

Final Project Proposal (DS102 and DS104)

Problem Statement:

The project objective is to understand which risk profile are more likely to have high claim rate of travel insurance and determine the price for the particular plans to be adjusted based on the age, duration and country that is most travelled.

Introduction of dataset:

Dataset: travel insurance.csv

This dataset is obtained from a third-party Singapore-based travel insurance services company. It contains 63,326 rows and 11 attributes about travel insurance products had been sold and the amount of net sales with claim status.

The attributes of the dataset have as per below:

1. Name of agency (Agency)
2. Type of travel insurance agencies (Agency Type)
3. Distribution channel of travel insurance agencies (Distribution Channel)
4. Name of the travel insurance products (Product Name)
5. Claim Status (Claim)
6. Duration of travel (Duration)
7. Destination of travel (Destination)
8. Amount of sales of travel insurance policies (Net Sales)
9. Commission received for travel insurance agency (Commission)
10. Gender of insured (Gender)
11. Age of insured (Age)

The dataset was obtained from the website of Kaggle as per the link below.

<https://www.kaggle.com/mhdzahier/travel-insurance>

Sample of the dataset

	Agency	Agency Type	Distribution Channel	Product Name	Claim	Duration	Destination	Net Sales	Commision (in value)	Gender	Age
0	CBH	Travel Agency	Offline	Comprehensive Plan	No	186	MALAYSIA	-29.0	9.57	F	81
1	CBH	Travel Agency	Offline	Comprehensive Plan	No	186	MALAYSIA	-29.0	9.57	F	71
2	CWT	Travel Agency	Online	Rental Vehicle Excess Insurance	No	65	AUSTRALIA	-49.5	29.70	NaN	32
3	CWT	Travel Agency	Online	Rental Vehicle Excess Insurance	No	60	AUSTRALIA	-39.6	23.76	NaN	32
4	CWT	Travel Agency	Online	Rental Vehicle Excess Insurance	No	79	ITALY	-19.8	11.88	NaN	41
...
63321	JZI	Airlines	Online	Basic Plan	No	111	JAPAN	35.0	12.25	M	31
63322	JZI	Airlines	Online	Basic Plan	No	58	CHINA	40.0	14.00	F	40
63323	JZI	Airlines	Online	Basic Plan	No	2	MALAYSIA	18.0	6.30	M	57
63324	JZI	Airlines	Online	Basic Plan	No	3	VIET NAM	18.0	6.30	M	63
63325	JZI	Airlines	Online	Basic Plan	No	22	HONG KONG	26.0	9.10	F	35

63326 rows × 11 columns

Background of the dataset:

Travel insurance is a plan you purchase that protects you from certain financial risks and losses that can occur while traveling, either internationally or domestically. These losses can be minor, like a delayed suitcase, or significant, like a last-minute trip cancellation or a medical emergency overseas.

Challenge or Difficulties:

The challenges that were anticipated during the preparation of the data for analysis which the attributes of age is not accurate for more than 900 records and there are more than half of the data for gender are empty.

Some questions that can be lead to the goal from this dataset:

Statistics:

1. Which is the highest frequency of all the continuous and categorical variables?
2. Which product have the highest net sales and highest commission?
3. What are number of claim per product?
4. Which agency sells the most claimed product?
5. How many transactions are negative for the total amount of net sales?
6. Which agency has the highest commission and claim/no claim?
7. Does agency type reflect on how much product were sold?
8. Which agency take more risk selling product to buyers with higher risk profile (i.e. elderly people)?

Analysis:

1. Analyse which product categories are more popular among destination and duration.
2. Which destination have the highest claim and what was the percentage of claim from that destination out of all destination?
3. What was the total commission amount received by agency through which distribution channel?
4. Find out the range of the age that purchased the most popular product that was claimed.
5. Compare number of claim and the commission paid out among the product.
6. Analyse how are the 4 factors (duration, product, age, destination) are correlated to the frequency of claim.
7. Does the agency that sell the most volume of insurance equivalent to the top commission earning agency?

Hope this analysis is able to provide the travel insurance provider to have better calculation on the sales price against the commission paid out and claims.