Insurance Risk & Claims Analysis

This project leverages **Power BI** to centralize and analyse insurance policies and claims data, transforming fragmented records into actionable business insights. By combining **policyholder demographics, vehicle details, and claim history**, the dashboard enables insurers to **track KPIs, assess risks, and optimize policy strategies**.

Key KPIs

- **Total Policies:** 37,541
- **Total Claim Amount:** $187.8M
- **Total Claims Filed:** 19,158
- **Average Claim Amount:** $5,003
- **Average Claims per Policy:** 0.51

Demographic Insights

- **Gender Split:** Nearly equal distribution with **50.1% Female (18,806)** and **49.9% Male (18,736)** policyholders.
- **Age Groups:**
    - **25–40 years:** Highest claim impact with $52.8M (28%) of total claims.
    - **40–60 years:** Largest risk group, contributing $71.0M (38%) of total claims.
    - **60+ years:** Still significant at $43.3M (23%).
    - **Under 25:** Contributed $20.7M (11%), aligning with expected high-risk profile.

Vehicle & Usage Insights

- **Car Use:** Majority of policies are **Private (30,060, ~80%**), while Commercial **vehicles (7,482, ~20%)** show higher exposure per policy.
- **Car Make (Top 5 by Claim Amount):**
    - **Ford:** $16.6M
    - **Chevrolet:** $14.8M
    - **Dodge:** $9.3M
    - **Toyota:** $9.0M
    - **GMC:** $8.7M
- Older vehicles (manufactured >10 years ago) show disproportionately higher claims, indicating increased risk with vehicle age.

Regional & Socioeconomic Insights

- **Coverage Zones:** Balanced distribution across **Urban (7,588), Rural (7,522), Suburban (7,466), Highly Urban (7,514)**, and **Highly Rural (7,452) regions**. Urban customers file slightly more claims, highlighting city-driving risk.
- **Education & Marital Status:** Higher-educated policyholders tend to purchase more policies, but claim behaviour is more evenly distributed, requiring combined segmentation with marital status for targeted pricing.
- **Household Risk Factors:** Families with **multiple young drivers (Kids Driving >1)** are consistently associated with higher claim frequency and severity.

Business Impact

- Delivered centralized insights on 37K+ policies and $187M in claims.
- Enabled **risk-based pricing** by age, region, and vehicle characteristics.
- Identified **high-risk customer profiles** (e.g., households with young drivers, older cars, certain brands).
- Supported **strategic decision-making** for profitability, fraud detection, and policy optimization.

Conclusion

The Insurance Risk & Claims Analysis dashboard empowers insurers to **align strategy with data**, uncovering patterns across demographics, vehicles, and regions. By transforming raw data into an interactive Power BI solution, it supports **customer segmentation, targeted marketing, premium adjustments, and fraud detection, ultimately driving better risk management and profitability.**