicles |  |
| Pedestrian\_Crossing-Human\_Control |  |
| Pedestrian\_Crossing-Physical\_Facilities |  |
| Road\_Surface\_Conditions |  |
| Road\_Type |  |
| Special\_Conditions\_at\_Site |  |
| Time |  |
| Year |  |
| Month |  |

Weather Table

|  |  |
| --- | --- |
|  | Result type |
| Year |  |
| Month |  |
| Tmax |  |
| Tmin |  |
| Af |  |
| Rain |  |
| Sun |  |
| Station |  |
| Year |  |
| Month |  |

From this combined database, using the SQL query function, many different categories can be compared to investigate trends. Please see below for examples of different queries that can be produced.

**Top 5 Car makes involved in the highest number of accidents from 2005 to 2017**

*SQL query:*

select v.make,count(0) from accident a inner join

vehicles v on (a."Accident\_Index" = v."Accident\_Index")

group by v.make order by 2 desc limit(5);

*Result:*

Table

Description automatically generated

**Top 5 car makes involved in the least number of accidents from 2005 - 2017**

*SQL query:*

select v.make,count(0) num\_of\_accidents from accident a inner join

vehicles v on (a."Accident\_Index" = v."Accident\_Index")

group by v.make order by 2 limit(5);

*Result*

Table

Description automatically generated

**Summary of total number of accidents for each month (2005 to 2017) with associated average temperature ranges and total rainfall**

*SQL query*

select a."Year", a."month", count(0) num\_of\_accidents, w.tmax, w.tmin,w.rain from accident a

inner join weather w on (a."Year" = w."Year" and a."month" = w."month")

group by a."Year", a."month", w.tmax, w.tmin,w.rain order by 1,2;

*Results (first 10 results displayed only)*

Table

Description automatically generated

**Summary of total number of accidents for each year (2005 to 2107) with average temperatures and total rainfall**

*SQL Query*

select a."Year", count(0) num\_of\_accidents, avg(w.tmax) ave\_max\_temp, avg(w.tmin) avg\_min\_tmp,

sum(w.rain) total\_rain from accident a

inner join weather w on (a."Year" = w."Year" and a."month" = w."month")

group by a."Year" order by 1;

*Results*

Graphical user interface, text, application, table

Description automatically generated

-- All accident tally with weather info group by month from 2005 to 2017

select a."month", count(0) num\_of\_accidents, avg(w.tmax) ave\_max\_temp, avg(w.tmin) avg\_min\_tmp,

avg(w.rain) avg\_rain\_fall, sum(w.rain) total\_rain from accident a

inner join weather w on (a."Year" = w."Year" and a."month" = w."month")

group by a."month" order by 1;

Graphical user interface, text, application

Description automatically generated

-- Top 5 most accidents year month

select a."Year", a."month", count(0), w.tmax, w.tmin,w.rain from accident a

inner join weather w on (a."Year" = w."Year" and a."month" = w."month")

group by a."Year", a."month", w.tmax, w.tmin,w.rain order by 3 desc limit(5);

Table

Description automatically generated

-- Top 5 least accidents year month

select a."Year", a."month", count(0), w.tmax, w.tmin,w.rain from accident a

inner join weather w on (a."Year" = w."Year" and a."month" = w."month")

group by a."Year", a."month", w.tmax, w.tmin,w.rain order by 3 limit(5);

Table

Description automatically generated

-- Month and Year with the greatest rain fall

with greatest\_rainfall\_month\_year as

(select w.\* from weather w where rain in

(select max(w.rain)

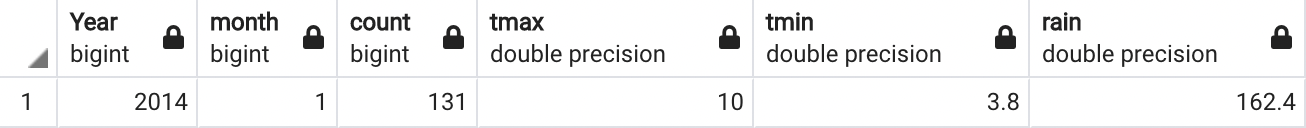
from weather w inner join accident a

on (a."Year" = w."Year" and a."month" = w."month")))

select a."Year", a."month", count(0), w.tmax, w.tmin,w.rain from accident a

inner join greatest\_rainfall\_month\_year w on (a."Year" = w."Year" and a."month" = w."month")

group by a."Year", a."month", w.tmax, w.tmin,w.rain;



-- Month and Year with the lowest temperature

with minimum\_temp\_month\_year as

(select w.\* from weather w where w.tmin in

(select min(w.tmin)

from weather w inner join accident a

on (a."Year" = w."Year" and a."month" = w."month")))

select a."Year", a."month", count(0), w.tmax, w.tmin,w.rain from accident a

inner join minimum\_temp\_month\_year w on (a."Year" = w."Year" and a."month" = w."month")

group by a."Year", a."month", w.tmax, w.tmin,w.rain;



-- Month and Year with the least rainfall

with least\_rainfall\_month\_year as

(select w.\* from weather w where rain in

(select min(w.rain)

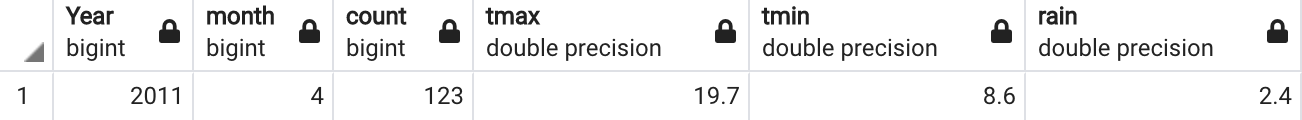
from weather w inner join accident a

on (a."Year" = w."Year" and a."month" = w."month")))

select a."Year", a."month", count(0), w.tmax, w.tmin,w.rain from accident a

inner join least\_rainfall\_month\_year w on (a."Year" = w."Year" and a."month" = w."month")

group by a."Year", a."month", w.tmax, w.tmin,w.rain;



-- Month and Year with the maximum temperature

with maximum\_temp\_month\_year as

(select w.\* from weather w where w.tmax in

(select max(w.tmax)

from weather w inner join accident a

on (a."Year" = w."Year" and a."month" = w."month")))

select a."Year", a."month", count(0), w.tmax, w.tmin,w.rain from accident a

inner join maximum\_temp\_month\_year w on (a."Year" = w."Year" and a."month" = w."month")

group by a."Year", a."month", w.tmax, w.tmin,w.rain;

