

Sales Insights Dashboard for Insurance Company

Project Overview

This project focuses on building a **Sales Insights Dashboard** for a fictional insurance company. The primary objective is to deliver real-time, data-driven insights on sales performance, customer behavior, and financial outcomes. We leverage **Snowflake**, **DBT**, **Tableau**, and **Apache Airflow** for seamless data processing and visualization, empowering business decisions with timely insights.

Problem Statements

The Sales Director is keen to analyze the company's performance across various criteria:

- **Product Performance:** Which insurance products are the top performers?
- **Customer Segmentation:** Who are the primary buyers of each product?
- **Sales Trends & Forecasting:** What does the future hold for sales?
- **Geographical Insights:** How do sales vary by region?
- **Agent Performance & Claim Status:** What's driving growth, and how are profit margins?

The goal of this project is to show how data can guide key business decisions.

Technologies Used

- **Snowflake:** Raw data storage and query execution.
- **DBT:** Data transformation for building analytical models.
- **Apache Airflow:** Workflow orchestration and automation.
- **Tableau:** Data visualization for reporting and insights.
- **GitHub:** Version control and collaboration.

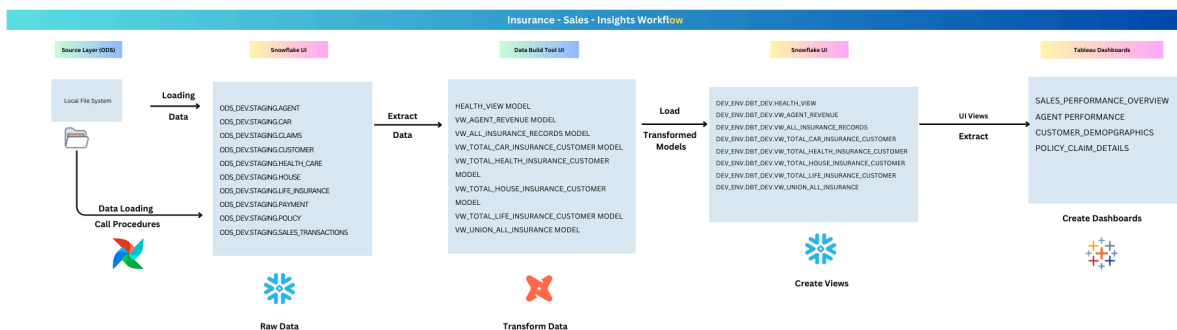
Certifications

- **Data Visualization with Tableau** – Cognizant LED Training
- **Snowflake Essentials for Data Engineering** – Snowflake
- **DBT** – Udemy
- **Apache Airflow** – LinkedIn Learning

- **GitHub** – YouTube Tutorials

Workflow

1. **Data Ingestion:** Import local data into Snowflake (raw data layer).
2. **Transformation:** Use DBT to run data transformations and create analytical models.
3. **Data Views:** Generate final data models in Snowflake.
4. **Orchestration:** Schedule workflows with Apache Airflow.
5. **Visualization:** Build interactive dashboards using Tableau.



Key Insights Explored

- Top-performing insurance products
- Customer segments most likely to purchase
- Sales forecasts for upcoming quarters
- Regional sales performance
- Revenue and profit margins

Approach - Project Planning

1. **Purpose:** To provide the sales team with automated insights, reducing manual data gathering and enabling better decision-making.
2. **Stakeholders:** Sales Director, IT Team, Customer Service Team, Data & Analytics Team.

3. **End Result:** An automated dashboard providing real-time sales insights for data-driven decision-making.

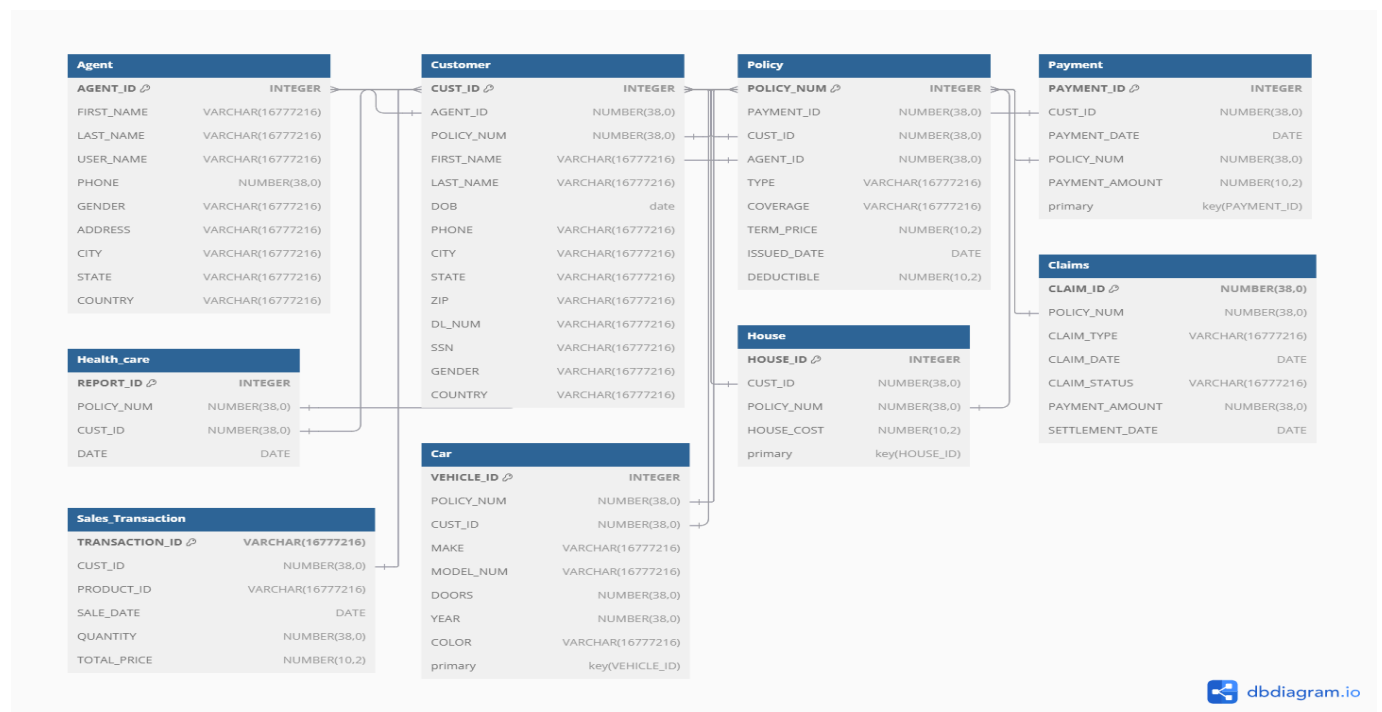
Setup Process

Follow these steps to set up the project:

1. **Generate Dummy Data:** Use Python's **faker** library to create fake data.
2. **Ingest Data:** Import the generated data into Snowflake and perform ETL (if needed).
3. **DBT Environment:** Set up a DBT environment and connect it with your Snowflake database.
4. **Apache Airflow Setup:** Install and configure Airflow locally for scheduling DAGs.
5. **Tableau Setup:** Download Tableau Public (free) or Tableau Desktop (14-day trial) to visualize data.
6. **Data Connection:** Connect Tableau to Snowflake for real-time analysis.
7. **Dashboard Creation:** Save Tableau reports as **.twb** or **.twbx** files.

ER Diagram

- **Snowflake:** For raw data storage and querying.
- **DBT:** For transforming raw data into analytical models.
- **Tableau:** For visualizing insights through interactive dashboards.



Snowflake

ODS_DEV / STAGING

Schema ACCOUNTADMIN 2 weeks ago

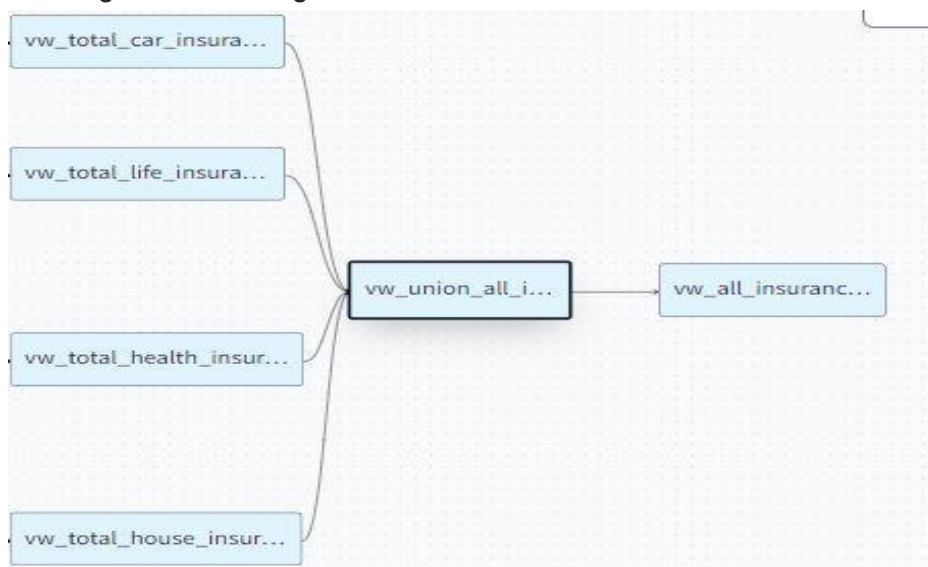
Schema Details Tables Views Stages Procedures

13 Tables

NAME	TYPE	CLASSIFICATION	OWNER	ROWS	BYTES	CREATED
AGENT	Table	—	ACCOUNTADMIN	1.3K	67.0KB	2 weeks...
CAR	Table	—	ACCOUNTADMIN	2.8K	80.5KB	2 weeks...
CLAIMS	Table	—	ACCOUNTADMIN	44.8K	642.0KB	2 days a...
CUSTOMER	Table	—	ACCOUNTADMIN	52.6K	3.2MB	2 weeks...
EXPENSES	Table	—	ACCOUNTADMIN	618	57.5KB	2 weeks...
HEALTH_CARE	Table	—	ACCOUNTADMIN	13.2K	135.0KB	2 weeks...
HOUSE	Table	—	ACCOUNTADMIN	2.3K	29.5KB	2 weeks...
LIFE_INSURANCE	Table	—	ACCOUNTADMIN	26.3K	708.0KB	2 weeks...
PAYMENT	Table	—	ACCOUNTADMIN	52.6K	683.0KB	2 weeks...
POLICY	Table	—	ACCOUNTADMIN	52.6K	1.1MB	2 weeks...
PROFIT_AND_LOSS	Table	—	ACCOUNTADMIN	650	13.5KB	2 weeks...
REVENUE	Table	—	ACCOUNTADMIN	650	29.0KB	2 weeks...
SALES_TRANSACTIONS	Table	—	ACCOUNTADMIN	52.6K	3.7MB	2 weeks...

Data Build Tool (Transform Data)

Creating models through DBT.



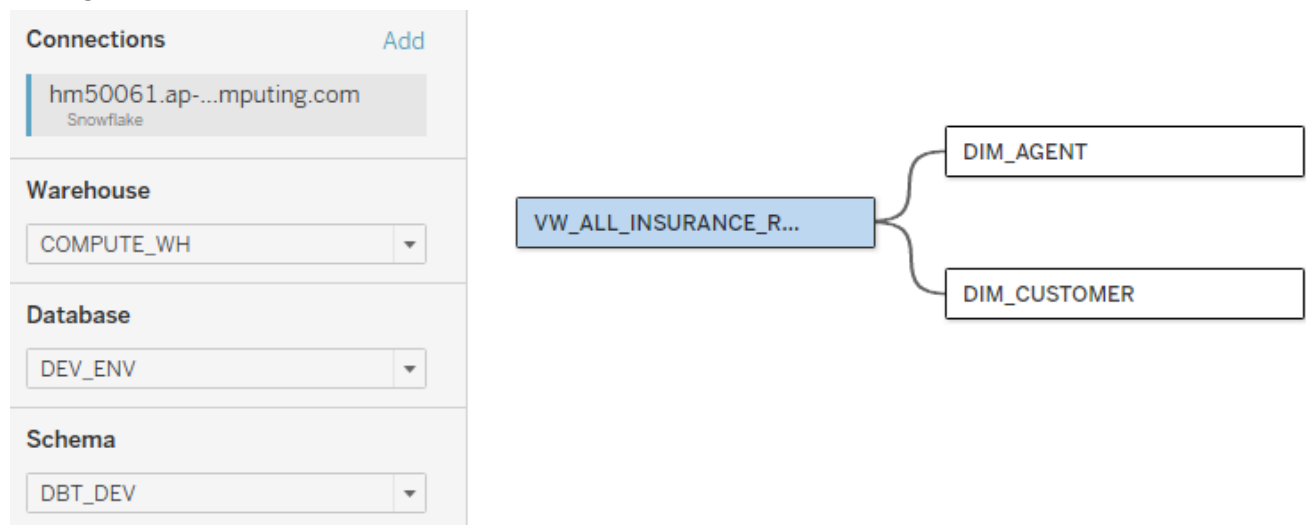
Orchestrating Tasks Using Airflow

- **snowflake_automate_data_copy_dag.py:** This DAG is responsible for loading data from stages into our database tables.
- **snowflake_migrate_tables_dag.py:** This DAG is used when we need to migrate all objects from the development DBT environment to the production DBT environment.
- **dbt_run_models.py:** This script runs all DBT models using the dbt run command, with all models being stored in the Snowflake database.

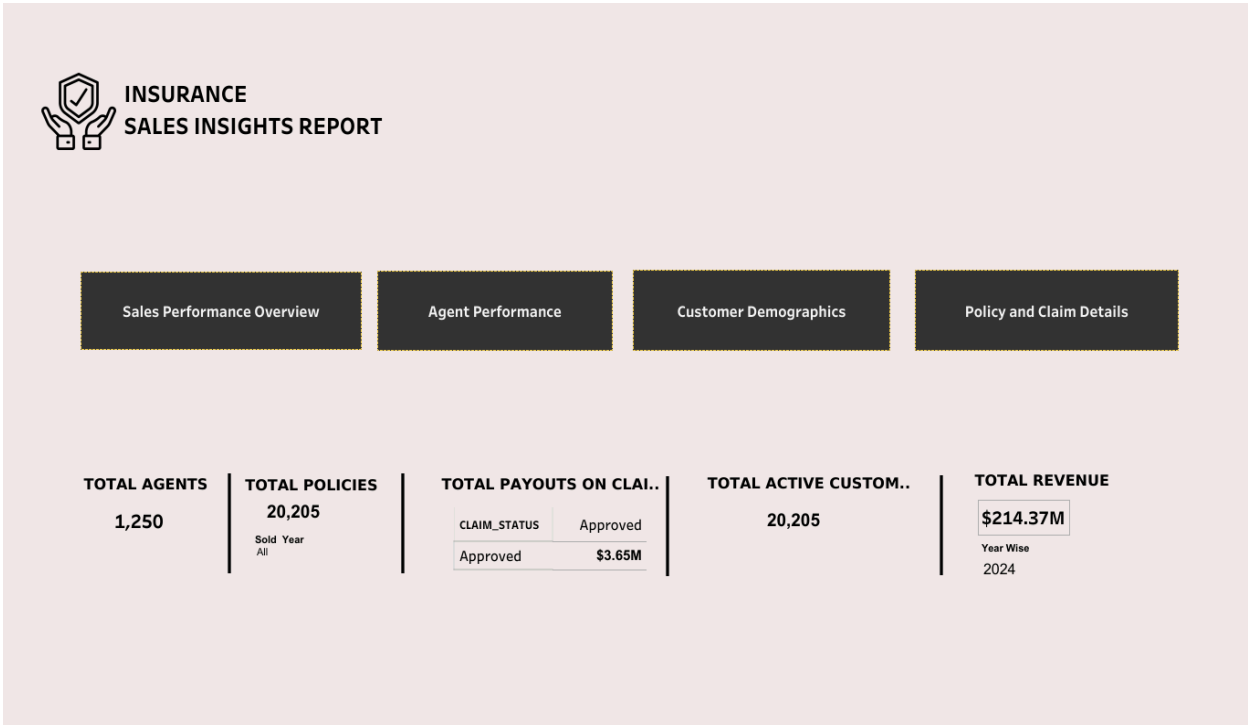
Data Analysis Using Tableau

Tableau Public Dashboards: [Insurance - Sales - Insights](#) | [Tableau Public](#)

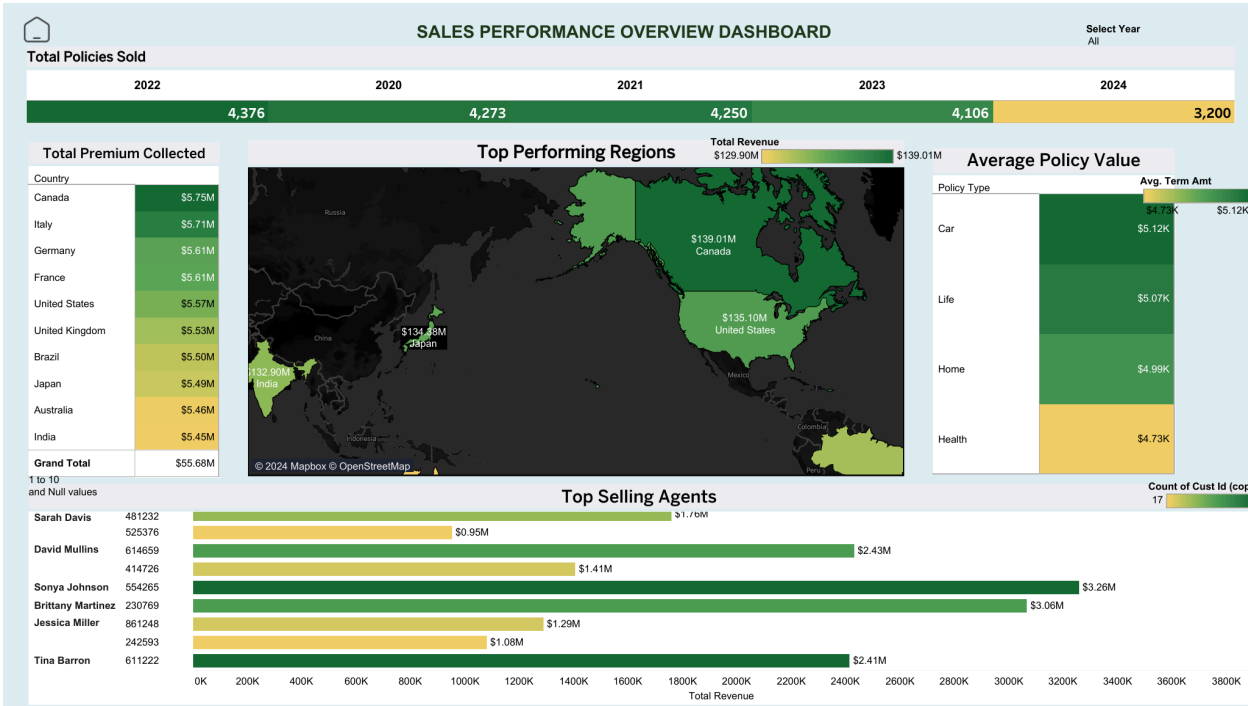
Taking data source from Snowflake database.



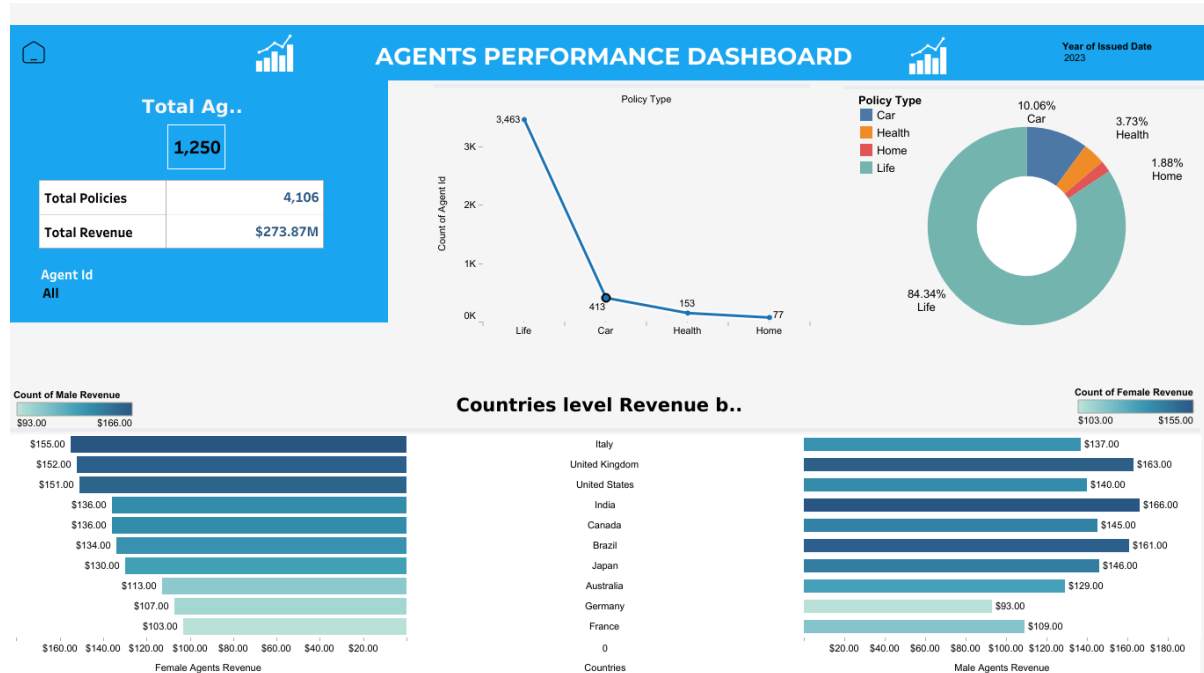
- **Master Dashboard:** Insurance Sales Insights Report.



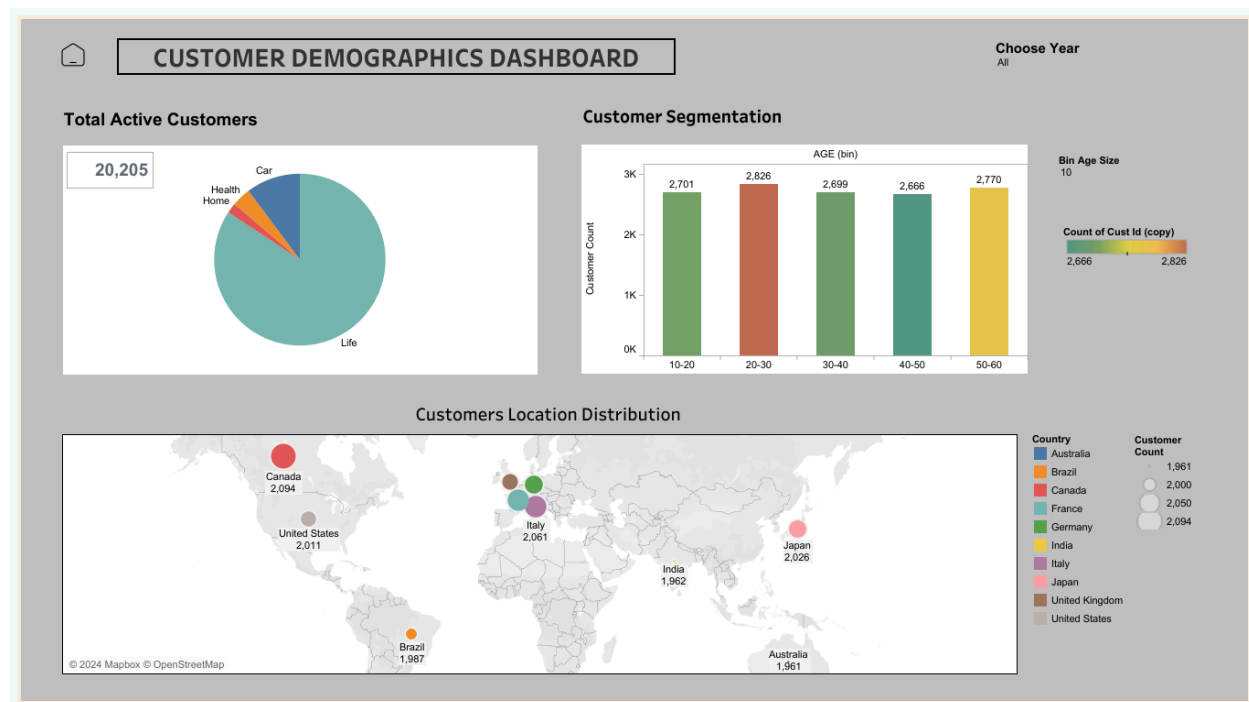
- **Sales Performance Overview Dashboard:** A Sales Performance Overview Dashboard provides a real-time snapshot of key sales metrics.



- **Agent Performance Dashboard:** Tracks agent-wise sales performance.



- **Customer Demographics Dashboard:** Analyzes customer profiles and behavior.



- **Policy and Claims Dashboard:** Provides insights into policy details and claim statuses.

