

Final Project Rakamin

HOLIDAY PACKAGE PREDICTION

TUJUHENAM



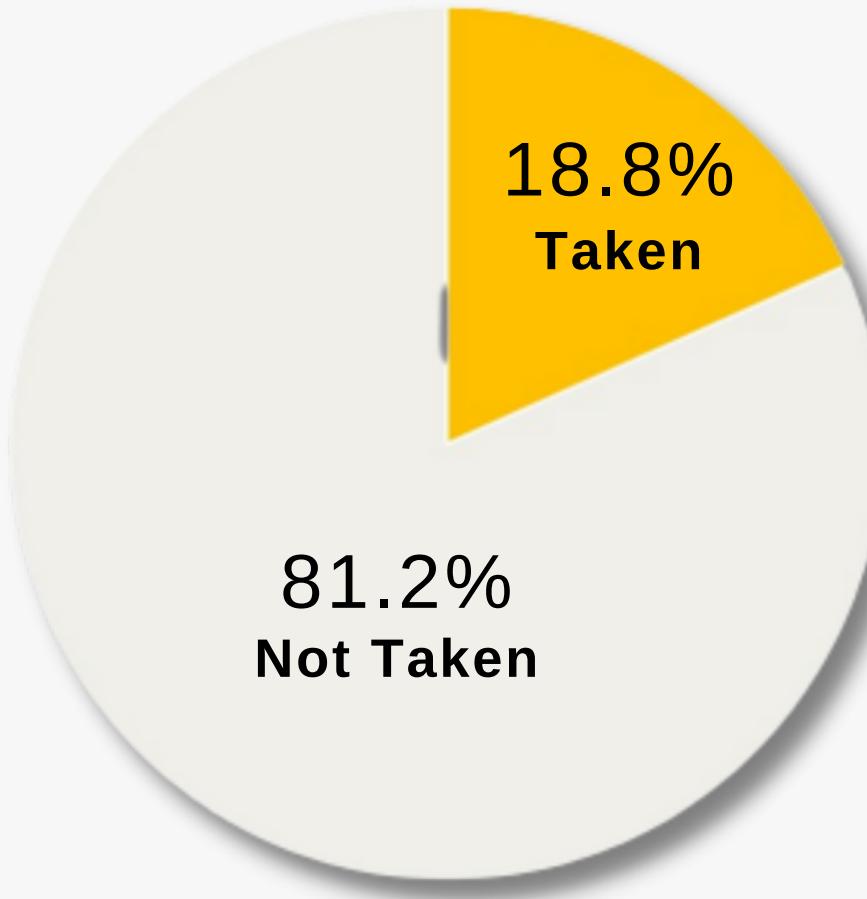


OUTLINE

Problem Statement
Data Insights
Machine Learning Model
Business Solution
Business Simulation
Business Recommendations

CURRENT PROBLEMS

Trips & Travel company plans to offer a new product called "Wellness Tourism Package" to customers through **telemarketing**.



1

Low Conversion Rate

The marketing team contacted customers **at random**.

Conversion rate customers taken the product was **very low**, which means the marketing strategy was **not effective**.

2

High Telemarketing Cost

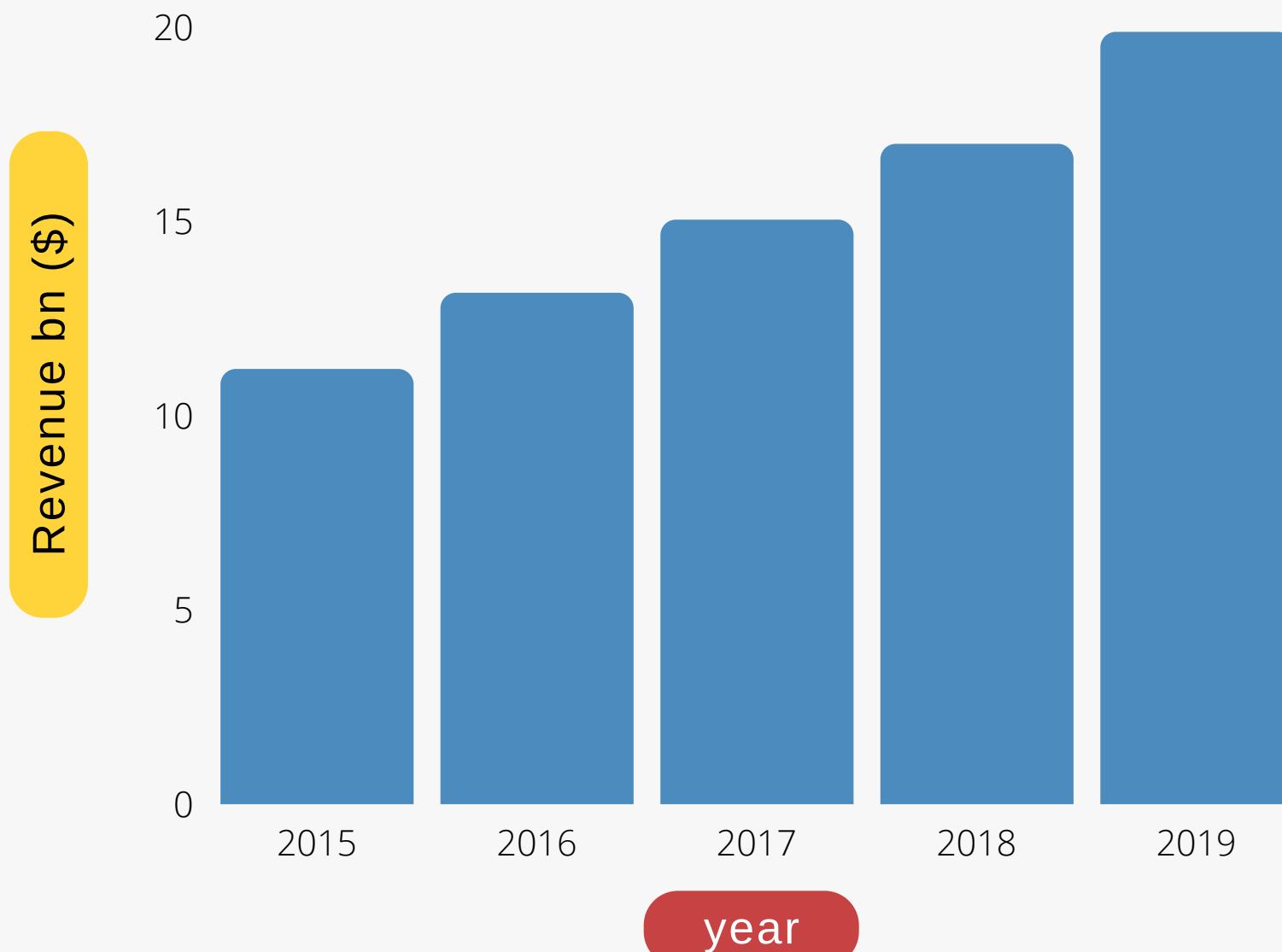
Customer pithing through telemarketing cost company up to **SAR 133,072.5** in a year.

1 SAR = 3,966.73 IDR



CURRENT PROBLEMS

Tourism Revenue in Saudi Arabia



Saudi Arabia's tourism shows an **incremental revenue** every year.

This should be **an opportunity** for the company to increase the conversion rate.





THE GOALS

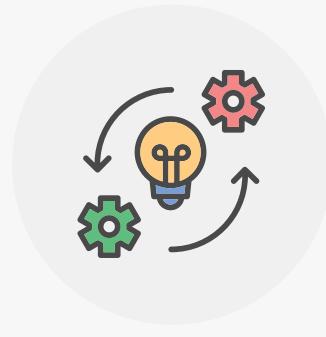


Increase conversion rate by 70%



Decrease telemarketing cost by 50%

OBJECTIVES



Develop a model
to predict potential customers for pitching



Find importance factors
to identify the customers who take the product



Propose business recommendations
for the future marketing strategy

DATA OVERVIEW

- 1 The dataset consists of **4888 unique customer data** and **20 columns**
- 2 There are **6 categoric** and **14 numeric** columns
- 3 **Missing values** is **15.4%** of total data

Target Column



"Taken"

Customer take a product package after pitching

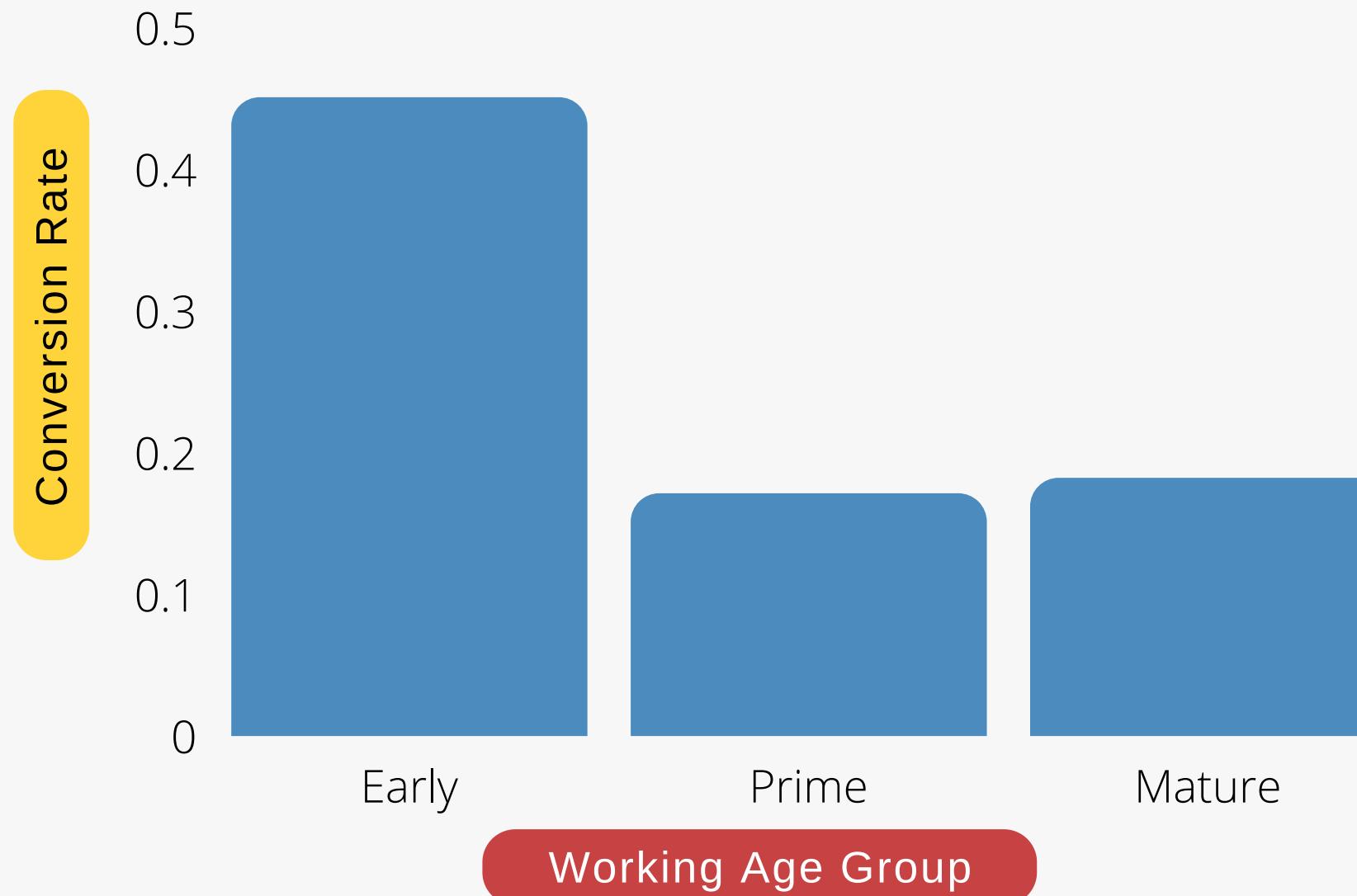


"Not Taken"

Customer doesn't take a product package after pitching

DATA INSIGHT

The effect of working age group on conversion rate

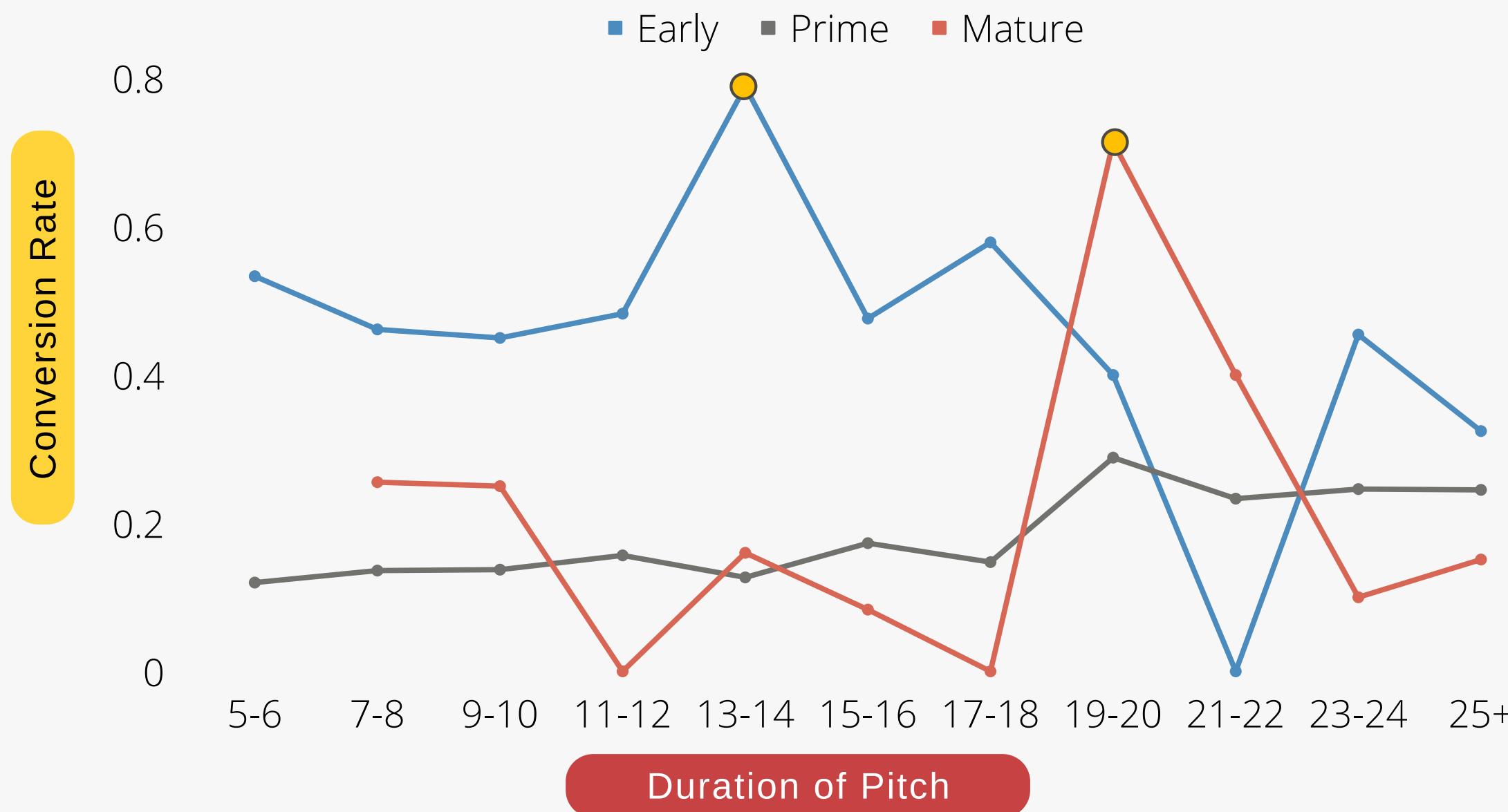


The early working age group of customers generated the highest conversion rate.

These customers are in the range of 15-24 years old.

DATA INSIGHT

The effect of **duration of pitch** and **working age group** on **conversion rate**

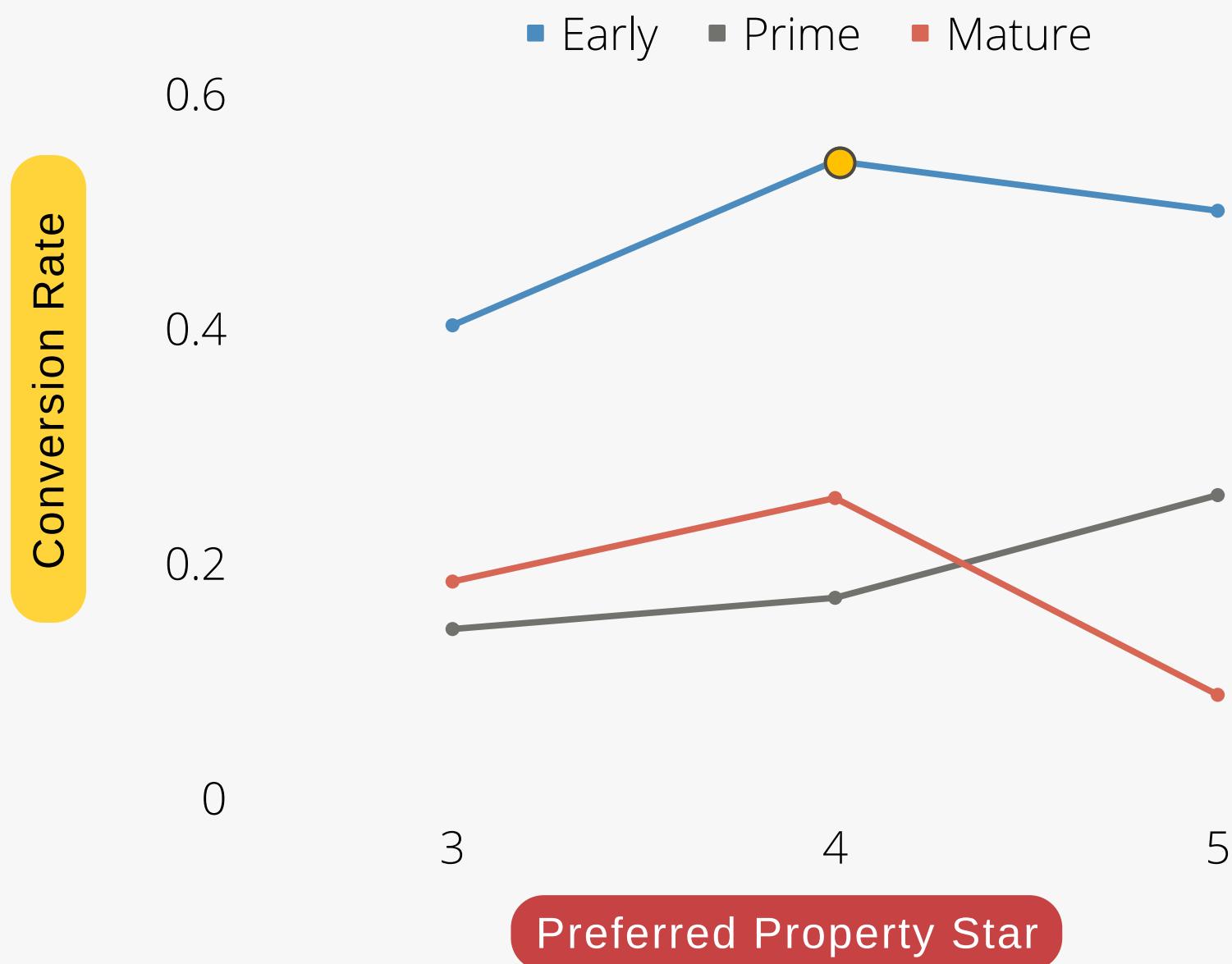


The **optimum** pitching duration through phone :

- for the **early working age** group of customers is **13-14 mins.**
- for the **mature working age** group of customers is **19-20 mins.**

DATA INSIGHT

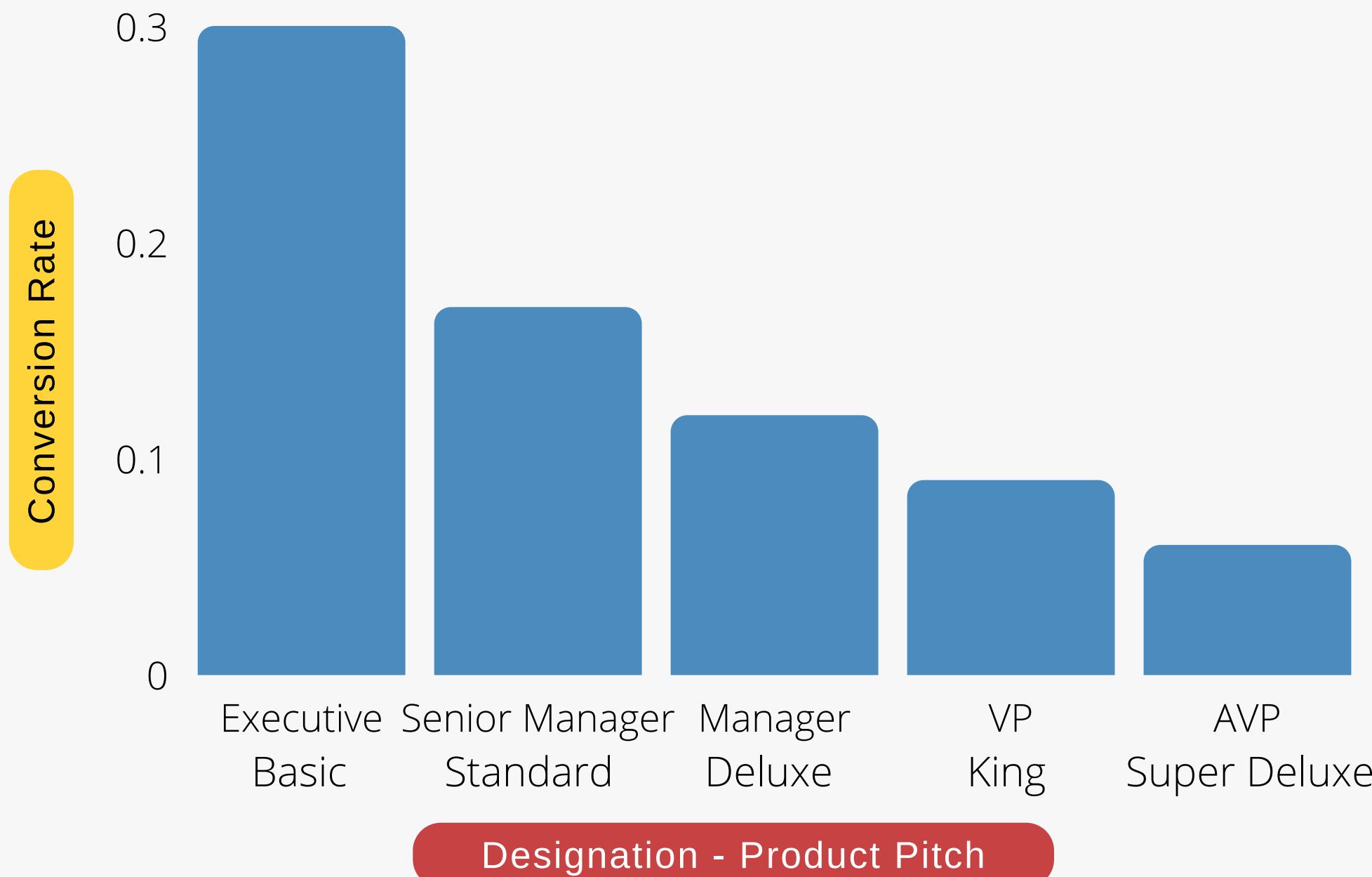
The effect of preferred property star and working age group on conversion rate



The early working age group of customers mostly prefer the 4-star property.

DATA INSIGHT

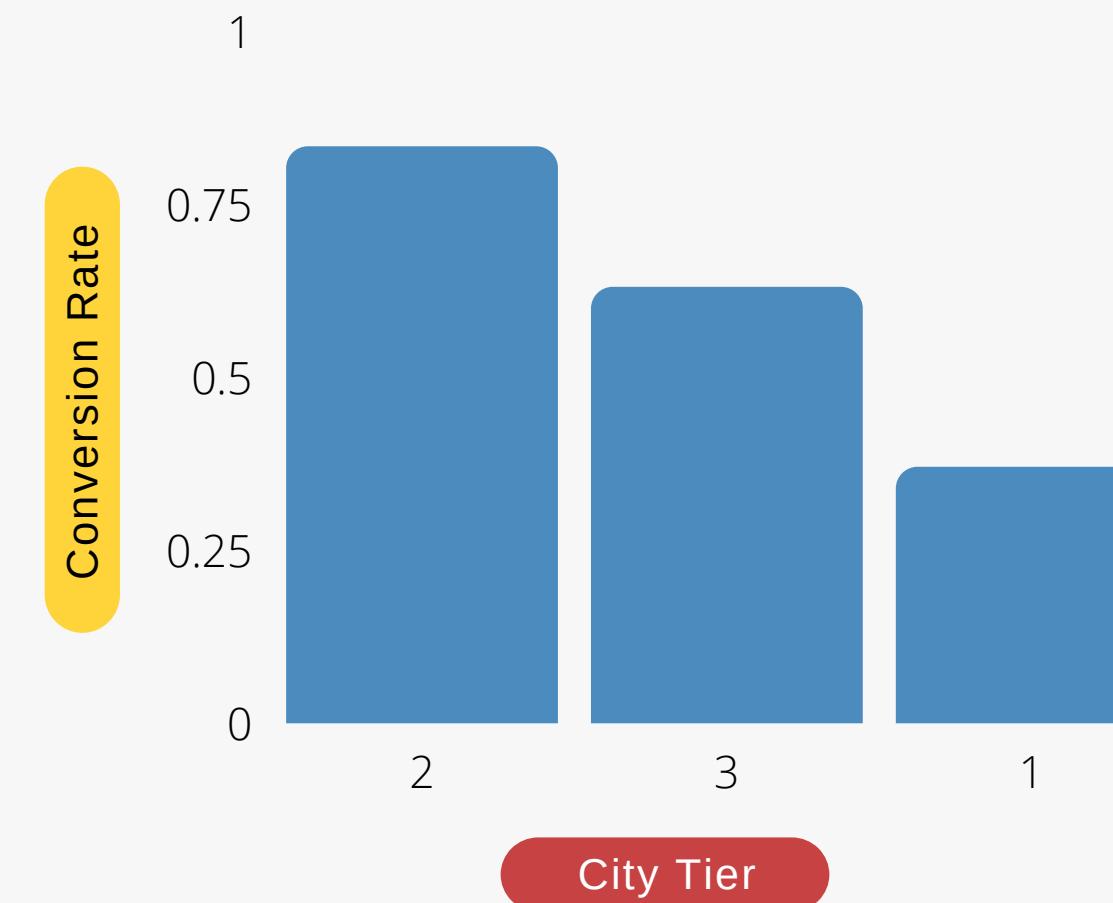
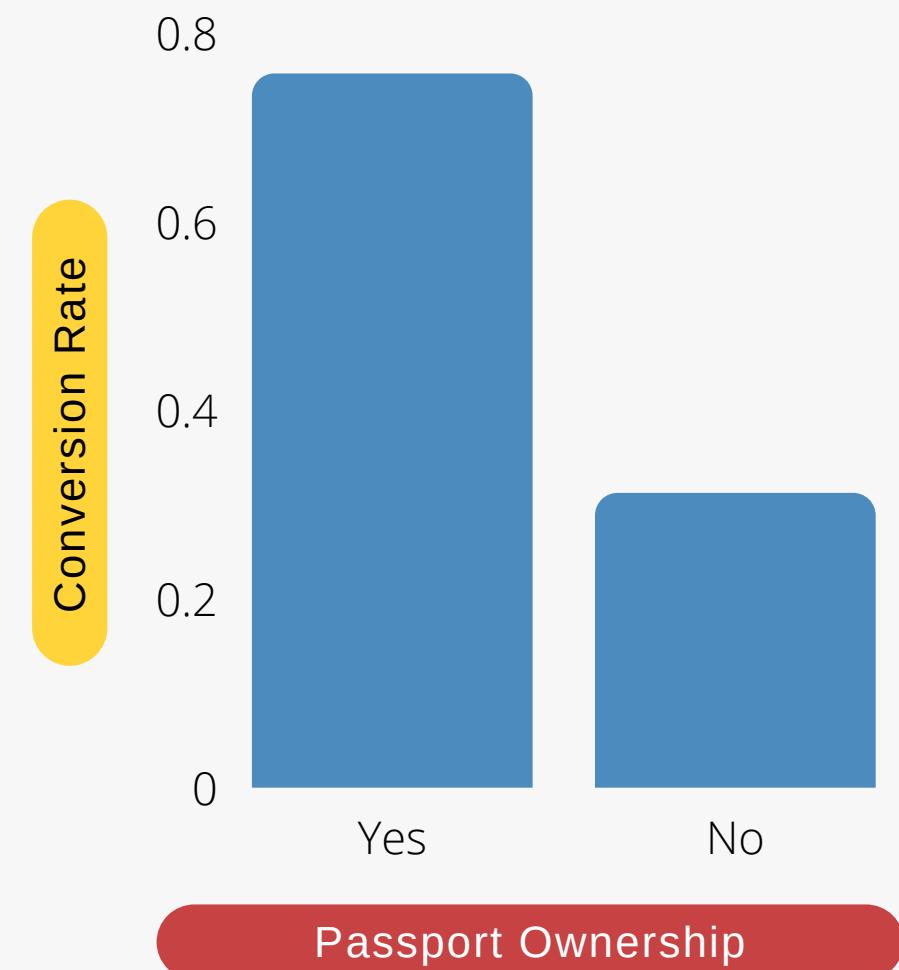
The effect of **designation** and **product pitched** on **conversion rate**



An **Executive with Product Pitched 'Basic'** is a combination that generated conversion rate of 30%, which is the **highest** among others.

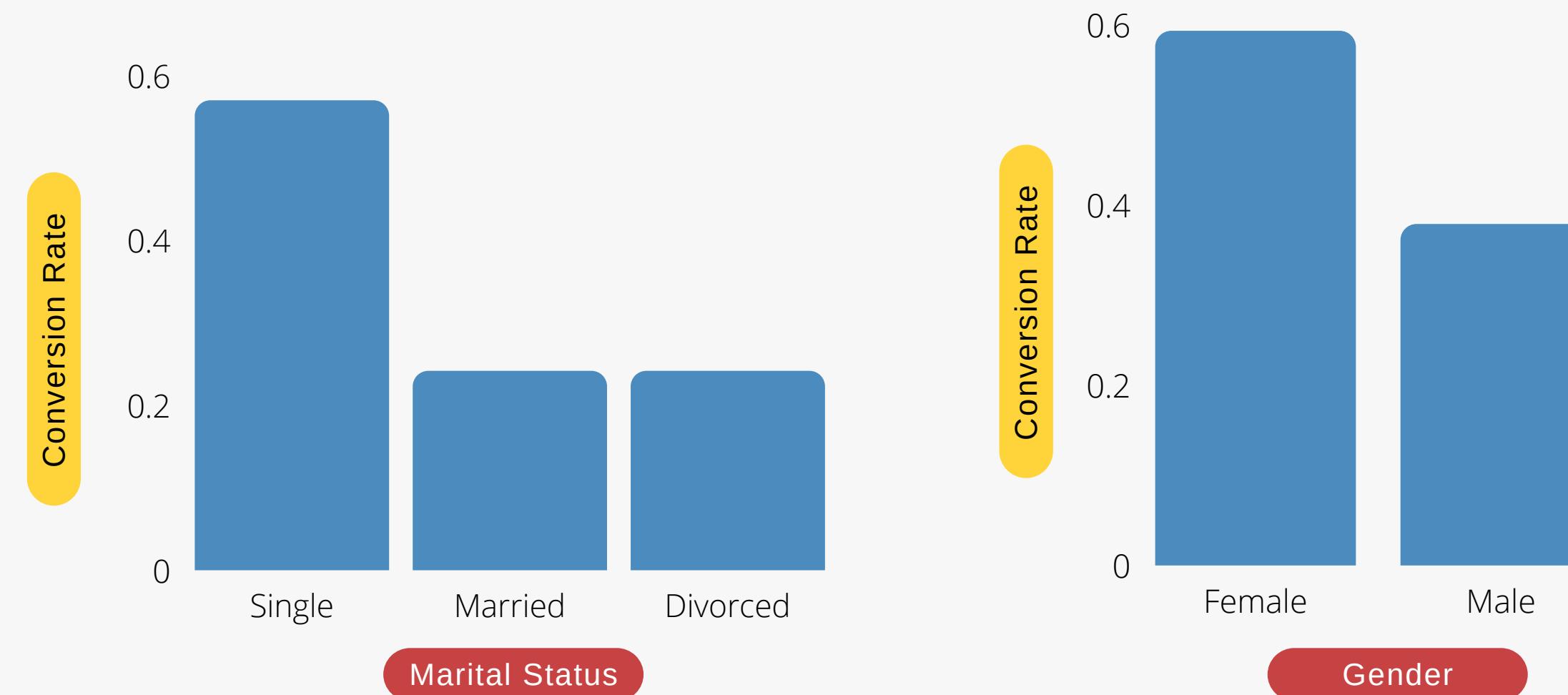
DATA INSIGHT

The effect of **passport ownership** and **city tier** on **conversion rate**



DATA INSIGHT

The effect of **marital status** and **gender** on **conversion rate**



DATA PREPROCESSING

Handling Missing & Duplicate Values

- Use Median and Mode
- Remove 99 Duplicates
- Drop *CustomerID*

Handling Outliers

- IQR Approach

Feature Extraction

- Add *AgeFeature* & *MarketingCost*

Handling Class Imbalance

- SMOTE oversampling

Feature Transformation & Encoding

- Standardization
- Label Encoding & One-Hot Encoding

Feature Selection

- 24 Features

MACHINE
LEARNING
MODEL

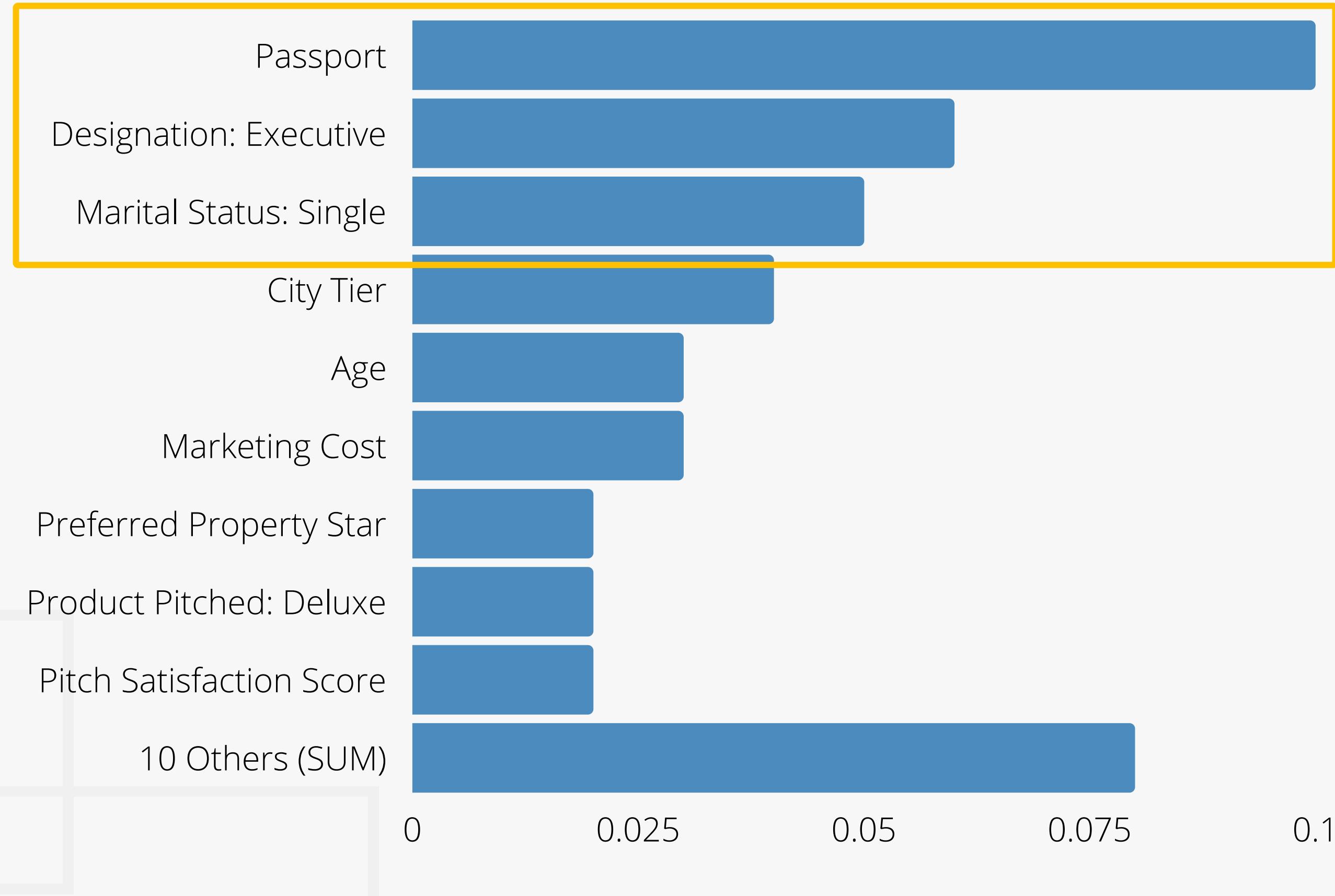
MODELING RESULTS

	Logistic Regression	KNN	Decision Tree	Random Forest	XGBoost
Accuracy	0.72	0.88	0.72	0.80	0.80
Precision	0.37	0.62	0.33	0.96	0.48
Recall	0.70	0.89	0.48	0.62	0.53
F1-score	0.48	0.73	0.39	0.75	0.50
AUC	0.71	0.88	0.63	0.85	0.70

Best-fit Over-fit Best-fit Best-fit Best-fit

Precision metric is used to minimize false predicted customers who are going to take the products

FEATURE IMPORTANCE

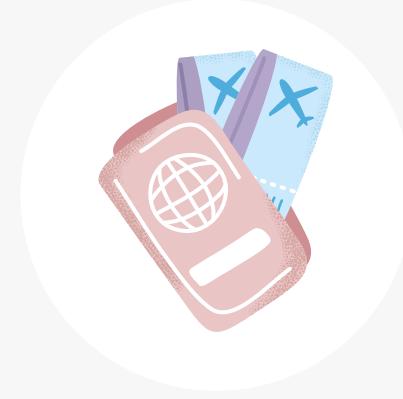


Top 3 important features

BUSINESS PROBLEM



BUSINESS SOLUTION



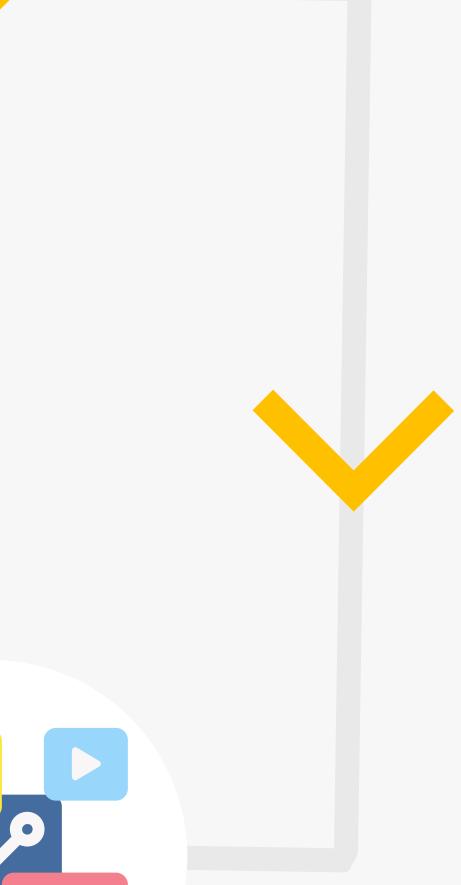
Travel Package



Machine Learning
Model



Potential Customers



Conversion rate increases 70%
Telemarketing cost decrease 50%



Telemarketing



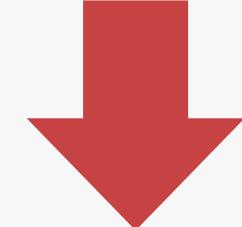
Marketing
Exposure

BUSINESS SIMULATION

Without Machine Learning

Conversion Rate: 18.8%
from 100% customers pitched
(975 customers)

Telemarketing Cost: 105,088,101 IDR

Telemarketing Cost  **56%**

Conversion Rate  **77.2%**

With Machine Learning

Conversion Rate: 96%
from 62% potential customers
pitched (191 customers)

Telemarketing Cost: 45,785,272 IDR

ROI : +151%

with assumptions:

1. Duration of pitching: 20 mins
2. Using the same total success pitching

BUSINESS RECOMMENDATION

Wellness Tourism Package

Package that allows the traveler to maintain, enhance or kick-start a **healthy lifestyle**, and support or increase one's **sense of well-being**.

Concentrated Marketing

Choose to market for only **one small segment** and try go after large share of that segment.

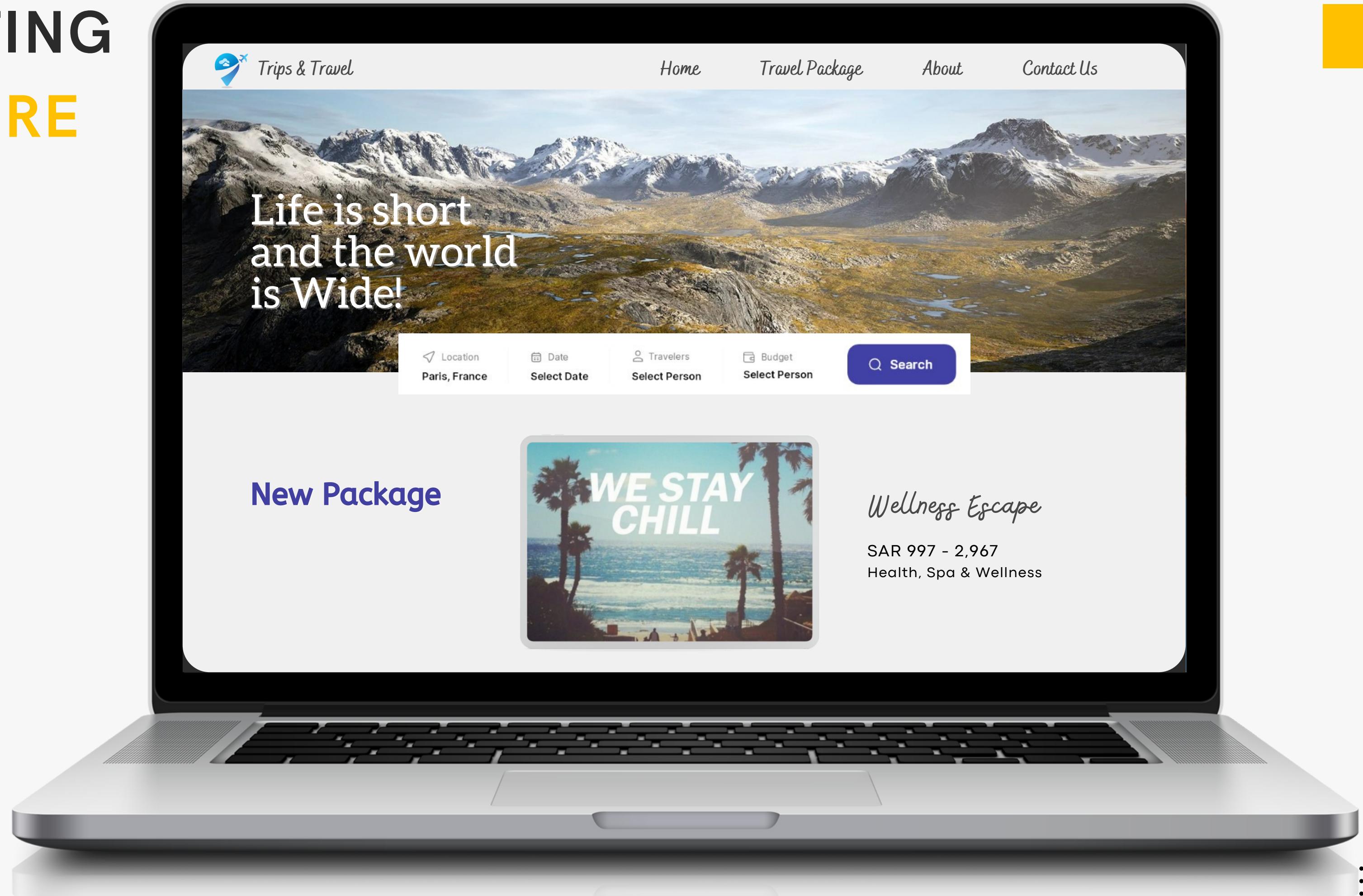
- **Early** working age **executive**
- **Single female**
- Have a **passport** and live in **city tier 2**

Pitching

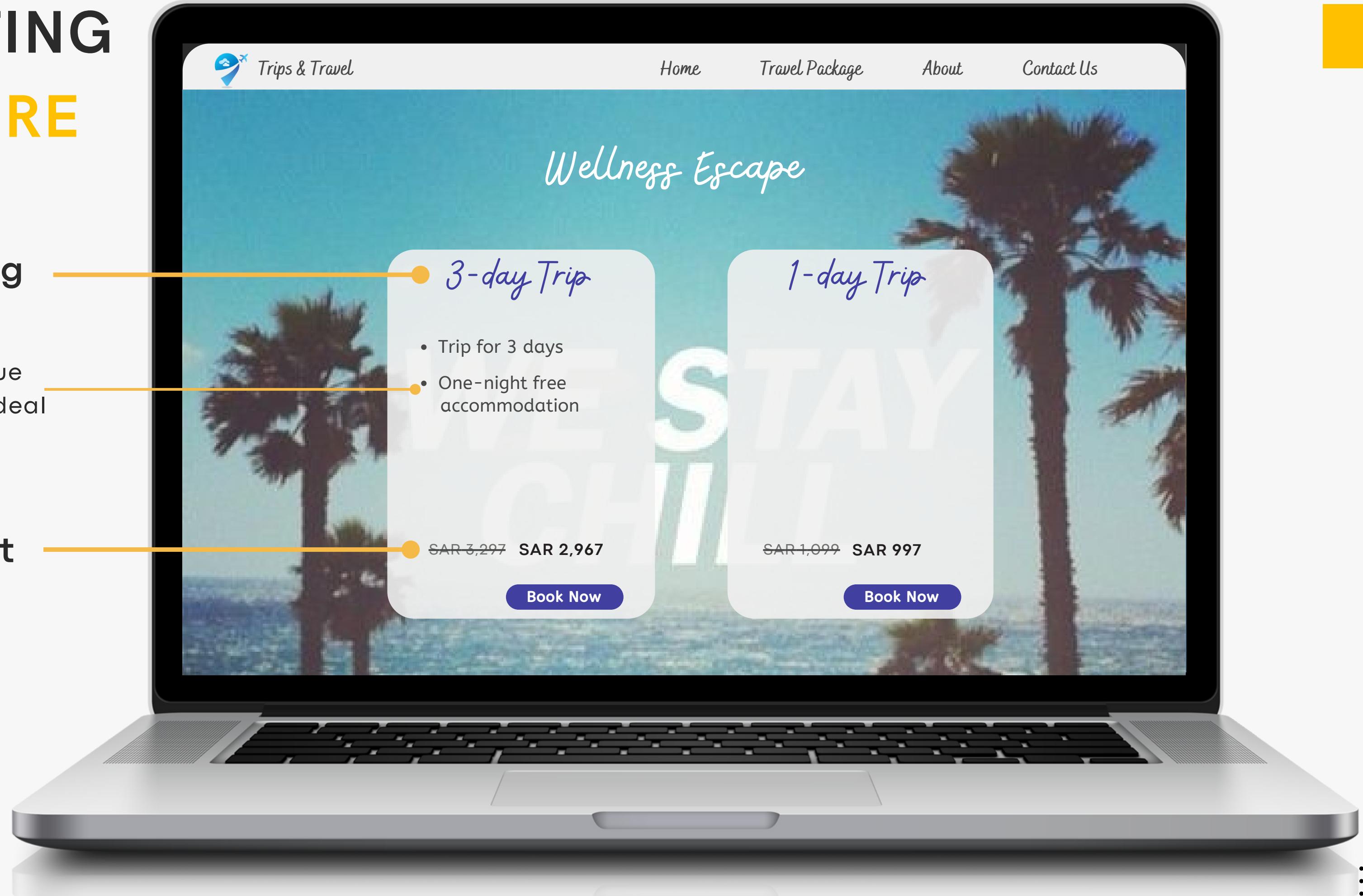
- Pitching duration is around **13-14 mins**
- Improve the **quality** of telemarketers
- **Solid** and **appealing** pitching content



MARKETING EXPOSURE



MARKETING EXPOSURE



THANK YOU
ANY QUESTIONS?

