

TRAFFIC INCIDENTS IN MEXICO CITY (2021-2024)

Project Team:

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PROJECT OBJECTIVES

- Main Objective:
Create a web application to visualize traffic incident data to help users make informed decisions.

- Target Audience:
Families planning to move or visiting and even Government officials and planners.

- Expected Outcomes:
Enhanced traffic safety through informed planning, optimized resource allocation, improved public awareness of high-risk areas and times, and data-driven decision-making for local authorities



DATA SOURCE

- **Source:** Data obtained from the Secretaría de Seguridad Ciudadana (SSC) of Mexico City.
- **Date Range:** From January 1, 2021, to February 29, 2024
- **Key Metrics:** Type of incident, Delegation Neighborhood Date and time Geographic coordinates (latitude and longitude)



**SECRETARÍA
DE SEGURIDAD**

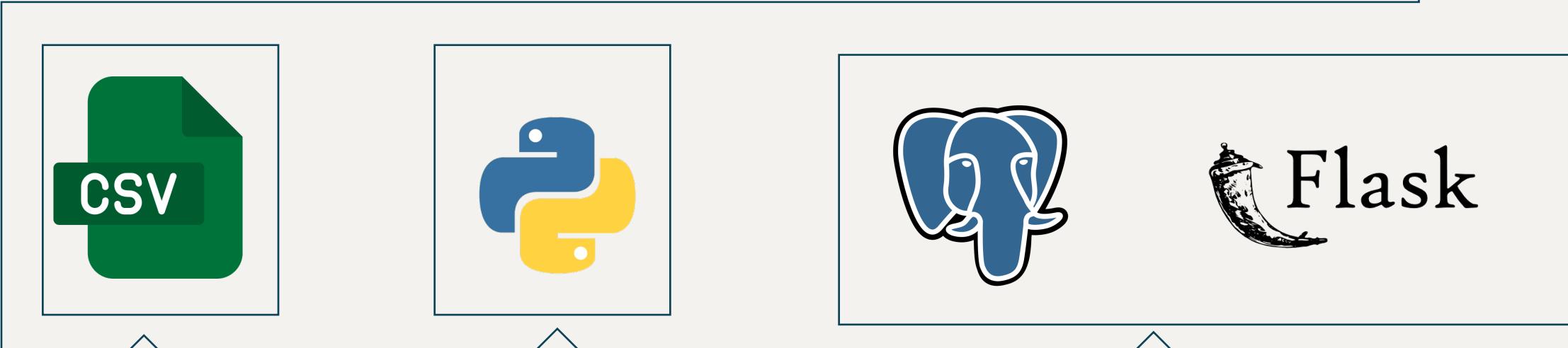


SSC

**SECRETARÍA
DE MOVILIDAD**



EXTRACT-TRANSFORM-LOAD PIPELINE



Extraction:
We downloaded
the main CSV
from "SSC"

Transformation:
Data cleaning and
transformation along with
exploratory analysis
performed in Python and
Pandas.

Cleaned and transformed
data loaded into a
PostgreSQL database and
available through an API
made with Flask.

HTML



WEB APPLICATION

For developing the web application, we made use of several tools, such as:

- JavaScript
- HTML
- CSS
- Bootstrap

Libraries:

- leaflet.js
- plotly.js,
- d3.js,
- datatable's.js



Geographical Concentration:

- Iztapalapa stands out as the area with the highest concentration of traffic incidents, making it a hotspot for road safety concerns.

alcaldia	accident_count	percentage_of_total
character varying (50)	bigint	numeric

1 Iztapalapa 81659 16.5617096534086184

- Similarly, Centro and Agrícola Oriental are specific neighborhoods with high incident rates, indicating that these areas also require targeted traffic safety measures.

colonia	accident_count
character varying (100)	bigint
1 Centro 7506	
2 Agricola Oriental 6356	

Weekly Patterns:

- Weekends (Saturday and Sunday) show a higher number of traffic incidents compared to weekdays. This trend might be due to increased recreational activities, higher alcohol consumption, and greater overall traffic volume during these days.

day_of_week	accident_count
text	bigint
1 Saturday 81370	
2 Friday 78876	
3 Sunday 69613	

Daily Timing:

- Evening hours (6 PM to 9 PM) are the most critical times for traffic incidents. This period corresponds to the time when people are returning home from work, leading to increased traffic congestion, reduced visibility, and possibly more aggressive driving behaviors.
- The peak at 7 PM suggests that this is a particularly dangerous time, possibly due to a combination of rush hour traffic and lower light conditions as it gets darker.

	hour numeric	accident_count bigint
1	19	33065
2	20	32690
3	18	32240

Type of Incidents:

- The predominance of **Non-injury collisions** indicates that most traffic incidents are minor. This suggests that while the frequency of accidents is high, the severity might often be low. This can influence policy decisions towards improving minor accident prevention strategies, such as better traffic flow management and minor road safety improvements.

	incident_type character varying (100)	accident_count bigint
1	Choque sin lesionados	227641

Monthly Variations:

- The early months of the year, specifically **February and January**, see the highest number of incidents. This could be related to factors such as weather conditions, post-holiday traffic increases, or other seasonal activities.
- A notable increase in October suggests a potential seasonal trend that might correlate with specific local events or changes in weather.

	month text	accident_count bigint
1	February	52055
2	January	47915
3	October	44410



TRENDS

LET'S LOOK AT THE WEBSITE

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