DATA VISUALIZATION USING TABLEAU

PROBLEM STATEMENT - DVT PROJECT

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Contents

1.Business Context:

Accidents occur worldwide due to various factors such as negligent driving, adverse climatic conditions, and infrastructure issues. These incidents lead to a significant number of insurance claims, posing a challenge for insurance companies. Accurately estimating the number of accidents and subsequent claims is crucial for the sustainability and profitability of the business. By analyzing the claims data, insurance companies can anticipate future claims, optimize their financial reserves, and develop innovative policies.

Understanding the patterns and trends in claims data is equally essential. Insights derived from such analysis enable companies to offer tailored insurance policies that provide better benefits to users while optimizing premium rates. This balance ensures customer satisfaction and maximizes the company's profitability. Additionally, analyzing claims data can help in identifying fraud, improving customer segmentation, and creating dynamic pricing models based on risk profiles.

1.1 Objective:

As a Lead Data Analyst at an Insurance Claims company, you are tasked with leveraging data to gain actionable insights from the Car Insurance Claims dataset. Your primary objective is to explore the dataset, identify patterns, and present your findings through an interactive and visually appealing storyboard.

2.Link:

https://public.tableau.com/app/profile/benita.merlin.e/viz/CarInsuranceClaimAnalysis_17384909630140/DVTProjectProblemStatement-CARINSURANCECLAIMANALYSIS

3.Story Context: Car Insurance Claims Analysis

This analysis dives into key metrics derived from the Car Insurance Claims dataset to uncover patterns that inform decision-making for insurers.

1. Overview of Key Metrics:

- o Understanding the overall landscape of car insurance claims is crucial for identifying key risk factors, financial implications, and customer behavior.
- o This section provides an in-depth look at essential metrics, including claim amounts, vehicle worth, and driver demographics.

2. Understanding Demographics & Income:

- o Explore age distributions and income variations based on education levels, providing a foundation for identifying customer segments and risk profiles.

3. Car Characteristics & Claims:

- o Assess how car age, type, and market worth influence claim frequency and amounts. Insights reveal which car types are costlier to insure or more prone to claims.

4. Usage Patterns & Claims:

- o Investigate the impact of car usage (personal vs. commercial) and gender on claim amounts, highlighting high-risk groups for better policy targeting.

5. Driver Risk Analysis:

- o Delve into driver-specific factors like age, marital status, and education to understand how they correlate with claim frequency and amount.

6. Fraud Detection & Risk Categorization:

- o Identify fraudulent claims and segment drivers into risk categories, enabling precise underwriting and policy optimization.

7. Urban vs. Rural Risks:

- o Compare urban and rural drivers to assess whether location impacts claim severity or frequency, helping refine pricing models by geography.

4. Executive summary:

- Panel Trucks have the highest average market value ($28,630) and average claim amount ($2,106).
- SUVs and Minivans exhibit the highest claim frequencies, emphasizing their high-risk profile.
- Drivers aged 65–75 form the majority, making older individuals a key customer base.
- Higher education levels (PhD, Master's) are associated with higher incomes, while lower education levels correlate with higher claim frequencies.
- Female private drivers account for the highest claim percentage (38.80%).
- Male commercial drivers lead in high claim frequency (29.94%).
- SUVs dominate private and commercial claims, with the highest private claim amount ($26.37M).
- Older vehicles, especially SUVs and Minivans, show higher claim rates due to aging mechanical issues.
- High-value claim outliers (e.g., $36,04,737) signal the need for enhanced fraud detection measures.
- Urban areas have higher driver density and claim amounts, reflecting greater risk levels in dense traffic.
- Urban drivers contribute more to high-risk claims, underscoring the importance of targeted risk mitigation strategies.

5. Recommendations

- Increase premiums for high-value vehicles like Panel Trucks and high-risk categories such as SUVs and Minivans.
- Adjust pricing based on demographics, with higher premiums for older drivers (60+).
- Launch educational campaigns targeting drivers with lower education levels to improve road safety awareness.
- Provide targeted training programs for older drivers to reduce accident rates.
- Implement advanced fraud detection algorithms to flag high-value outliers and monitor patterns in high-risk groups.
- Incorporate urban-specific risks into pricing and underwriting models, given higher claim amounts in urban areas.
- Partner with repair shops or insurers to offer maintenance discounts for older vehicles to reduce mechanical issues and accidents.
- Develop gender-based risk models for private female drivers and male commercial drivers to address specific claim patterns.

6. Overall Conclusion

This analysis provides actionable insights into car insurance claims by identifying high-risk car types, demographics, and usage patterns. Panel Trucks and SUVs require targeted strategies due to their high claim amounts and frequencies. The influence of education, age, and urban dynamics further underscores the importance of personalized pricing, targeted risk management, and fraud detection. By leveraging these insights, insurers can optimize premium pricing, improve customer satisfaction, and enhance profitability while mitigating risks effectively.