Car Insurance Claims

Numann Malik

Car Insurance Dataset

The dataset was sourced from the Kaggle – Car Insurance Dataset from the user 'Sagnik Roy'. This dataset utilizes 18 features for predicting auto insurance claims. The 'Outcome' target feature below indicates whether a customer filed a claim (1) or not (0).

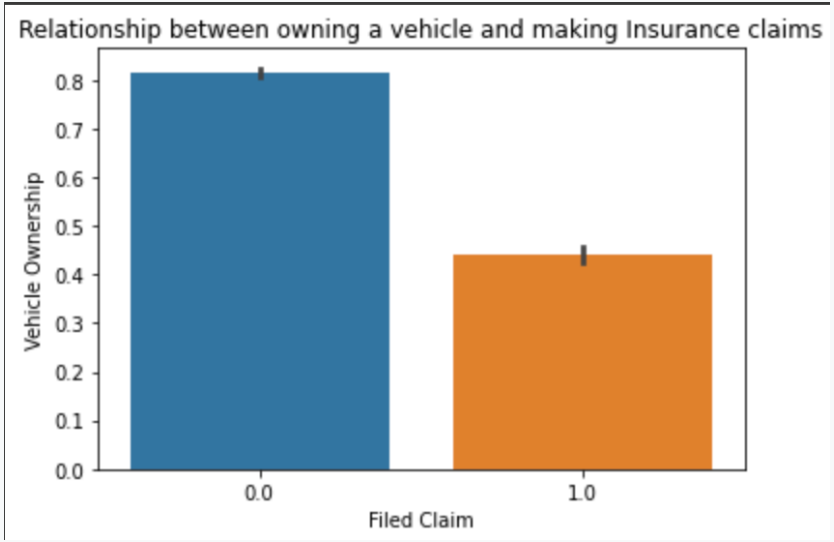
Feature Name	Description	Feature Name	Description	Feature Name	Description
Age	16-25, 26-39, 40-64, or 65+	Credit Score	Between 0 and 1 (scaled)	Annual Mileage	Rounded to nearest 1000 miles
Gender	Male or Female	Vehicle Ownership	0 (no) or 1 (yes)	Vehicle Type	Sedan or Sports Car
Race	Majority or Minority	Vehicle Year	Before 2015 or After 2015	Speeding Violations	Numerical Frequency
Driving Experience	0-9, 10-19, 20-29, or 30+ years	Married	0 (no) or 1 (yes)	DUIs	Numerical Frequency
Education	High School, University, or None	Children	0 (no) or 1 (yes)	Past Accidents	Numerical Frequency
Income	Poverty, Working Class, Middle Class, or Upper Class	Postal Code	10238, 21217, 32765, or 92101	Outcome	0 (no) or 1 (yes)

Project Description

- We analyzed behavioral data for the customers of a car insurance company (also stakeholder).
- The goal was to identify key factors that are more likely to lead a customer to filing an insurance claim (e.g. for an accident).

Based on our analysis our stakeholder will decide how to set customer premiums, or consider denying them coverage (so as to maximize their profits or minimize their losses).

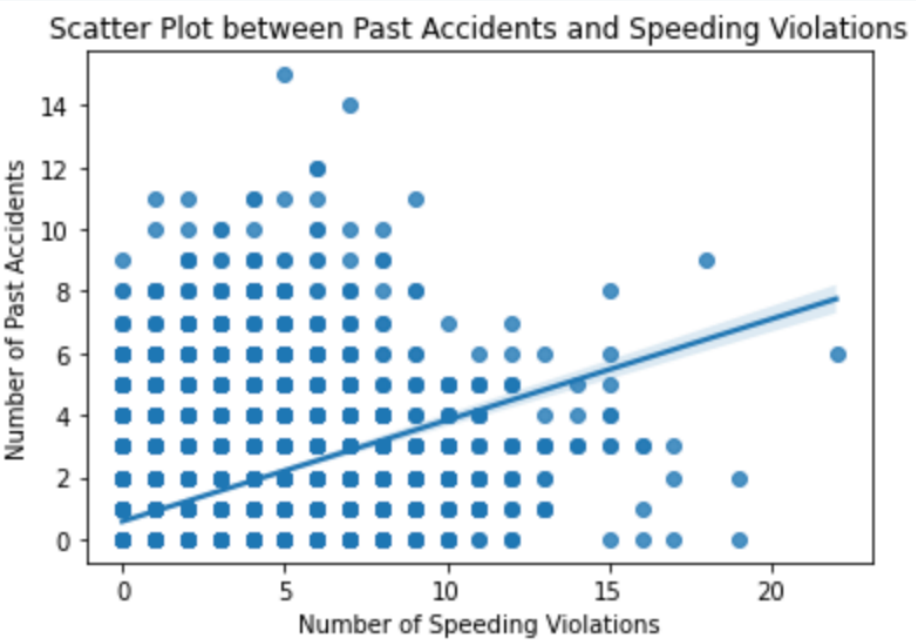
Relevant Observation



- Disparity within vehicle ownership.
- How many customers never made an insurance claim?
- How many customers who don’t own a vehicle made a claim?

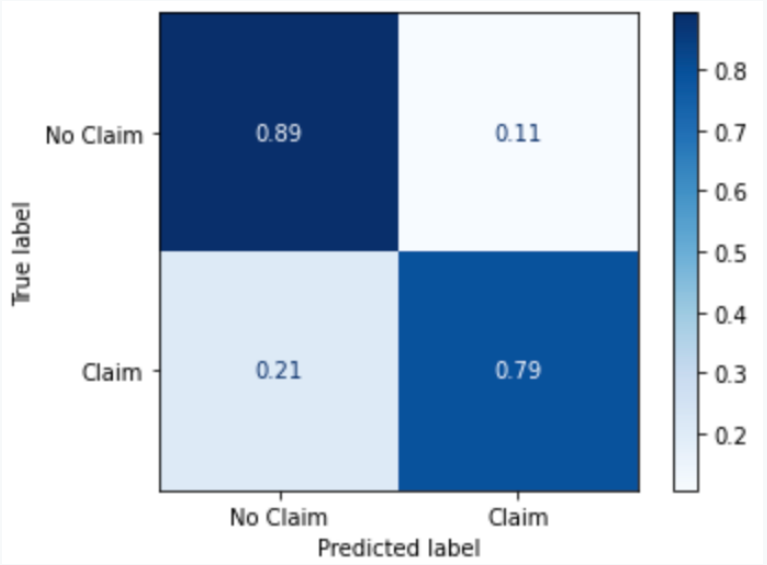
Another Relevant Observation

Two key features for our predictions



Best Model Evaluation and Recommendations

- We recommend our tuned **LightGBM** model since
  - It predicted **79%** of customers who **will file claims**, with **accuracy** of **86.2%.**
  - It predicted **89%** of **customers** who will **not file a claim**.
- We recommend more **scrutiny of potential customers** who
  - **lease (or who otherwise don't own)** their vehicles
  - have a **history of speeding violations and accidents**.



Thank You!

Any further questions?

Contact Info:
Email address
LinkedIn
Github