BUSINESS ANALYTICS PROJECT

link to the Tableau Dashboard:
https://public.tableau.com/shared/4RPKFMTMD?:display_count=n&:origin=viz_share_link
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Question 1: Initiate the data exploration and cleaning process by loading the data set into Tableau.

1. As part of this, conduct an initial exploration to gain insights into the variables and data structure.

Type	Field Name		Physical Table	Remote Field Name
Abc	Agency	▼	travel insurence.csv	Agency
Abc	Agency Type	▼	travel insurence.csv	Agency Type
Abc	Distribution Channel	▼	travel insurence.csv	Distribution Channel
Abc	Product Name	▼	travel insurence.csv	Product Name
Abc	Claim	▼	travel insurence.csv	Claim
#	Duration	▼	travel insurence.csv	Duration
Abc	Destination	▼	travel insurence.csv	Destination
#	Net Sales	▼	travel insurence.csv	Net Sales
#	Commision (in value)	▼	travel insurence.csv	Commision (in value)
Abc	Gender	▼	travel insurence.csv	Gender
#	Age	▼	travel insurence.csv	Age

2. Source additional data sets through independent research to enhance the overall analysis.=

I added World Bank "International Tourism Arrivals"

The original travel-insurance file gives me strong detail on products, destinations, and claims, but it lacks any policy date. Without time or a sense of the underlying travel market, raw sales and claim counts can be misleading. I incorporated the World Bank's International Tourism Arrivals (ST.INT.ARVL) to supply a credible, country-level demand proxy, how many travelers enter each destination in a given year. This enrichment lets me interpret performance relative to market size, not just absolute volumes.

Practically, the dataset enables market-normalized KPIs. I compute measures such as Policies per 1M Arrivals

Structure: Flat, row-level table (CSV). Each record appears to represent one policy/transaction. No explicit unique ID and no date/time field (important limitation for time-series analysis).

Dimensions (categorical):

Agency, Agency Type, Distribution Channel, Product Name, Destination, Gender, Claim.

These slice the data for mix/share, funnel, and claim-rate comparisons. Destination should be standardized (e.g., ISO-3) for mapping and external joins.

Measures (numeric):

Net Sales, Commission (in value), Duration, Age.

Use Net Sales as primary revenue metric; Commission enables margin/profit calcs; Duration supports trip-length analysis; Age for demographics (bin into groups).

Question 2:

Create a Tableau dashboard featuring multiple sections, each centering on distinct aspects of the data. Utilize a diverse array of visualization techniques, including bar charts, line graphs, pie charts, maps, and scatter plots.

This dashboard provides a clear view of travel insurance performance. The world map shows yearly travel volume by color (darker means more visitors) and policy volume by circle size, with tooltips for sales and claim details. Top Products and Top Destinations rank the plans and countries that drive revenue, Customer Demographic Analysis shows buyers by age and gender, and the Insurance Details grid links plans to countries to reveal strong and weak combinations. Use the top filters for claim status, destination, product, channel, and agency, and adjust the Top N and year sliders to change the scope. Because policy dates are not available, month-by-month peaks are not shown; the map uses trusted tourism arrivals to size markets by year and support growth and risk decisions.

Travel insurance Insights
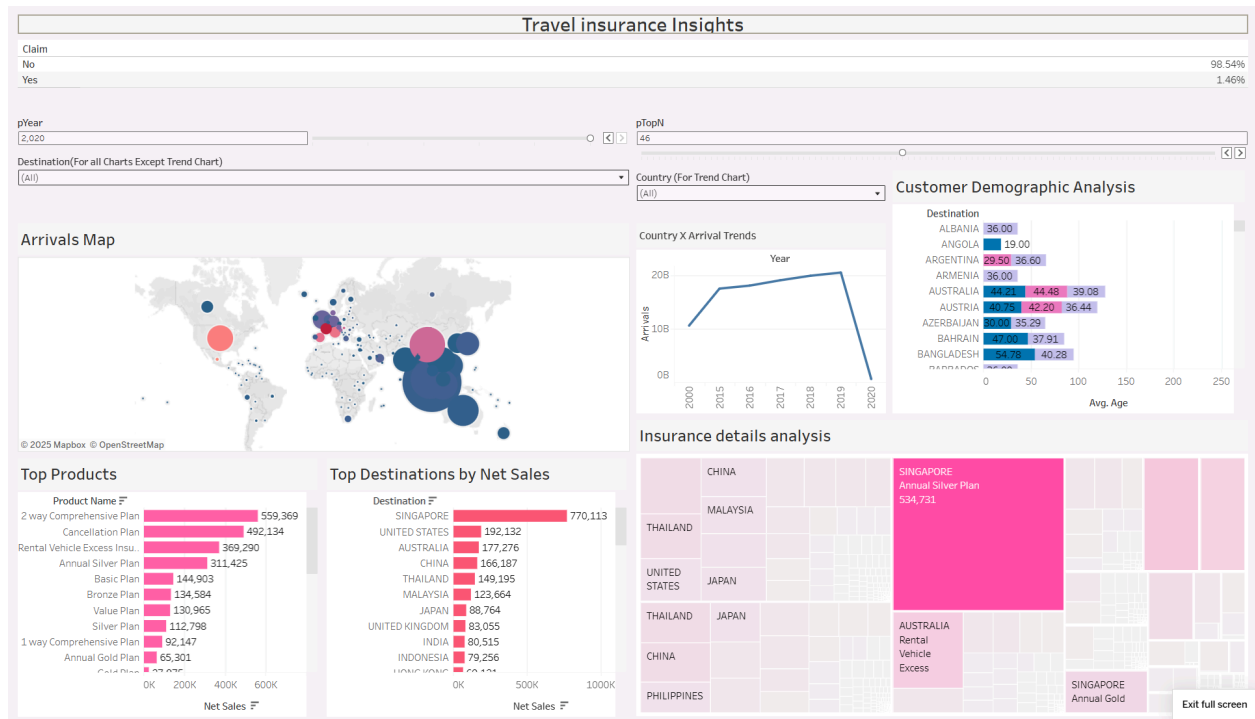
Question 3: Include the following key components in the dashboard:

1. **Customer demographics analysis:** Explore the age distribution, gender distribution, and regional analysis.
2. Here i have taken the avg age of each gender category for each country

Customer Demographic Analysis
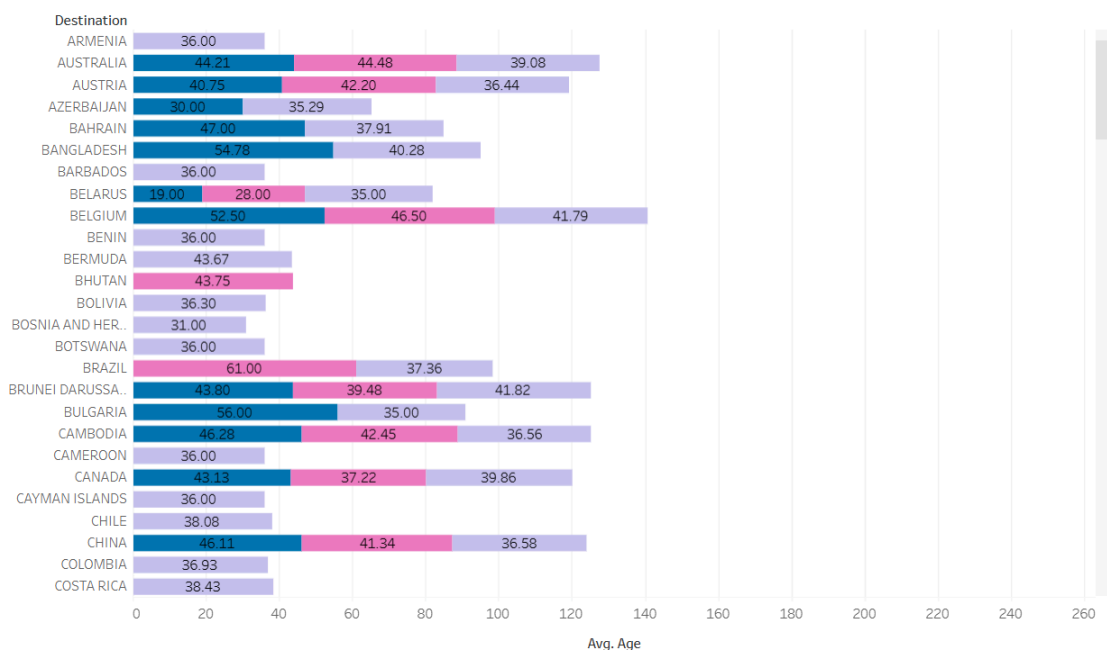
3. **Insurance details analysis:** Provide insights into the types of insurance plans purchased, destinations covered, and the duration of insurance.
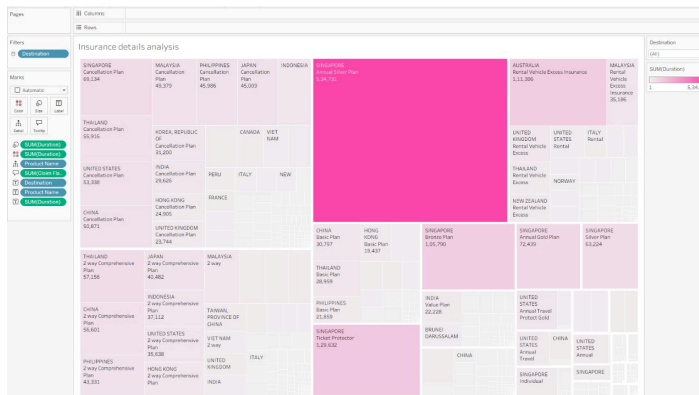
This view links plans to destinations and trip length. It highlights which plans people choose in each country and how long the cover lasts. A clear standout is the Annual Silver Plan in Singapore, which contributes the largest block on the chart. "Cancellation Plan" is also strong across several countries. Use this to find winning plan, country pairs and gaps where a plan has little presence.

4. **Claims analysis:** Evaluate the proportion of claims made versus claims rejected, reasons for claims, and the time taken to resolve claims.

This panel compares policies with a claim to those without. In this file, claims are rare (about 1.5% yes vs 98.5% no), which means most trips completed without a claim. You can filter by product or destination to see where the claim share is higher than average. The dataset does not include claim reasons or the dates needed to measure time to resolve, so those parts are noted as not available.


5. **Sales trends:** Analyze the trends in insurance sales over time and identify peak periods.

A true time trend and "peak periods" cannot be shown because the dataset does not include any date fields. Instead, the dashboard focuses on top products and top destinations and adds a world map of tourism arrivals by year to give fair market context.

If policy dates are provided later, a monthly sales line and peak season view can be added immediately.

Question 4:

1. Integrate interactive features into the dashboard. This involves incorporating filters and selectors to empower users to interact with the dashboard, enabling actions such as selecting a particular region, time period, or type of insurance plan.
2. Implement tooltips to furnish users with additional information when hovering over specific data points for a more enriched user experience.
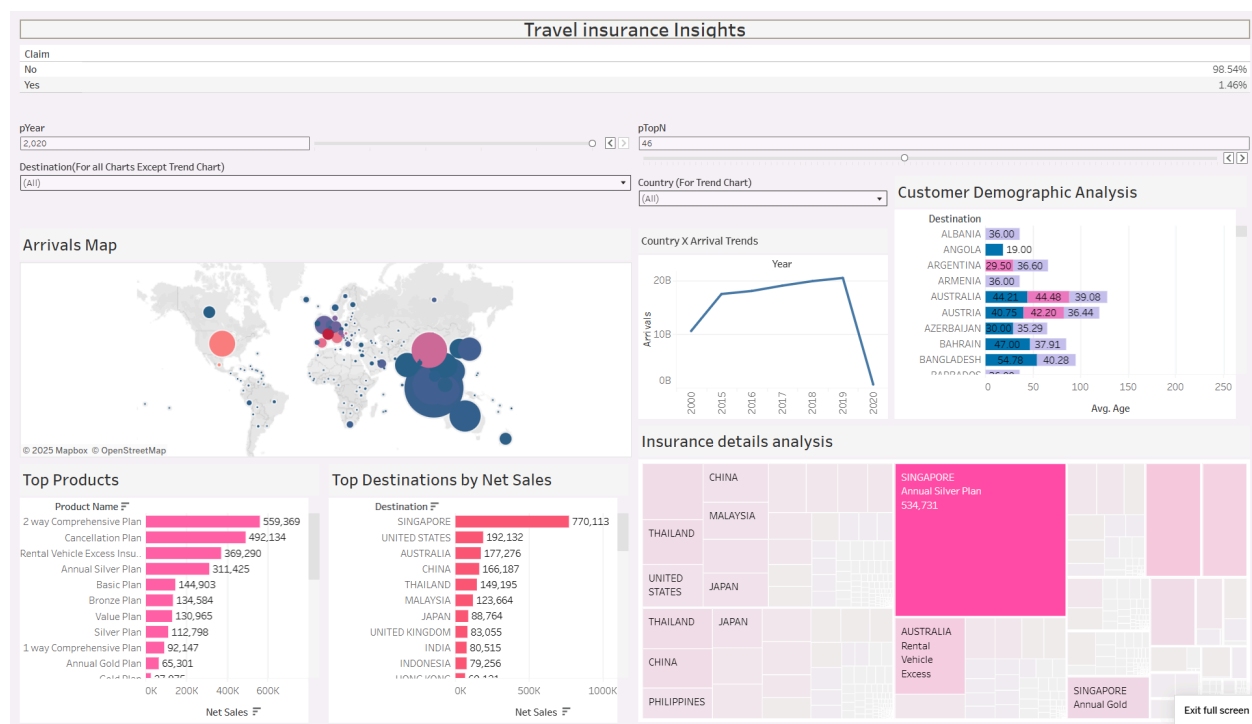
Question 5:

1. Leverage the insights derived from the dashboard to discern patterns and trends within the travel insurance market.
2. Identify potential areas for business growth or risk management based on the analysis presented in the dashboard.

 What the dashboard shows

Sales are concentrated in a few destinations, led by Singapore, with strong volume also in the US, Australia, China, Thailand, Malaysia, and India.

A small set of plans carries most revenue especially Annual Silver and Cancellation while many other plans contribute little.

Overall claims are very low (~1.5%), but the share varies by destination and product.

The Arrivals Map (tourism demand) highlights large travel markets; comparing this with our policy bubbles and "Policies per 1M arrivals" reveals where our footprint is strong vs light.

Growth opportunities

Win share in big markets where demand is high but our sales are lighter (low policies per 1M arrivals). In most views this includes large-arrival countries like the US, China, Japan, and the UK focus on partnerships with airlines/OTAs, retail bundles, and targeted digital offers.

Double down where we already lead (e.g., Singapore) with loyalty pricing, family/annual upgrades, and cross-sell of add-ons (baggage, rental vehicle, medical top-ups).

Product mix tuning: keep Cancellation prominent in markets with frequent trip changes; promote Annual in business-travel hubs; position Rental Vehicle in car-heavy destinations (AU/UK/US).

Channel focus: replicate the best-performing agencies/distribution channels from top markets into similar countries.

Risk and service actions

Watch destinations/products with above-average claim rates and review pricing, deductibles, and documentation requirements there.

Use the year selector on the Arrivals Map to monitor demand shocks; when advisories or events push risk p, tighten underwriting, add pre-travel guidance, or cap exposure temporarily.

Operational focus: track claim counts by destination/product to spot spikes early; fast-track support in high-volume markets to protect satisfaction and reduce leakage.

Fraud/quality checks on channels or products that show outlier claim shares versus peers.

Concentrate sales efforts in large travel markets where our presence lags, protect and grow leaders like Singapore with upgrades and bundles, and tighten controls where claim share runs hot.

Question 6:

For comprehensive documentation of the project, capturing the design process, key findings, and any assumptions or limitations, create a detailed business report. The report should encompass the following elements.

Travel Insurance Analytics - Business Report

1. Background of the Study

This study uses a consolidated dataset that combines transactional policy records (policy ID, product, destination, net sales, claim flag, and basic demographics) with arrivals data by destination and year, plus derived fields for normalization and ranking. It addresses leadership's need for a single interactive view to see where we sell the most and why, which destinations and products drive Net Sales, how customer segments vary by market, and which product–market combinations merit investment. The objectives are to quantify Net Sales by destination and product using Top-N controls, profile customers (with gender breakdown and available age proxies), and benchmark policy penetration through arrivals-based normalization while monitoring claim incidence.

2.Literature Review

This analysis uses a proprietary 2020 policy-sales and claims extract, supplemented with public tourism-arrivals data. Core fields are Destination, Product Name, Net Sales, Claim Flag (Yes/No), and Gender. The data has three parts: a transactional table with one row per policy and all amounts normalized to a single currency; a reference table with arrivals by destination and year to compute policies per million arrivals; and derived fields such as Net Sales totals, claim rate, Top-N ranks, and other normalized ratios. Supporting resources include a product taxonomy/data dictionary, an ISO-style country mapping table, FX and inflation deflators for cross-year comparisons, and Tableau documentation covering parameters, table calculations, LODs, and mapping.

3. Methodology

Approach to Data Analysis

dashboard was developed through rapid Tableau prototypes and short review loops with stakeholders. Core controls, Claim (Yes/No), Destination, pYear (default 2020), and pTopN: enable focused slicing and ranking while keeping the workflow consistent across views.

Data Exploration

Exploration started with simple profiles of Destination and product, then moved to product × Destination to see mix effects. A bubble map shows geographic spread, gender-stacked bars summarize demographics, and a treemap highlights volume by product–market. Claim rate is shown in color and tooltips to quickly spot anomalies.

Data Cleansing

We standardized destination names (ISO-style) and merged duplicates, retained but flagged missing attributes (notably Gender = Null), validated Net Sales and the pYear default, corrected obvious errors, and recorded remaining caveats in limitations.

Visualization Techniques Employed

The dashboard uses an Arrivals Map (bubble size for arrivals/policies, color for claim rate), horizontal bars for Top Destinations and Top Products, gender-stacked bars for demographics (including Null), and a Product × Destination treemap to reveal dominant combinations.

Dashboard Overview & Components

A compact filter strip (Claim, Destination) and parameters (pYear, pTopN) drive all charts. The layout groups analysis into five zones-Map, Demographics, Top Products, Top Destinations, and Treemap. So that users can move from overview to detail in a predictable flow.

4. Insights and Conclusions

· Key Findings from the Dashboard

The portfolio shows a low claims frequency (~1.46%), but ongoing monitoring by market and product is advised. Sales are concentrated by destination, Singapore leads, followed by the United States and Australia and by product, with 2-Way Comprehensive, cancellation, and rental vehicle excess Insurance dominating. The treemap highlights a particularly strong contribution from the Annual Silver Plan in Singapore. Data quality limits some segment detail because many records have Gender = Null. Geographic activity clusters in Southeast Asia, North America, and Oceania.

· Recommendations

Focus growth where performance is strongest by deepening in Singapore through upsell, cross-sell, retention initiatives, and price-elasticity tests, while scaling winning products into the top 5–10 destinations with A/B tests on price and benefits. Improve data completeness by capturing gender/age where permitted, standardizing destination taxonomy, and annotating unknowns. Enhance risk management by tracking claim severity as well as frequency to refine pricing and reserving. Add year-over-year and seasonal views, adjust for FX/inflation, and develop propensity models to guide channel spend.

5. Bibliography

· Internal Policy & Claims Extract (2020).

· Arrivals dataset (e.g., national tourism boards / UNWTO).

· Tableau Knowledge Base (parameters, table calcs, LODs, maps).

· Optional: FX/inflation references; product taxonomy dictionary.
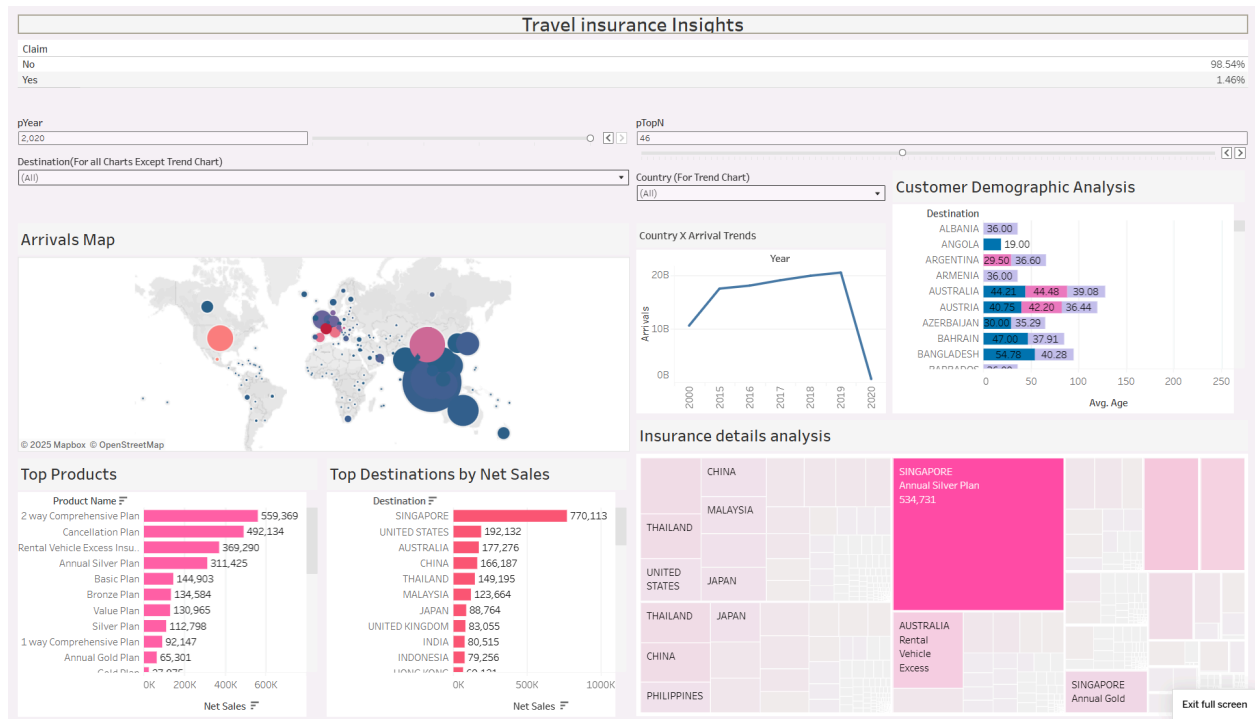
Figure 1: Dashboard overview snapshot.

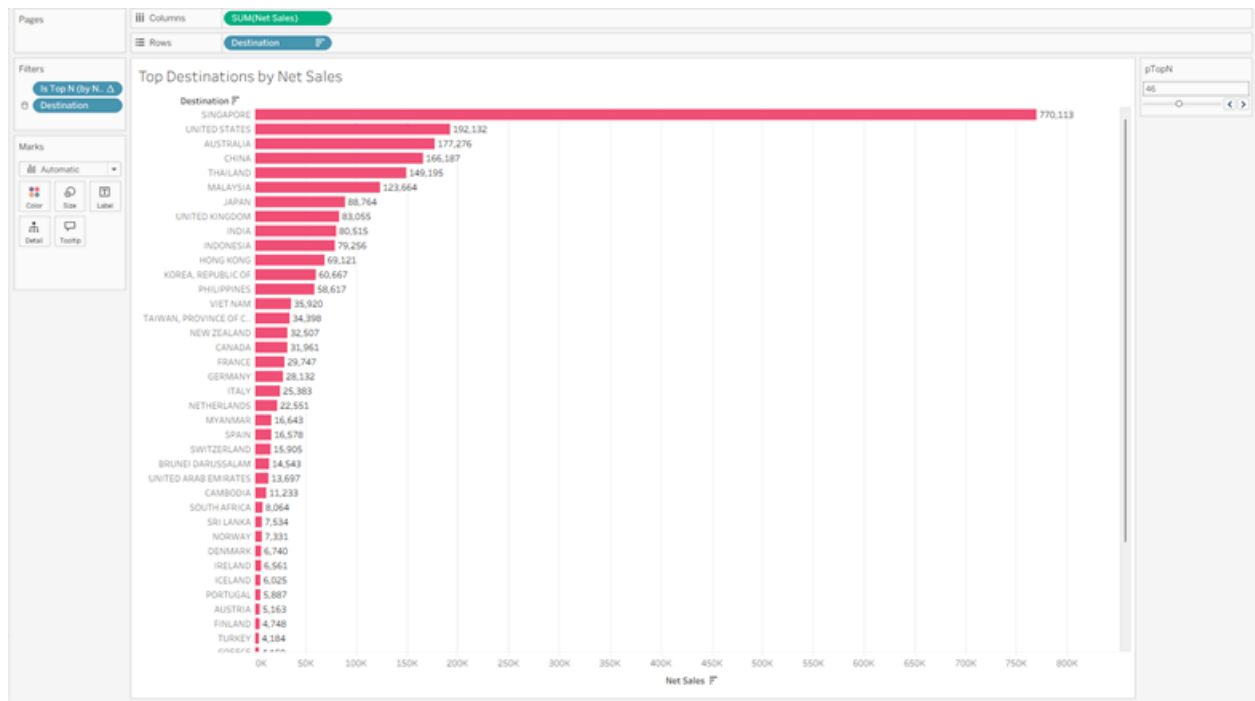Figure 2: Top Destinations by Net Sales (Top-N slider).
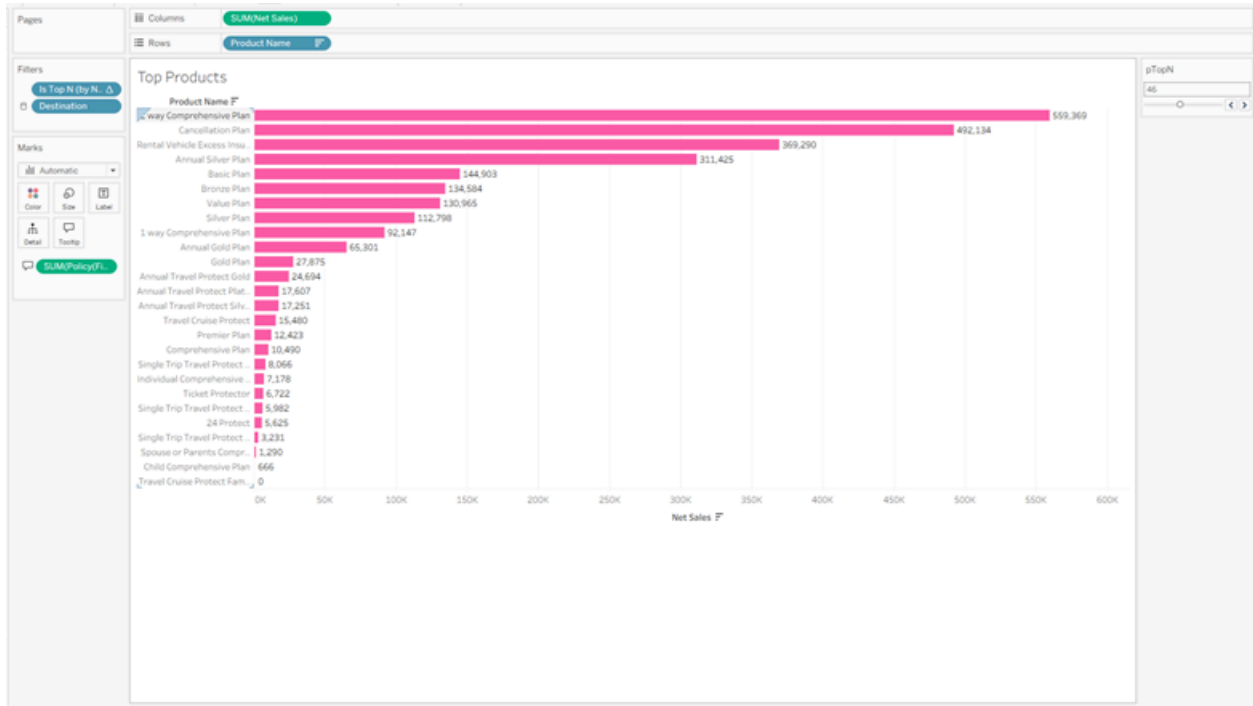
Figure 3: Top Products by Net Sales.

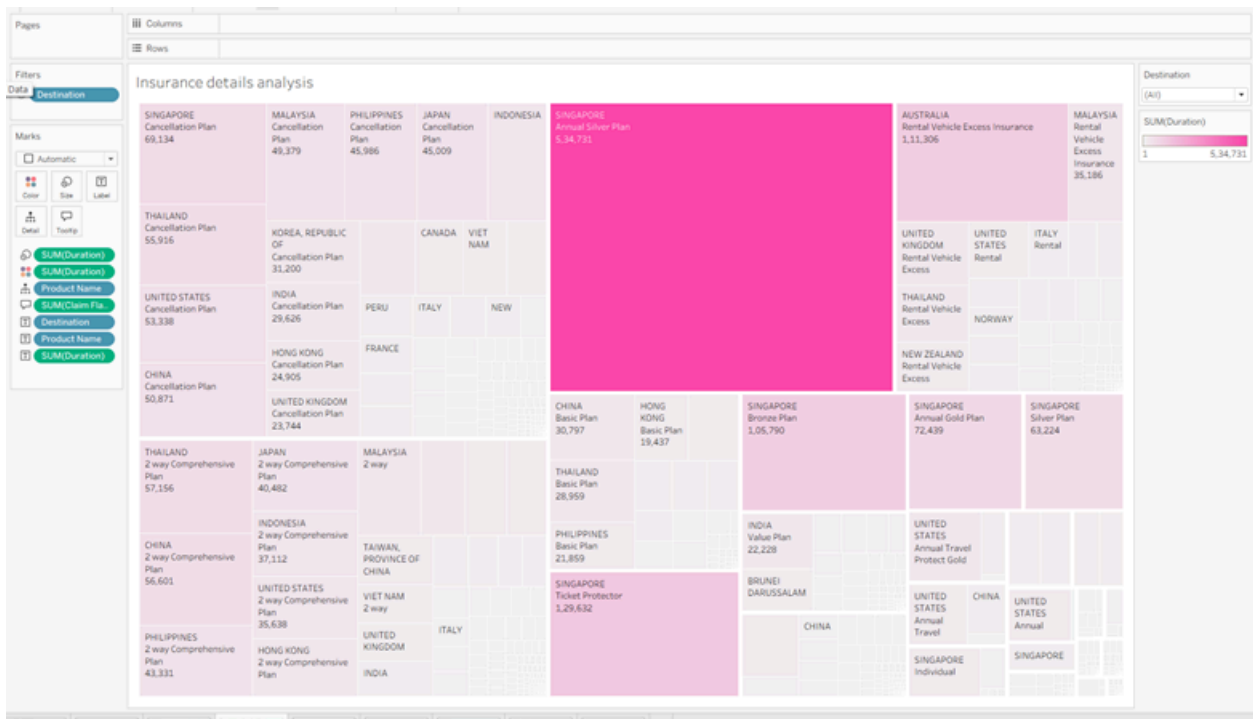Figure 4: Insurance details analysis treemap (Product × Destination).

Figure 5: Customer Demographic Analysis by destination (gender-stacked).

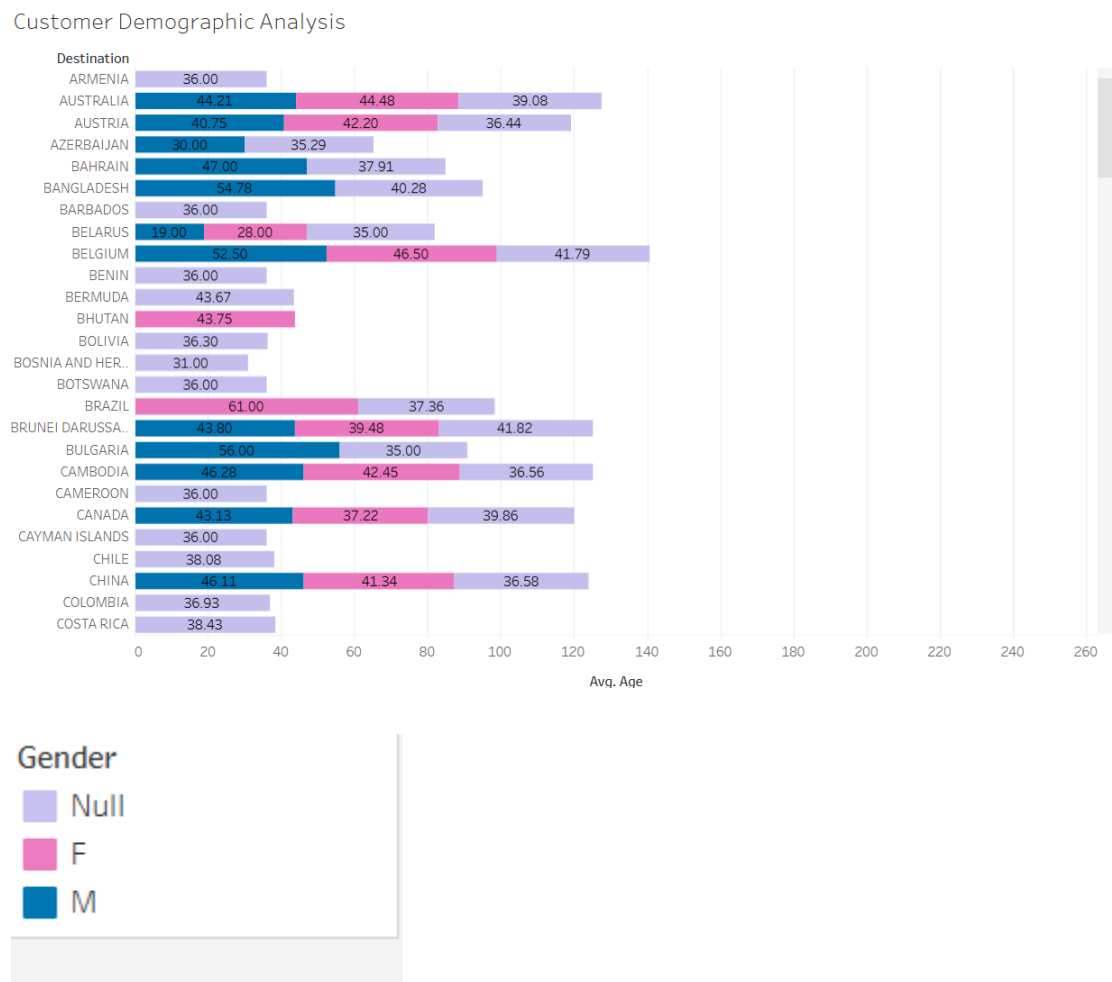Here i have taken the avg age of each gender category for each country

Figure 6: Arrivals Map – bubble size and claim-rate color.