



Project : Traffic Accidents

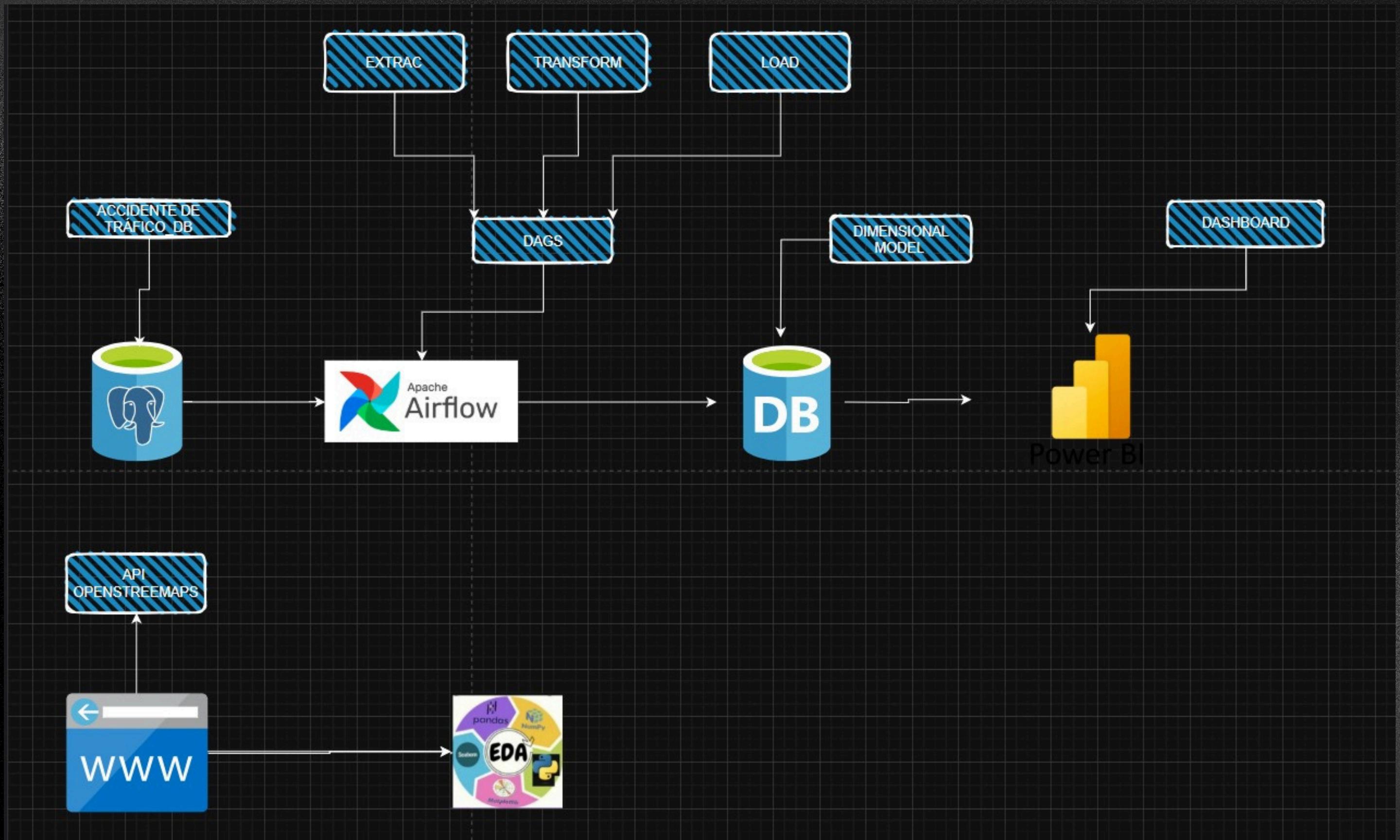
ETL



Este proyecto tiene como objetivo desarrollar un pipeline ETL automatizado para analizar datos de accidentes de tránsito.

El flujo de datos está orquestado con Apache Airflow y permite la limpieza automatizada, transformación y carga de los datos en un modelo dimensional para su posterior visualización en un dashboards interactivo

PIPLINE



BASE DE DATOS

CrashTraffic/postgres@ETL

No limit

Data Output Messages Notifications

Showing rows: 1 to 20 | Page No: 1 of 1 | ▶◀◀▶▶

	id [PK] integer	crash_date timestamp without time zone	traffic_control_device text	weather_condition text	lighting_condition text	first_crash_type text	trafficway_type text	alignment text	roadway_surface_cond text
1	1	2023-07-29 13:00:00	TRAFFIC SIGNAL	CLEAR	DAYLIGHT	TURNING	NOT DIVIDED	STRAIGHT AND LEVEL	UNKNOWN
2	2	2023-08-13 00:11:00	TRAFFIC SIGNAL	CLEAR	DARKNESS, LIGHTED ROAD	TURNING	FOUR WAY	STRAIGHT AND LEVEL	DRY
3	3	2021-12-09 10:30:00	TRAFFIC SIGNAL	CLEAR	DAYLIGHT	REAR END	T-INTERSECTION	STRAIGHT AND LEVEL	DRY
4	4	2023-08-09 19:55:00	TRAFFIC SIGNAL	CLEAR	DAYLIGHT	ANGLE	FOUR WAY	STRAIGHT AND LEVEL	DRY
5	5	2023-08-19 14:55:00	TRAFFIC SIGNAL	CLEAR	DAYLIGHT	REAR END	T-INTERSECTION	STRAIGHT AND LEVEL	UNKNOWN
6	6	2023-09-06 00:59:00	NO CONTROLS	RAIN	DARKNESS, LIGHTED ROAD	FIXED OBJECT	NOT DIVIDED	STRAIGHT AND LEVEL	WET
7	7	2022-12-20 11:45:00	TRAFFIC SIGNAL	CLEAR	DAYLIGHT	REAR TO FRONT	FOUR WAY	STRAIGHT AND LEVEL	DRY
8	8	2023-09-20 14:38:00	NO CONTROLS	CLEAR	DAYLIGHT	ANGLE	DIVIDED - W/MEDIAN (NOT RAISED)	CURVE, LEVEL	DRY
9	9	2018-06-04 18:42:00	TRAFFIC SIGNAL	CLEAR	DAYLIGHT	REAR END	NOT DIVIDED	STRAIGHT AND LEVEL	DRY
10	10	2023-09-07 17:30:00	STOP SIGN/FLASHER	CLEAR	DAYLIGHT	ANGLE	FOUR WAY	STRAIGHT AND LEVEL	DRY
11	11	2023-09-07 20:32:00	TRAFFIC SIGNAL	CLEAR	DARKNESS, LIGHTED ROAD	FIXED OBJECT	NOT DIVIDED	STRAIGHT AND LEVEL	DRY
12	12	2016-11-02 16:49:00	TRAFFIC SIGNAL	RAIN	DUSK	ANGLE	OTHER	STRAIGHT AND LEVEL	WET
13	13	2020-07-02 17:45:00	UNKNOWN	CLEAR	DAYLIGHT	TURNING	UNKNOWN INTERSECTION TYPE	STRAIGHT AND LEVEL	DRY
14	14	2023-08-09 07:00:00	NO CONTROLS	CLEAR	DAYLIGHT	SIDESWIPE SAME DIRECTION	ONE-WAY	STRAIGHT AND LEVEL	DRY
15	15	2020-02-09 14:00:00	TRAFFIC SIGNAL	SNOW	DAYLIGHT	REAR END	RAMP	STRAIGHT AND LEVEL	SNOW OR SLUSH
16	16	2023-08-01 23:45:00	NO CONTROLS	CLEAR	DARKNESS, LIGHTED ROAD	SIDESWIPE OPPOSITE DIRECTION	NOT DIVIDED	STRAIGHT AND LEVEL	DRY
17	17	2023-08-01 15:29:00	TRAFFIC SIGNAL	CLEAR	DAYLIGHT	PEDALCYCLIST	TRAFFIC ROUTE	STRAIGHT AND LEVEL	DRY
18	18	2023-09-05 19:05:00	TRAFFIC SIGNAL	CLEAR	DUSK	ANGLE	FIVE POINT, OR MORE	STRAIGHT AND LEVEL	DRY
19	19	2022-09-09 16:53:00	TRAFFIC SIGNAL	CLEAR	DAYLIGHT	SIDESWIPE SAME DIRECTION	FOUR WAY	STRAIGHT AND LEVEL	DRY
20	20	2022-09-15 10:50:00	STOP SIGN/FLASHER	CLEAR	DAYLIGHT	TURNING	ONE WAY	STRAIGHT AND LEVEL	UNKNOWN

AIRFLOW

Airflow DAGs Cluster Activity Datasets Security Browse Admin Docs 18:20 UTC AA

DAG: etl_crash_traffic_sqlalchemy

Schedule: @daily Next Run ID: 2025-04-09, 00:00:00 UTC ▶ ✖

09/04/2025 06:00:55 p. m. All Run Types All Run States Clear Filters Auto-refresh 25

Press `shift + /` for Shortcuts deferred failed queued removed restarting running scheduled shutdown skipped success up_for_reschedule up_for_retry upstream_failed no_status

Duration: 00:27:57 00:13:58 00:00:00

DAG: etl_crash_traffic_sqlalchemy / Run: 2025-04-09, 00:00:00 UTC Clear Mark state as...

Details Graph Gantt Code Audit Log

Layout: Left -> Right

setup_tables extract transform load

Graph View:

```
graph LR; setup_tables[setup_tables] --> extract[extract]; extract --> transform[transform]; transform --> load[load]
```

Task Details:

- setup_tables (PythonOperator): success
- extract (PythonOperator): success
- transform (PythonOperator): success
- load (PythonOperator): success

Modelo Dimensional

CrashTraffic_Dimensional/postgres@ETL

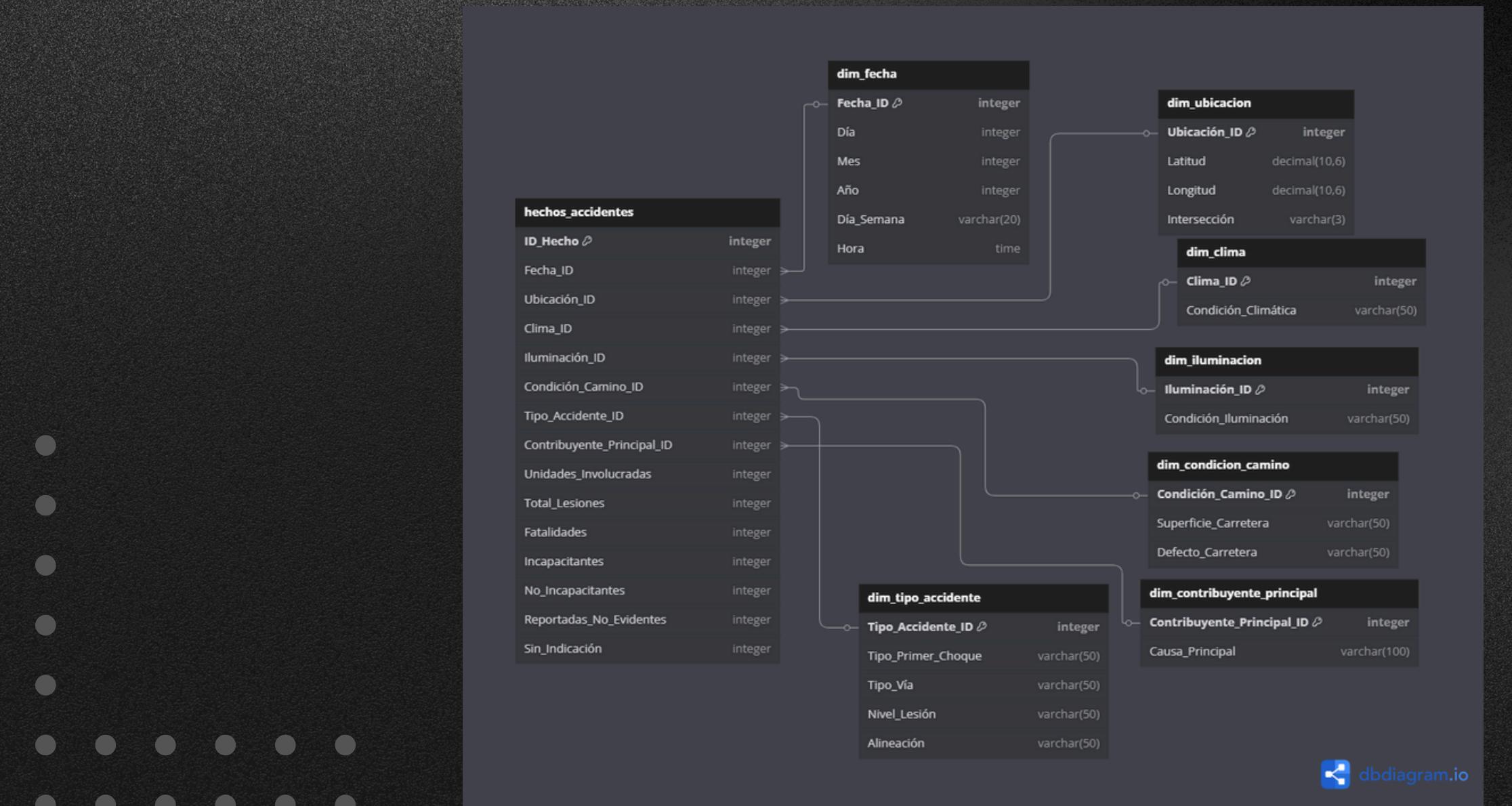
Query History

```
1 SELECT * FROM hechos_accidentes LIMIT 5;
```

Data Output Messages Notifications

Showing rows: 1 to 5 Page No: 1 of 1

	id_hecho [PK] integer	fecha_id integer	ubicación_id integer	clima_id integer	iluminación_id integer	condición_camino_id integer	tipo_accidente_id integer	contribuyente_principal_id integer	unidades_involucradas integer	total_lesiones integer	fatalidades integer	incapacitantes integer	no_incapacitantes integer
1	1	8917890	186968	15	10	86	1977	77	2	0	0	0	0
2	2	8819683	221501	15	8	49	1827	65	2	0	0	0	0
3	3	8796461	211237	15	10	49	3294	60	3	0	0	0	0
4	4	8794393	208937	15	10	49	3368	77	2	5	0	0	0
5	5	8857714	143048	15	10	86	3294	53	2	0	0	0	0



gAdmin 4

Object Tools Edit View Window Help

Welcome CrashTraffic_Dimensional/postgres@ETL*

Query History

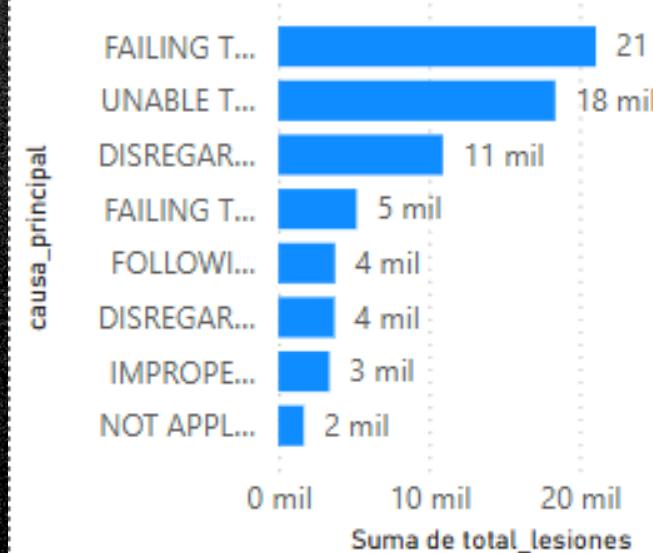
```
1 SELECT table_name
2 FROM information_schema.tables
3 WHERE table_schema = 'public';
4
```

Data Output Messages Notifications

table_name	name
1	dim_fecha
2	hechos_accidentes
3	dim_ubicacion
4	dim_clima
5	dim_iluminacion
6	dim_condicion_camino
7	dim_tipo_accidente
8	dim_contribuyente_principal

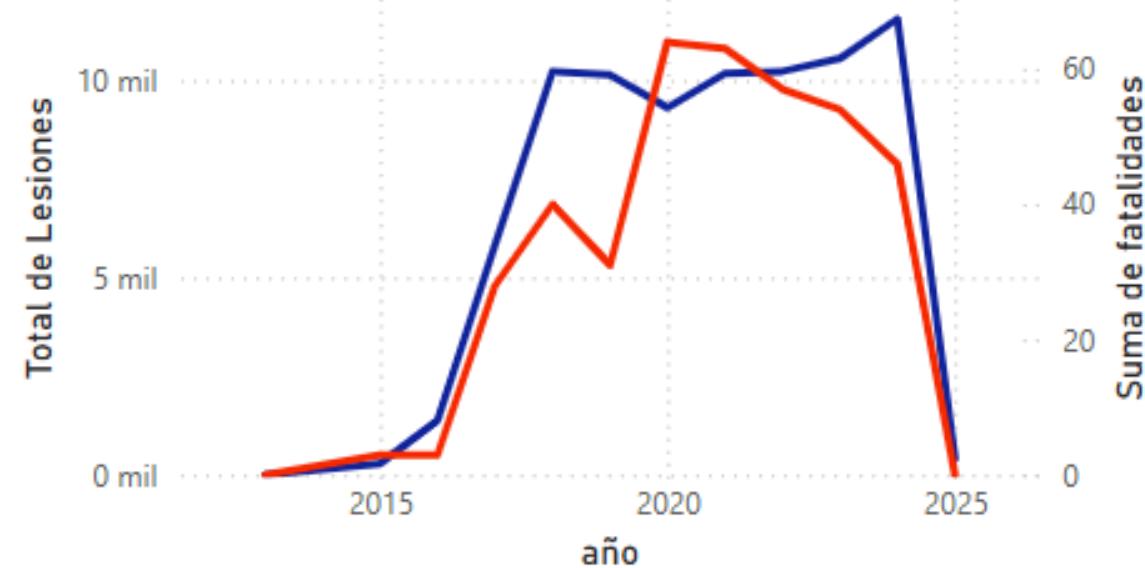
DASHBOARD

Distribución de Lesiones por Causa Principal



Tendencias de Lesiones y Fatalidades por Año

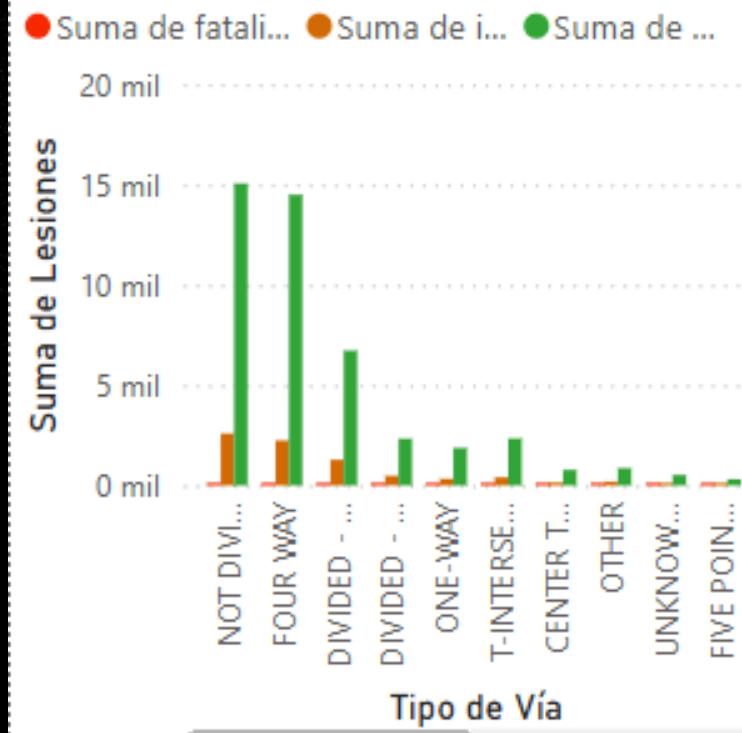
● Suma de total_lesiones ● Suma de fatalidades



Distribución Geográfica de Incidentes y Fatalidades

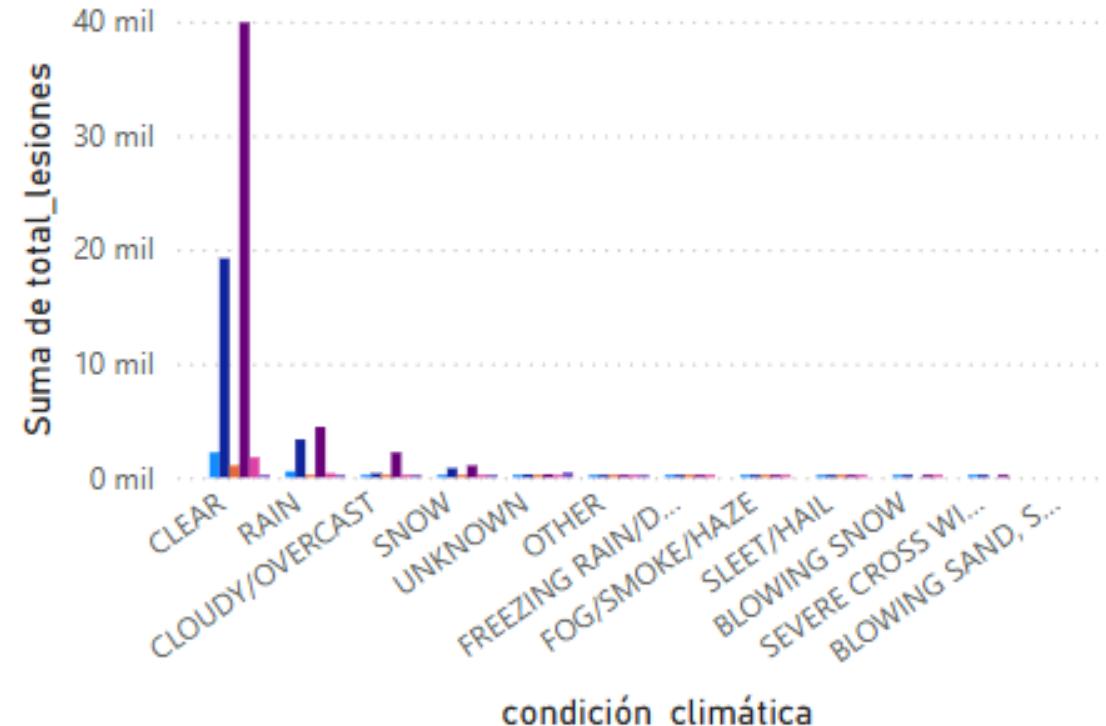


Severidad de Accidentes por Tipo de Vía

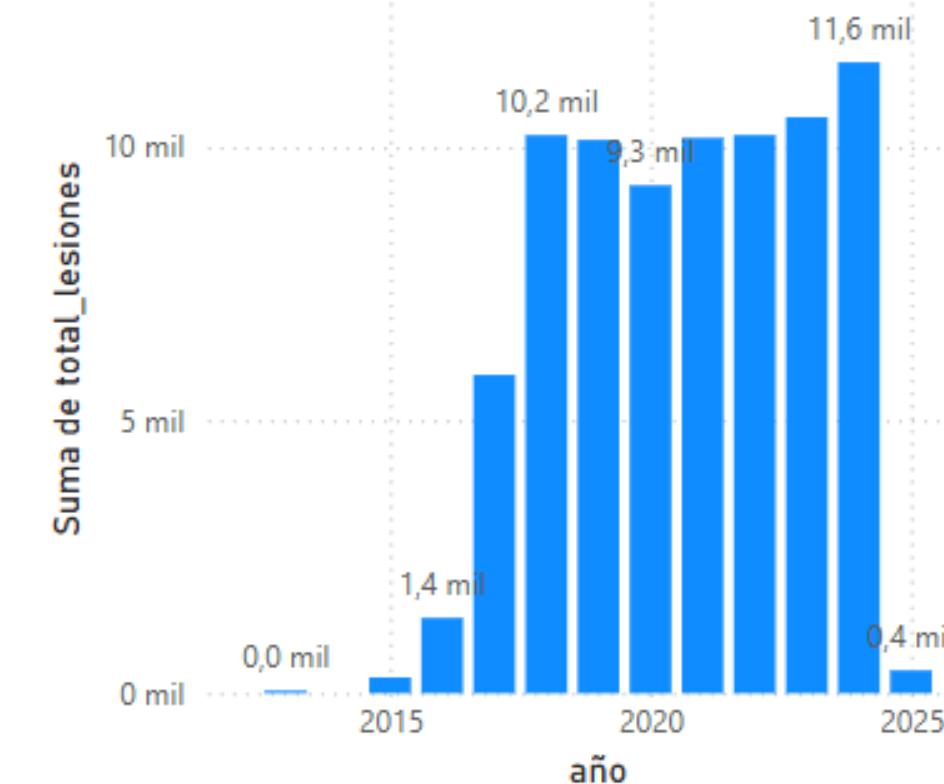


Lesiones por Condición Climática e Iluminación

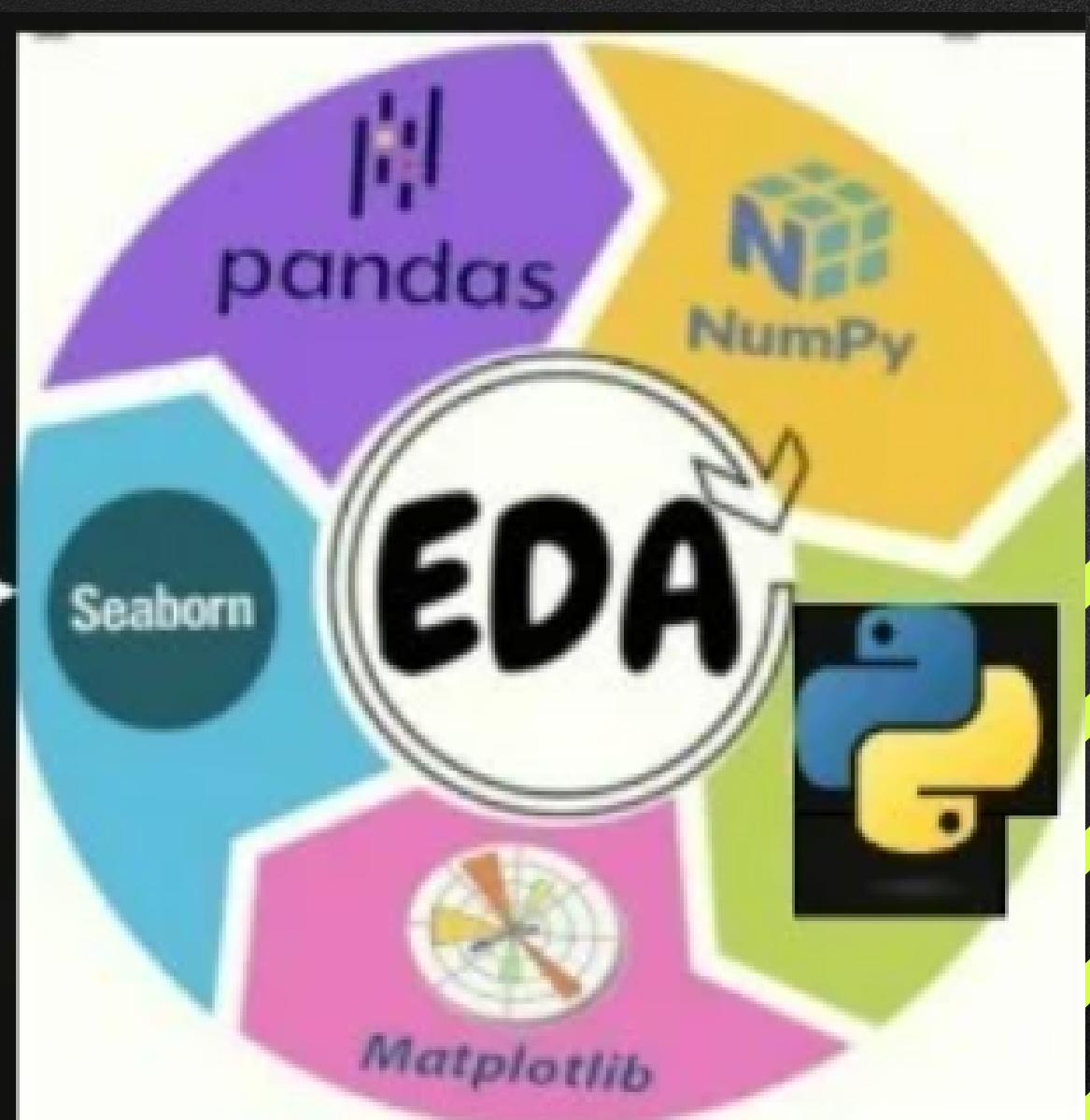
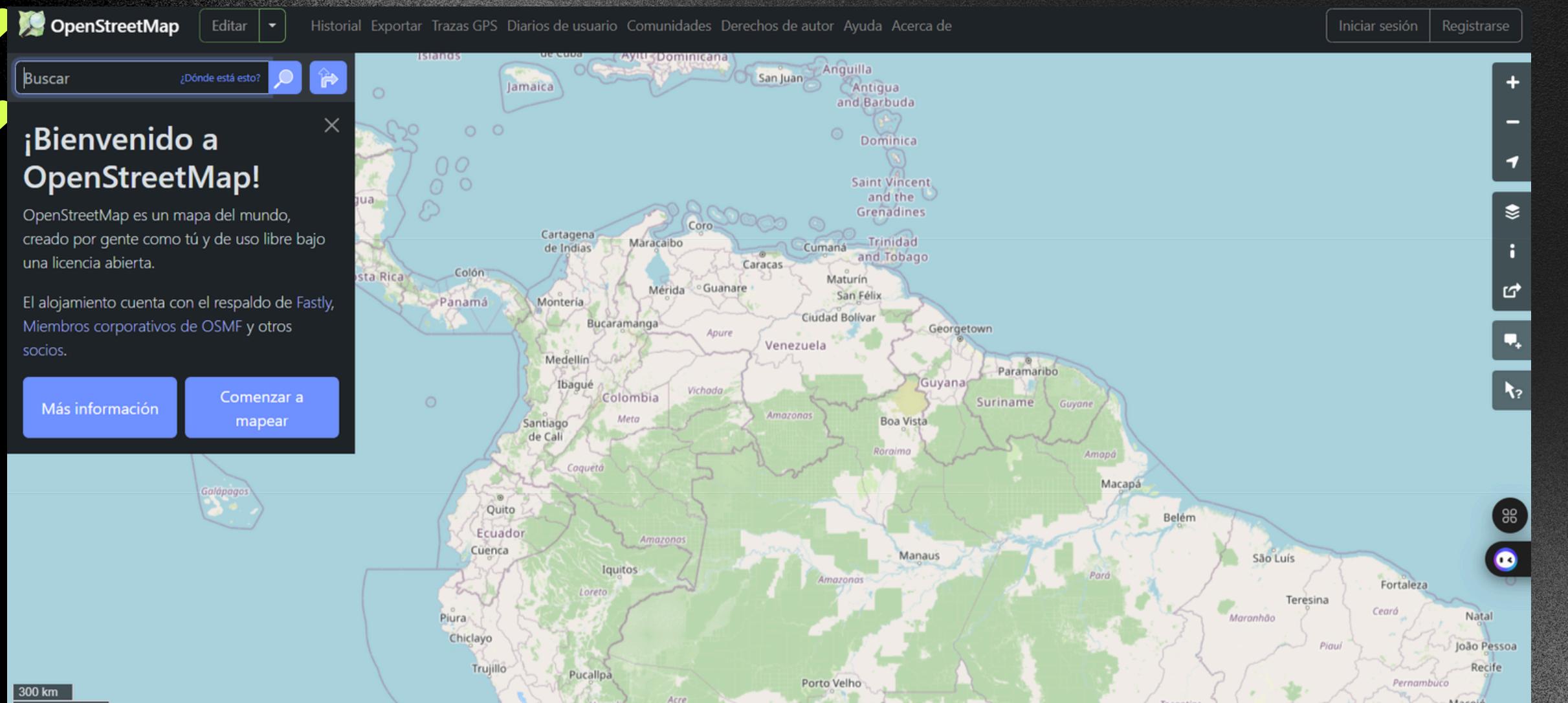
condición_ilumi... ● DARKNESS ● DARKNES... ● DAWN ● DAYLIGHT ▶



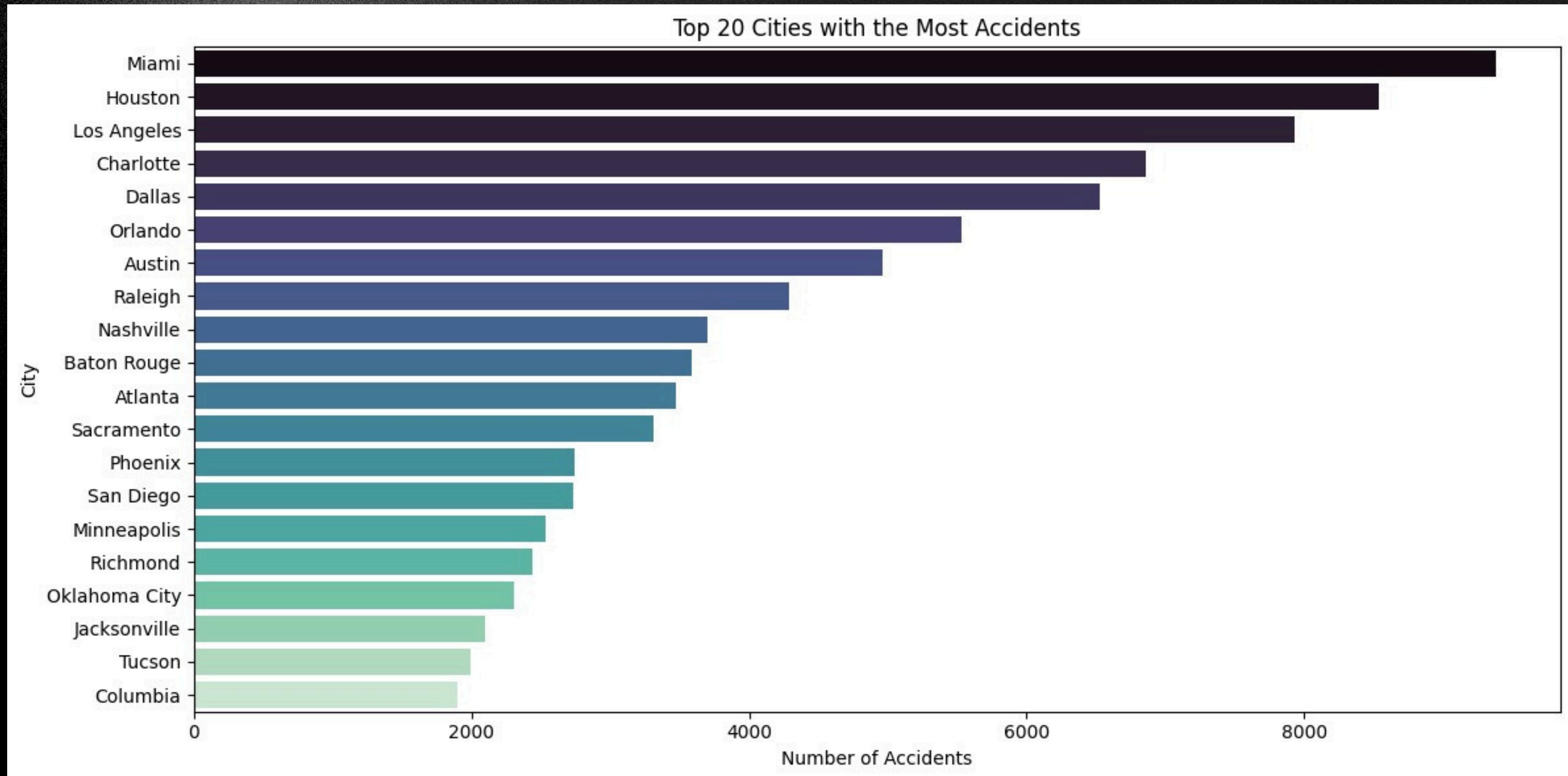
Evolución de Lesiones por Año



OpenStreetMap



OpenStreetMaps - EDA



El dataset permite por ciudad:

- Analizar correlaciones entre accidentes y la presencia de hospitales, escuelas o tipos de cruces.
 - Identificar zonas de riesgo: por ejemplo, áreas con muchos cruces sin control o sin semáforos.
 - Evaluar infraestructura vial: y su relación con la frecuencia o gravedad de accidentes.
 - Priorizar intervenciones urbanas y de seguridad vial según el entorno construido.

Our Team



Luz Angela Carabali M



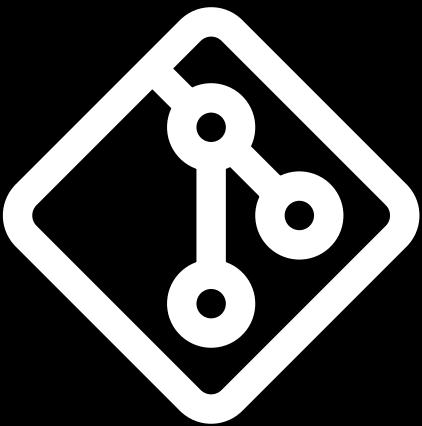
Isabella Perez Cav



Nicolas Peña I



SHOW MORE:



[HTTPS://GITHUB.COM/ISABELLAPEREZCAV/
TRAFFIC-ACCIDENTS-ETL](https://github.com/isabellaperezcav/traffic-accidents-ETL)

Thank You

