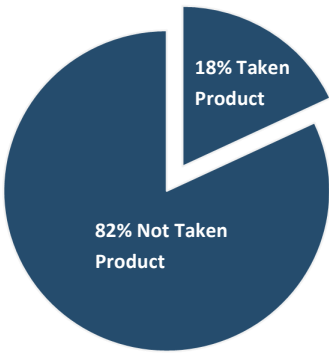


Trips&Travel.com

Holiday Package Recommendation

With Random Forest - Hyperparameter Tuning

Business Understanding



Problem Statement

Trips&Travel.com is a company that provides holiday packages such as: Basic, Standard, Deluxe, Super Deluxe, King. Looking at the data of the last year, the marketing cost is quite high while only **18%** of the customers purchased the packages. They **loss 3.968 customers** because customers were contacted **randomly**.

Goals



Increase sales of Trips & Travel.Com Holiday Packages

Metrix

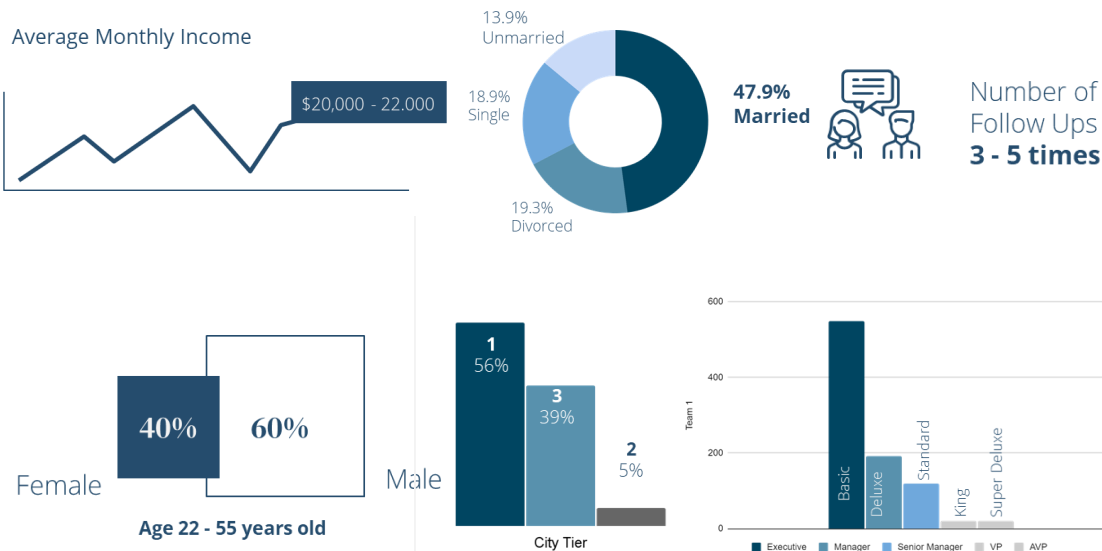


Number of Product Taken
Revenue

Objective

- Create system to predict potential customer to support Wellness Tourism Package sales
- Determine customer segmentation of the available packages
- Implement new

Product Taken Customer Behavior



Exploratory Data Analysis

47.9% of customers who picked up the product were **married** with an **monthly income of \$20000 - 22000**

There are **60% of customers** who take the product are **male** with an age range of **22 - 55 years** who are of productive age to work

Which customer took the product in **city tier 1 and 2**

The customer who takes the product is a customer with **Number of Follow Ups 3-5 times**

The most widely taken package is the **basic package**

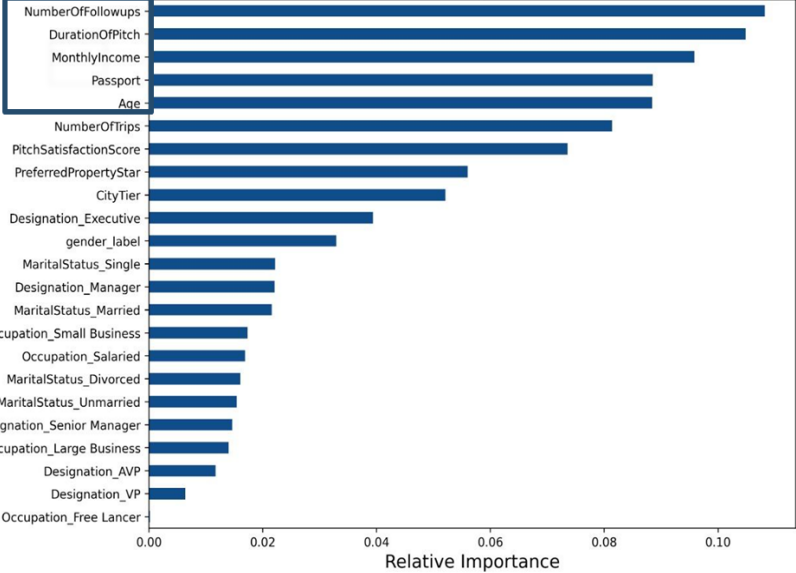
Machine Learning Modelling

Train - Test Split	Ratio 3:1 for modeling		
Class Imbalance	SMOTE Method with Prod Taken 0 and 1 become 2591 : 2591 (1:1)		
Modeling	<div><div><div>Logistic Regression</div><div>K Nearest Neighbor</div><div>Decision Tree</div></div><div><div>AdaBoost</div><div>XGBoost</div><div>Stacking</div></div></div> With Hyperparameter Tuning		
Evaluation	Accuracy	Recall	Precision
	F Score	ROC-AUC	

Confusion Matrix

Model	True Positive	True Negative	False Positive	False Negative
Random Forest - Hyperparameter Tuning	14.20 %	78.52 %	2.26 %	5.03 %
Random Forest	13.44 %	78.52 %	2.58 %	5.78 %
Stacking	15.08 %	77.45 %	3.33 %	4.15 %

Feature Importances



Business Strategy and Recommendation



For Sales Team:

- The effective Number of Follow Ups is **3 - 5 times** with Duration of Pitch **9 - 22 minutes**
- Provide **additional services for making passport**



Optimize Social Media

Instagram (Target Age: 26-30)
Youtube (Target Age: 26 - 35)
Facebook (Target Age: 30-56)
Email Marketing



Product Proposal

- Actively offer Proposal Business, specially before holiday.
- Promotion time for those who are already married: on long holidays (eg Eid or Christmas)
- If single, offer product after peak season



Actively Join Exhibition

Actively join family travel Exhibition

Customer Segmentation

Wellness Tourism

28 - 41 years old
Single & Married
Male
City Tier 1 and 3
Salaried Executive
18000 - 23000 USD

Basic

26 - 37 years old
Single
Male
City Tier 1
Salaried Executive
17000 - 21000 USD

Standard

32 - 44 years old
Married
Male
City Tier 3
Small Business Manager
20000 - 24000 USD

Deluxe

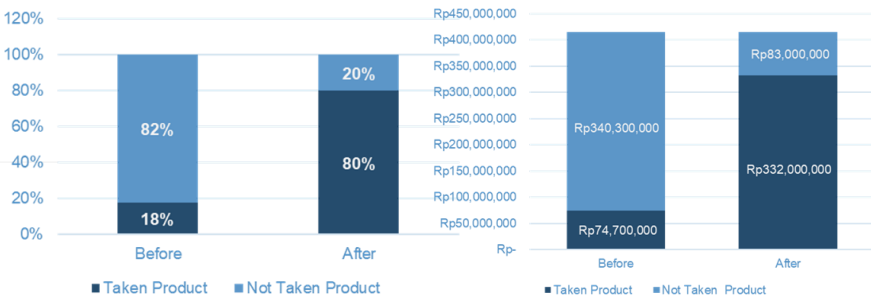
32 - 44 years old
Married
Male
City Tier 3
Small Business Manager
20000 - 24000 USD

Super Deluxe

40 - 45 years old
Single
Male
City Tier 3
Salaried AVP
28000 - 31000 USD

King

42 - 56 years old
Single
Female
City Tier 1
Small Business VP
34000 - 38000 USD



Sales Increase 288 - 344%