

# Vehicle Insurance Business Strategy

Created by The Insomniacs



# Introducing Our Team

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**The Insomniacs** serves as a **Business Development Analyst** to analyze and determine **potentials business unit** for the company.

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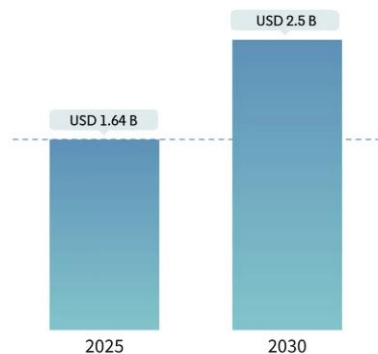
# 02 | Market Overview

## | Insurance Industry Update

### Indonesia Motor Insurance Market

Premium Value in USD Billion

CAGR 8.75%



Source : Mordor Intelligence

### Market Overview

|                           |                  |
|---------------------------|------------------|
| Study Period              | 2019 - 2030      |
| Base Year For Estimation  | 2024             |
| Forecast Data Period      | 2025 - 2030      |
| Market Size (2025)        | USD 1.64 Billion |
| Market Size (2030)        | USD 2.5 Billion  |
| Growth Rate (2025 - 2030) | 8.75% CAGR       |
| Market Concentration      | Medium           |

### Major Players



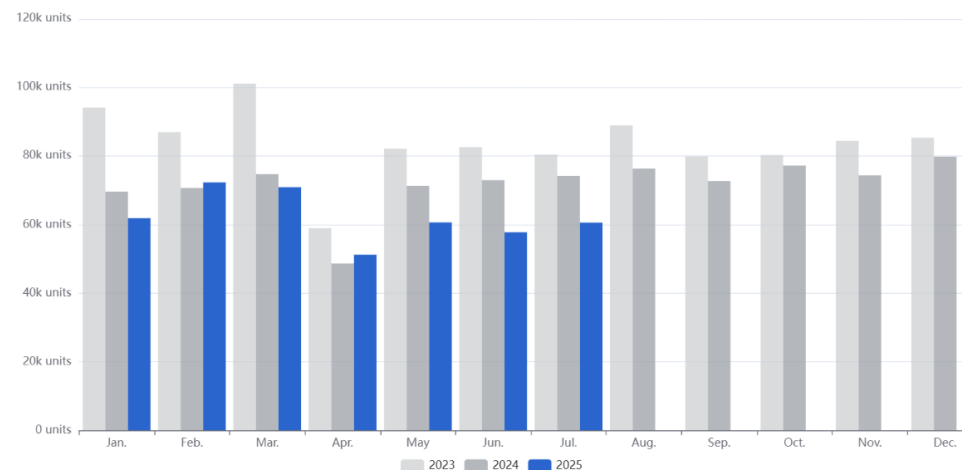
- Nilai pasar asuransi kendaraan di Indonesia diproyeksikan naik dari **USD 1,48 miliar (2025)** menjadi **USD 1,76 miliar (2030)**, tumbuh dengan **CAGR 3,71% (Mordor Intelligence)**.
- Pemulihan pasar terlihat konsisten pasca pandemi, didukung meningkatnya penjualan kendaraan dan penetrasi asuransi.
- Potensi kolaborasi tinggi dengan pelaku otomotif dan pembiayaan karena pasar masih tergolong **medium concentration**.

\*\*sumber:

<https://www.mordorintelligence.com/industry-reports/indonesia-motor-insurance-market>

## | Vehicle Sales & Ownership Trends

### Indonesia - Flash report, Automotive sales volume ranking, 2025 (By maker)



- Penjualan kendaraan tahun 2025 menunjukkan tren stabil dengan puncak penjualan di pertengahan tahun.
- Peningkatan kepemilikan kendaraan pribadi, terutama di **segmen SUV & EV**, menjadi pendorong utama permintaan asuransi.
- **Lebih dari 80% pembelian kendaraan melalui kredit**, mayoritas sudah terintegrasi dengan asuransi kendaraan—menciptakan peluang cross-selling.

\*\*sumber:

[https://www.marklines.com/en/statistics/flash\\_sales/automotive-sales-in-indonesia-by-month](https://www.marklines.com/en/statistics/flash_sales/automotive-sales-in-indonesia-by-month)

# 01 | Introduction & Business Context

TH | Trust  
Health

**TrustHealth** is one of the leading health insurance companies with more than 300.000 policyholders spread across Indonesia. **Our customers** include individual clients, corporate accounts, and government institutions, covering **nearly 100% of Indonesia's region**.

In recent years, the company aims to **increase cross-selling opportunities** by offering vehicle insurance to existing health insurance customers. However, identifying the right customers to target is challenging – offering to the wrong segment could result in low conversion rates and wasted marketing costs.

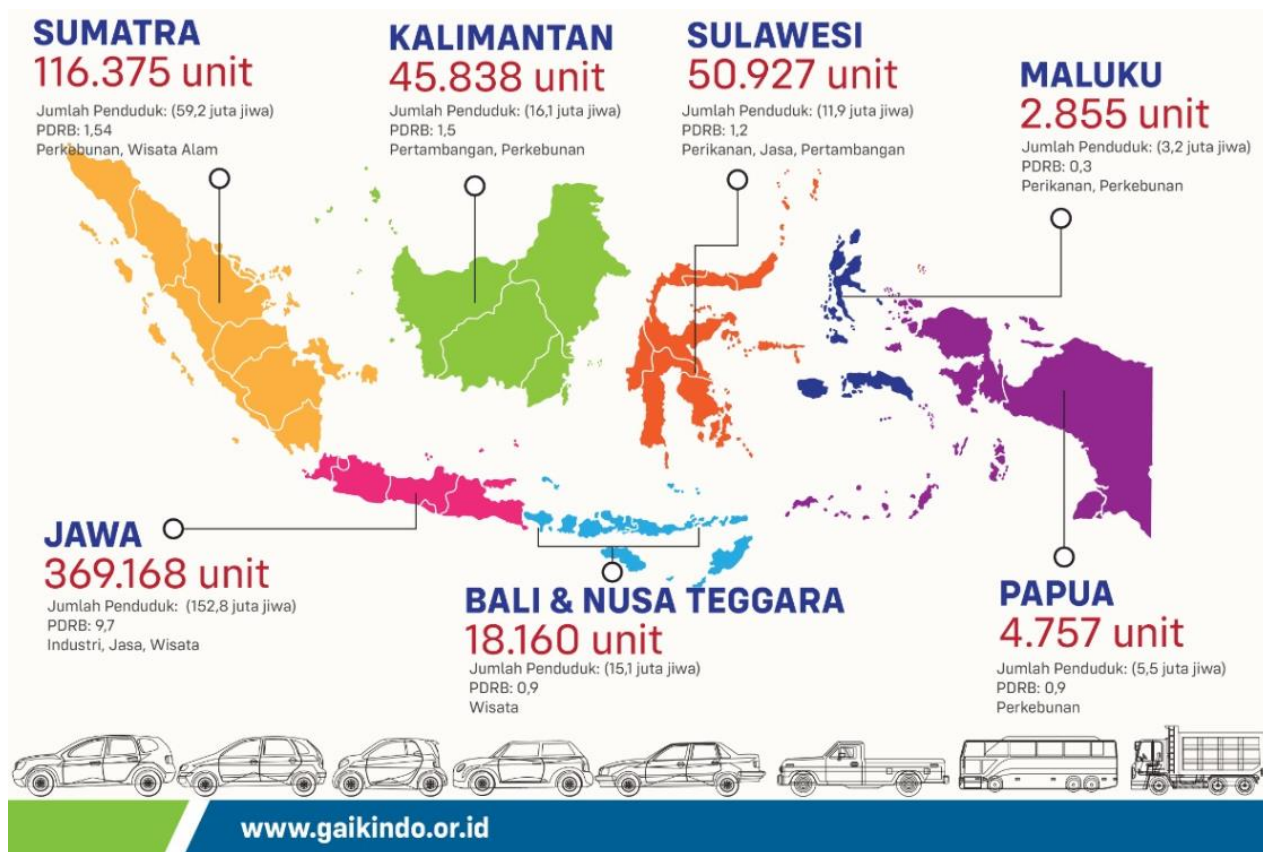


This project leverages customer data to **predict potential buyers** of vehicle insurance products, enabling more effective marketing strategies.



# 02 | Market Overview

## | Potential Market & Business Opportunity



- Peta penjualan kendaraan 2020 menunjukkan konsentrasi tertinggi di Jawa & Sumatra—wilayah strategis untuk cross-selling vehicle insurance.
- Tren geografis 2020 selaras dengan data 2025 : penjualan wholesales pada Juni 2025 mencapai 57.760 unit (-22,6% YoY).
- Integrasi produk asuransi dalam skema kredit kendaraan menciptakan kemitraan strategis dengan dealer, lembaga pembiayaan, dan perusahaan otomotif.

\*\*sumber:

<https://www.gaikindo.or.id/peta-distribusi-penjualan-mobil-di-beberapa-pulau-indonesia-pada-2020/>

# 03 | Data Understanding

## | Dataset Description & Dictionary

|                      |   |
|----------------------|---|
| id                   | Unique ID for the customer  |
| Gender               | Gender of the customer  |
| Age                  | Age of the customer   |
| Driving_License      | 0 : Customer does not have DL, 1 : Customer already has DL  |
| Region_Code          | Unique code for the region of the customer  |
| Previously_Insured   | 1 : Customer already has Vehicle Insurance, 0 : Customer doesn't have Vehicle Insurance                                     |
| Vehicle_Age          | Age of the Vehicle  |
| Vehicle_Damage       | 1 : Customer got his/her vehicle damaged in the past. 0 : Customer didn't get his/her vehicle damaged in the past.          |
| Annual_Premium       | The amount customer needs to pay as premium in the year   |
| Policy_Sales_Channel | Anonymized Code for the channel of outreaching to the customer ie. Different Agents, Over Mail, Over Phone, In Person, etc. |
| Vintage              | Number of Days, Customer has been associated with the company   |
| Response             | 1 : Customer is interested, 0 : Customer is not interested  |

### Details Data:

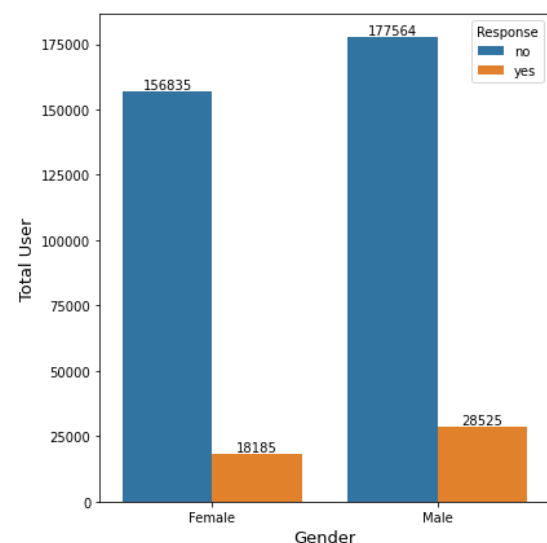
- Jumlah features dalam dataset ini adalah 12.
- Jumlah pelanggan dalam dataset adalah 381.109 pelanggan.
- Data numerical berjumlah 4 column.
- Data categorical berjumlah 8 column.
- Tidak ada *missing values* & *duplicates*.

Numericals = ['id', 'Age', 'Annual\_Premium', 'Vintage']

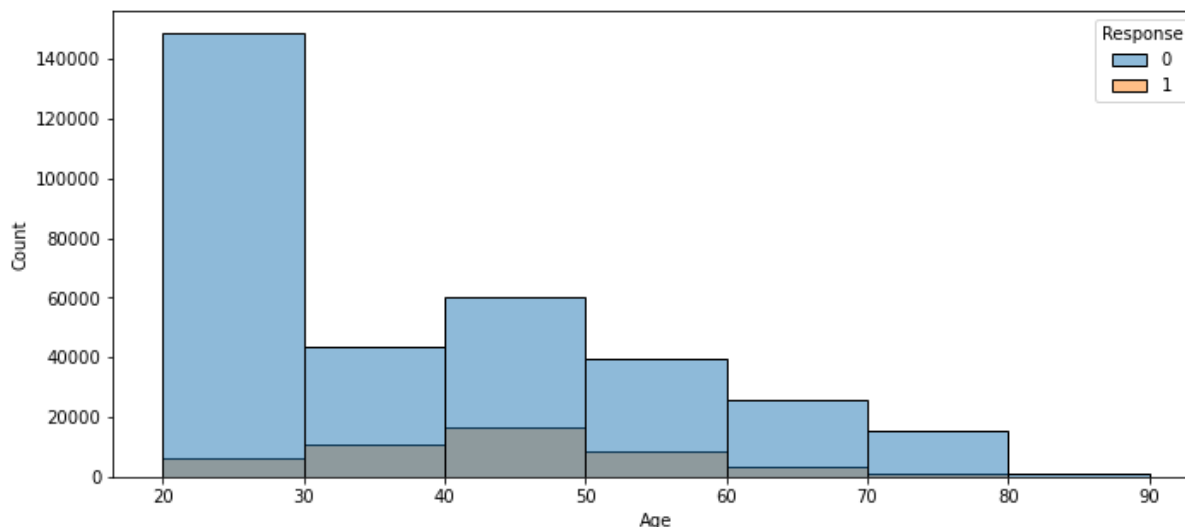
Categoricals = ['Gender', 'Vehicle\_Damage', 'Region\_Code', 'Policy\_Sales\_Channel', 'Vehicle\_Age', 'Driving\_License', 'Previously\_Insured', 'Response']

# 03 | Data Understanding

## | Exploratory Data Analysis



Mayoritas nasabah yang tertarik menggunakan layanan asuransi adalah pria

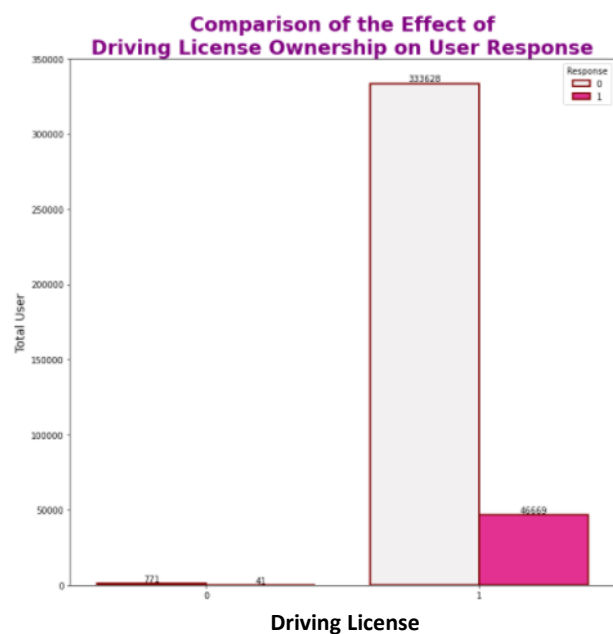


Respon tertarik terbanyak ada pada nasabah dengan kelompok usia 40 – 50 tahun, diikuti oleh nasabah dengan usia 30 – 40 tahun sedangkan nasabah dengan usia 20 – 30 tahun cenderung tidak tertarik untuk menggunakan layanan *vehicle insurance*

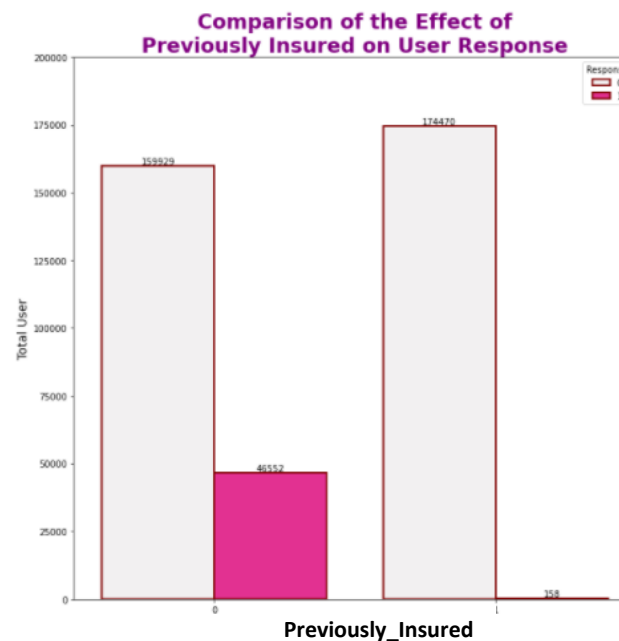


# 03 | Data Understanding

## | Exploratory Data Analysis



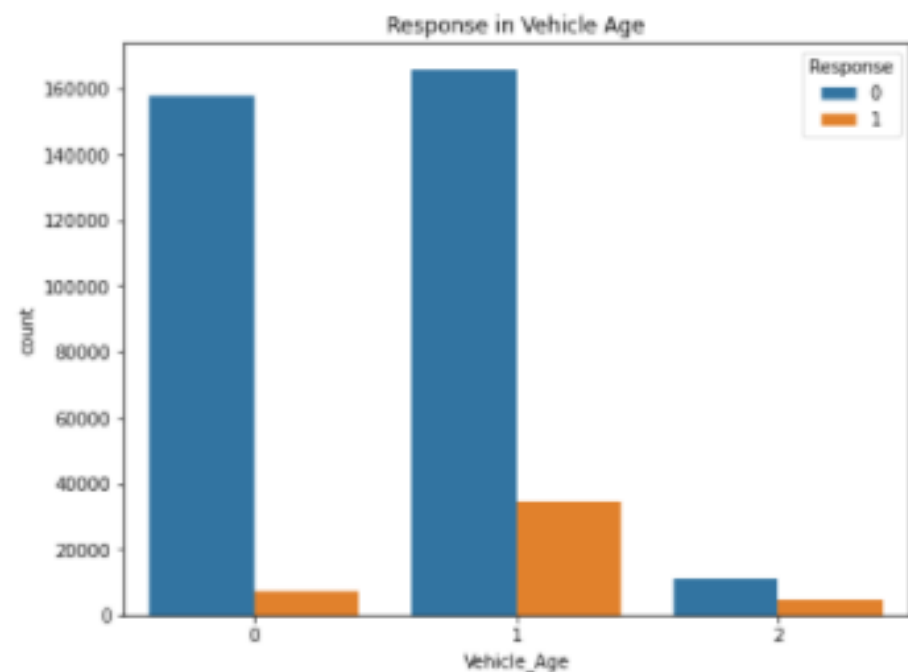
Nasabah dengan *driving license* cenderung **tertarik**, namun **jumlah nya jauh lebih rendah** dibanding nasabah yang tidak tertarik



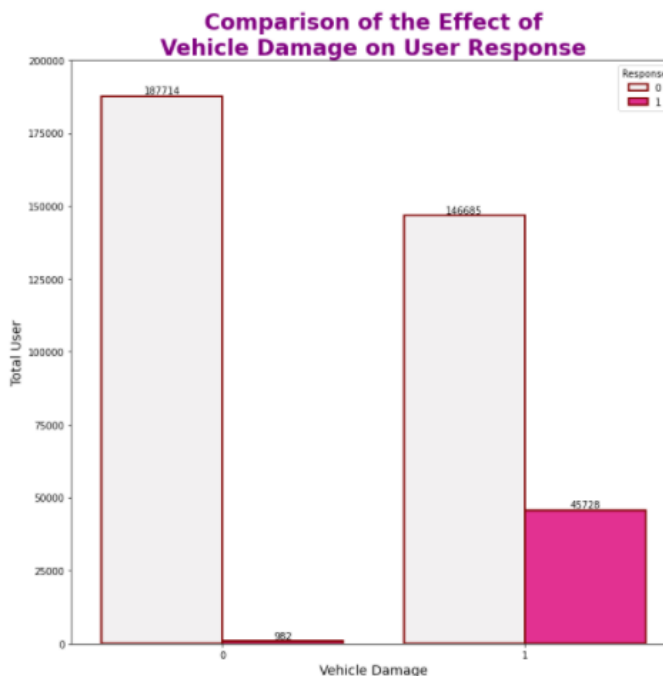
Sebanyak **22% nasabah** yang sebelumnya pernah mengasuransikan kendaraan nya merespon **tertarik**

# 03 | Data Understanding

## | Exploratory Data Analysis



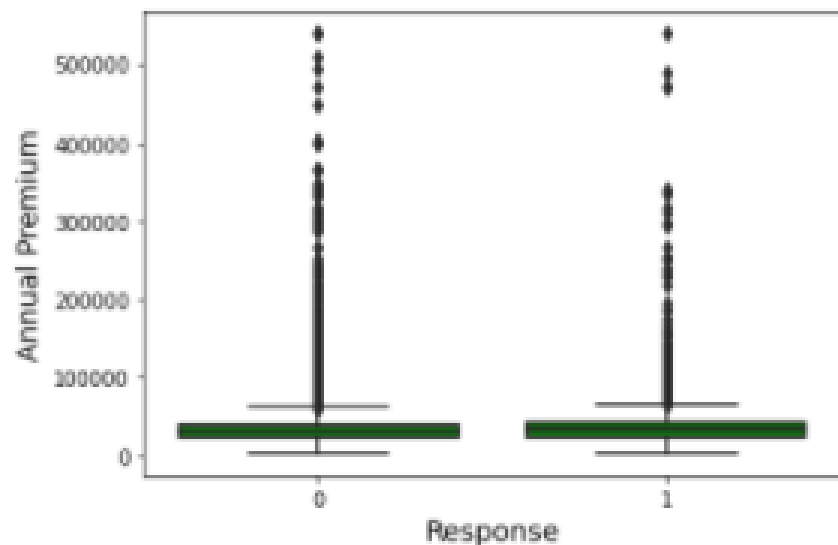
Nasabah dengan **umur kendaraan 0 - 2 tahun** cenderung tertarik menggunakan layanan *vehicle insurance*



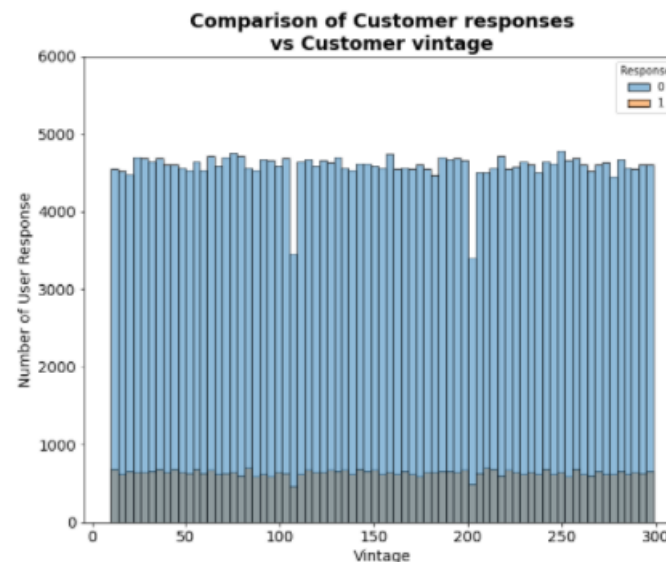
Nasabah yang **pernah mengalami kerusakan** pada kendaraannya, cenderung tertarik menggunakan layanan *vehicle insurance*

# 03 | Data Understanding

## | Exploratory Data Analysis



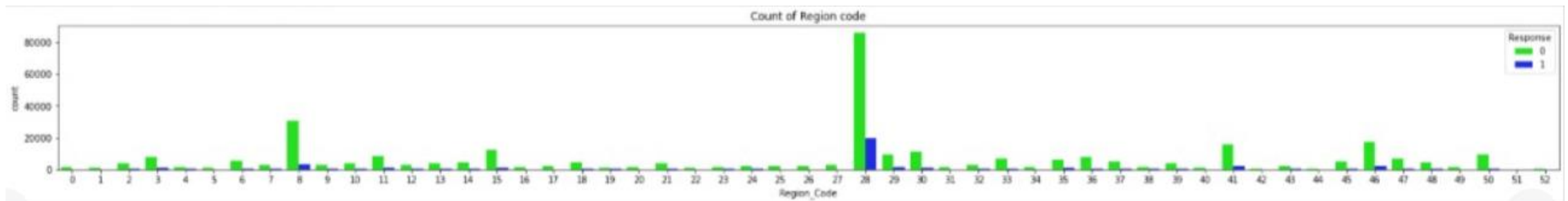
Tidak ada kaitan antara respon nasabah dengan premi yang dibayarkan



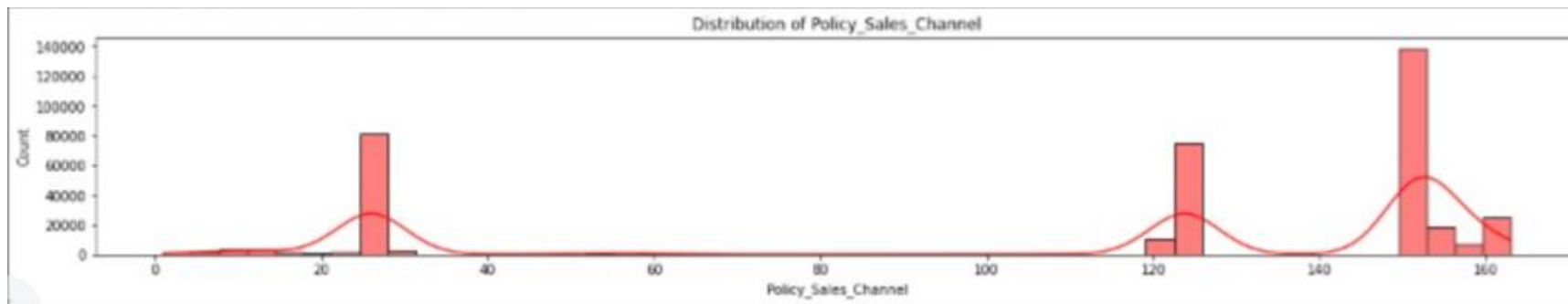
*Customer (vintage) tidak ada kaitannya dengan ketertarikan customer untuk menggunakan layanan vehicle insurance*

# 03 | Data Understanding

## | Exploratory Data Analysis

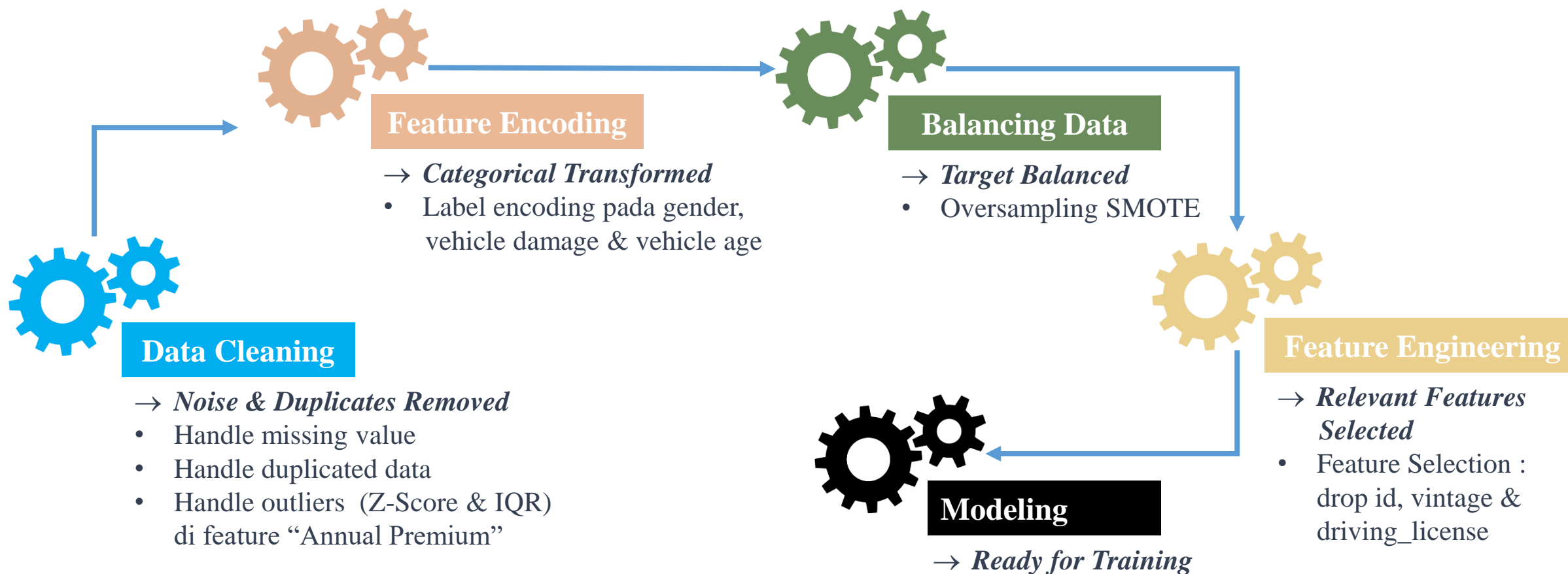


**Region Code 28** memiliki **response tertinggi** diikuti dengan region 8, 46, 41, 15, 29 dan 30



**Policy sales channel** yang paling banyak digunakan adalah **26, 124, dan 152**.

# 04 | Data Preprocessing & Feature Engineering





# 05 | Modeling & Evaluation

## | Modeling – Model Comparison

Dilakukan perbandingan dari machine learning model yaitu algoritma klasifikasi, seperti *Logistic Regression*, *Random Forest*, *Decision Tree*, *XGBoost*.

|                        | Accuracy | Recall   | Precision | f1_score | ROC_AUC  |
|------------------------|----------|----------|-----------|----------|----------|
| Logistic regression    | 0.786665 | 0.887715 | 0.738826  | 0.806456 | 0.798862 |
| Randomforest           | 0.857949 | 0.886057 | 0.839204  | 0.861994 | 0.859088 |
| XGBClassifier          | 0.809604 | 0.949755 | 0.742120  | 0.833196 | 0.809413 |
| DecisionTreeClassifier | 0.852653 | 0.873719 | 0.838717  | 0.855860 | 0.852624 |

Berdasarkan hasil diatas, **Randomforest** dan **Decision Tree** menempati dua score tertinggi dibanding algoritma lainnya.

## | Modeling – Model Evaluation

Membandingkan hasil train\_score & test\_score dari ke empat ML model.

|       | Logistic regression | Randomforest       | XGBClassifier      | Decision Tree      |
|-------|---------------------|--------------------|--------------------|--------------------|
| Train | 0.7868648039885051  | 0.9828521500124037 | 0.810102544625902  | 0.9828719081291478 |
| Test  | 0.7866652323800449  | 0.8579492774781143 | 0.8096035734226689 | 0.8526526618822963 |

Berdasarkan hasil perbandingan tersebut, dapat disimpulkan bahwa **Randomforest** dan **Decision Tree** memiliki nilai yang **Overfit** dimana selanjutnya perlu dilakukan Hyperparameter Tuning pada kedua model tersebut.

# 05 | Modeling & Evaluation

## | Modeling – Hyperparameter Tuning

Berdasarkan analisa pada step sebelumnya, dilakukan hyperparameter tuning pada ML Model **Randomforest** dan **Decision Tree**. Dengan hasil sebagai berikut:

### | Random forest

```
Accuracy (Test Set): 0.86  
Precision (Test Set): 0.82  
Recall (Test Set): 0.91  
F1-Score (Test Set): 0.86  
AUC (test-proba): 0.94  
AUC (train-proba): 0.97  
  
Train score: 0.962094332504962  
Test score: 0.9361372522667636
```

### | Decision Tree

```
Accuracy (Test Set): 0.84  
Precision (Test Set): 0.83  
Recall (Test Set): 0.85  
F1-Score (Test Set): 0.84  
AUC (test-proba): 0.90  
AUC (train-proba): 0.98  
  
Train score: 0.9188898883076735  
Test score: 0.8346854246238499
```

# 06 | Business Insight & Recommendation

## | Key Findings from Models

### | Random forest

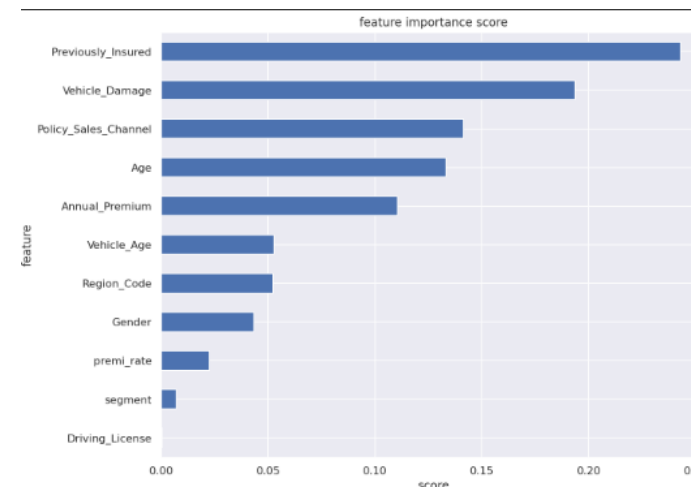
```
Accuracy (Test Set): 0.86
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AUC (train-proba): 0.97

Train score: 0.962094332504962
Test score: 0.9361372522667636
```

Setelah dilakukan hyperparameter tuning, **Random Forest** menghasilkan akurasi tertinggi dibandingkan **Decision Tree** meskipun hasilnya tipis. Maka dari itu, **Random Forest** ditetapkan menjadi model terbaik untuk analisis data ini.

## | Feature Importance

### | Random forest



Dari hasil feature importance pada model **Random Forest** didapatkan top 5 feature yaitu :

1. Previously Insured
2. Vehicle Damage
3. Policy Sales Channel
4. Age
5. Annual Premium

Diluar top 5 feature terdapat feature yang penting secara teori untuk model yaitu feature **Vehicle Age**

# 06 | Business Insight & Recommendation

## | Recommendation & Strategy

*\*\*untuk tim sales*

1. ***Sales planning alignment*** dengan tim marketing agar program marketing yang dibuatkan dapat sejalan dengan sales target yang ada
2. **Fokus pada nasabah yang sudah merespon tertarik untuk membeli layanan *vehicle insurance* terlebih dahulu**
3. Membuat ***klasifikasi tipe nasabah*** agar ***sales channel*** yang digunakan dapat **tepat guna**

## | Recommendation & Strategy

*\*\*untuk tim marketing*

1. Menentukan ***targeted customer*** berdasarkan segmentasi / klasifikasi nasabah yang sudah di - ***define*** oleh tim sales
2. Membuat ***marketing promotion roadmap*** agar ***activities*** yang dibuat dapat terukur dan tetap ***inline*** dengan ***target sales***
3. Membuat ***pull marketing activities*** untuk **mengedukasi & meningkatkan awareness** nasabah
4. Membuat ***push marketing activities*** untuk **meningkatkan *sales conversion rate***
5. Melakukan ***partnership program*** dengan ***potential partner*** (*vehicle dealer, vehicle renting company, credit bank & marketplace platform*)

# 05 | Business Insight

## | Marketing Promotion Roadmap

*\*\*push & pull activities*

|            |   | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Promo      | - Potongan premi 5% khusus untuk payment dengan Bank yang terafiasi dengan <b>TrustHealth</b> |     |     |     |     |     |     |     |     |     |     |     |     |
|            | - Promo " <b>asuransi gak pake ribet</b> "<br><b>free premi di 3 bulan pertama</b>            |     |     |     |     |     |     |     |     |     |     |     |     |
|            | - <b>Kredit mobil gratis asuransi</b><br>**hanya untuk leasor tertentu                        |     |     |     |     |     |     |     |     |     |     |     |     |
| Activities | - <i>Educational post on Socmed</i>   |     |     |     |     |     |     |     |     |     |     |     |     |
|            | - Monthly online Quiz   |     |     |     |     |     |     |     |     |     |     |     |     |
|            | - Sales promotion at Automotive exhibition  |     |     |     |     |     |     |     |     |     |     |     |     |
|            | - Marketblitz at shopping center, dealer & other public spot                                  |     |     |     |     |     |     |     |     |     |     |     |     |
|            | - FB & Ig Ads   |     |     |     |     |     |     |     |     |     |     |     |     |
| Campaign   | Join "Harbolnas Campaign" on marketplace platform   |     |     |     |     |     |     |     |     |     |     |     |     |
|            | Create promotion campaign   |     |     |     |     |     |     |     |     |     |     |     |     |



# THANK YOU

**TH | Trust  
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keeping your **happiness** 😊