

# Holiday Package

# Prediction

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# Agenda

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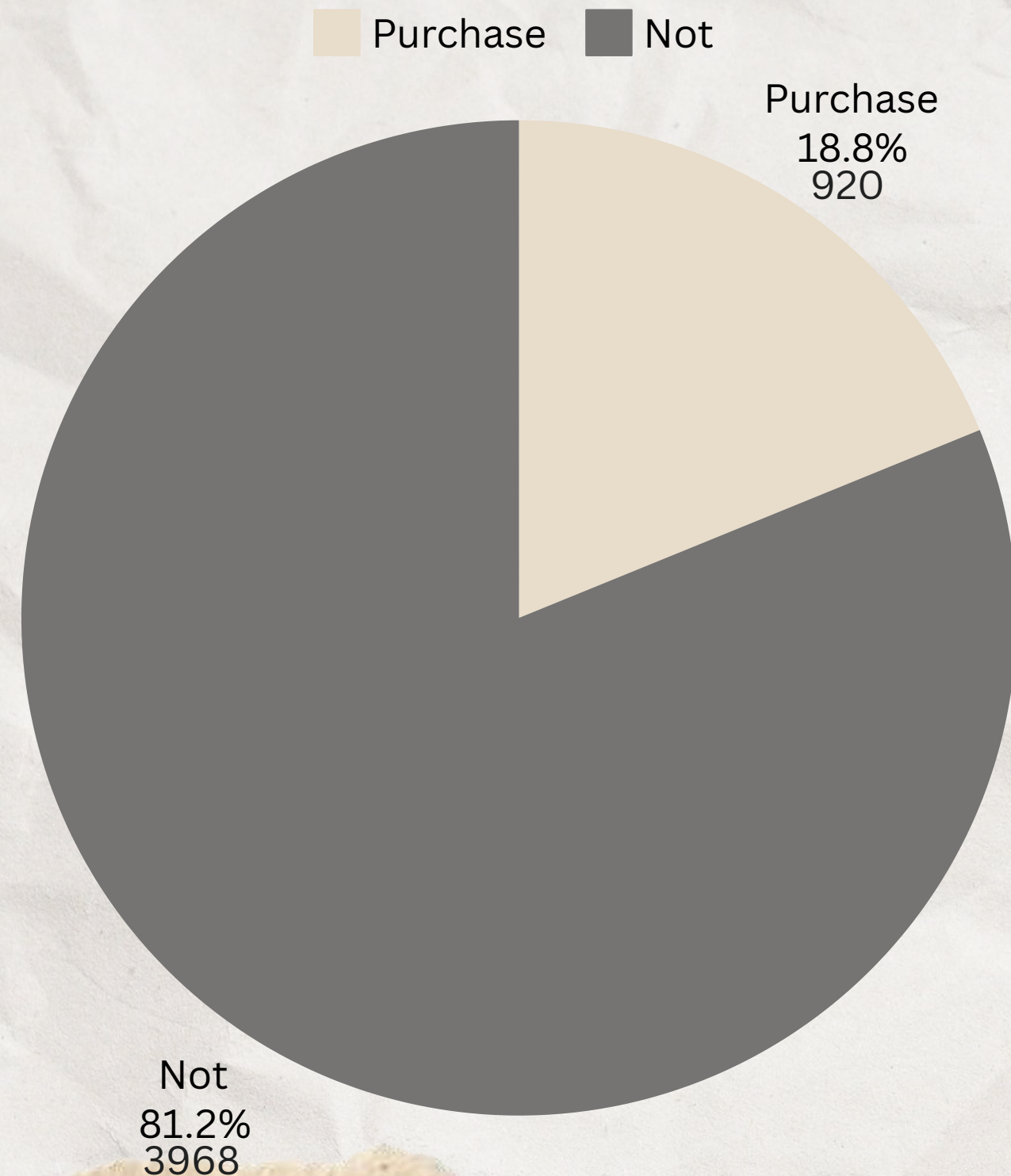
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# Introduction



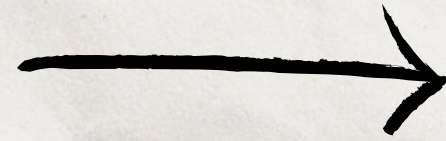
**"Trips & Travel.com"** company wants to enable and establish a viable business model to expand the customer base. Currently, the company offers five types of packages: Basic, Standard, Deluxe, Super Deluxe, and King. ***Last year's data found that 18.8% (920) of customers purchased these packages. However, the marketing costs were high due to random customer outreach without utilizing available information.*** The company now plans to launch a new product: the Wellness Tourism Package. Wellness Tourism involves travel that helps maintain, enhance, or start a healthy lifestyle, boosting one's overall well-being. ***This time, the company intends to use existing data on current and potential customers to optimize marketing expenses efficiently.***





# Problem

**Low  
purchase  
rate**



**High  
marketing  
cost**

## Goal

- Increase the customer purchase rate
- Reduce marketing costs

## Objective

- Utilize available data to target potential customers more effectively.
- Optimize marketing strategies to ensure cost-efficiency and higher conversion rates.

## Business Metrics

- Customer purchase rate
- Return on investment (ROI)



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# Data Understanding

The dataset used in this analysis is sourced from Kaggle, titled Holiday Package Prediction. It contains 4888 rows and 20 columns.

## Customer

- Customer ID
- Age
- CityTier
- Occupation
- Gender
- Marital Status
- Passport
- Own car
- Designation
- Monthly Income

## Detail

- TypeofContact
- DurationOfPitch
- Occupation
- NumberOfPersonVisiting
- NumberOfFollowups
- ProductPitch
- PreferredPropertyStar
- NumberOfTrips
- PitchSatisfactionScore
- NumberOfChildrenVisiting

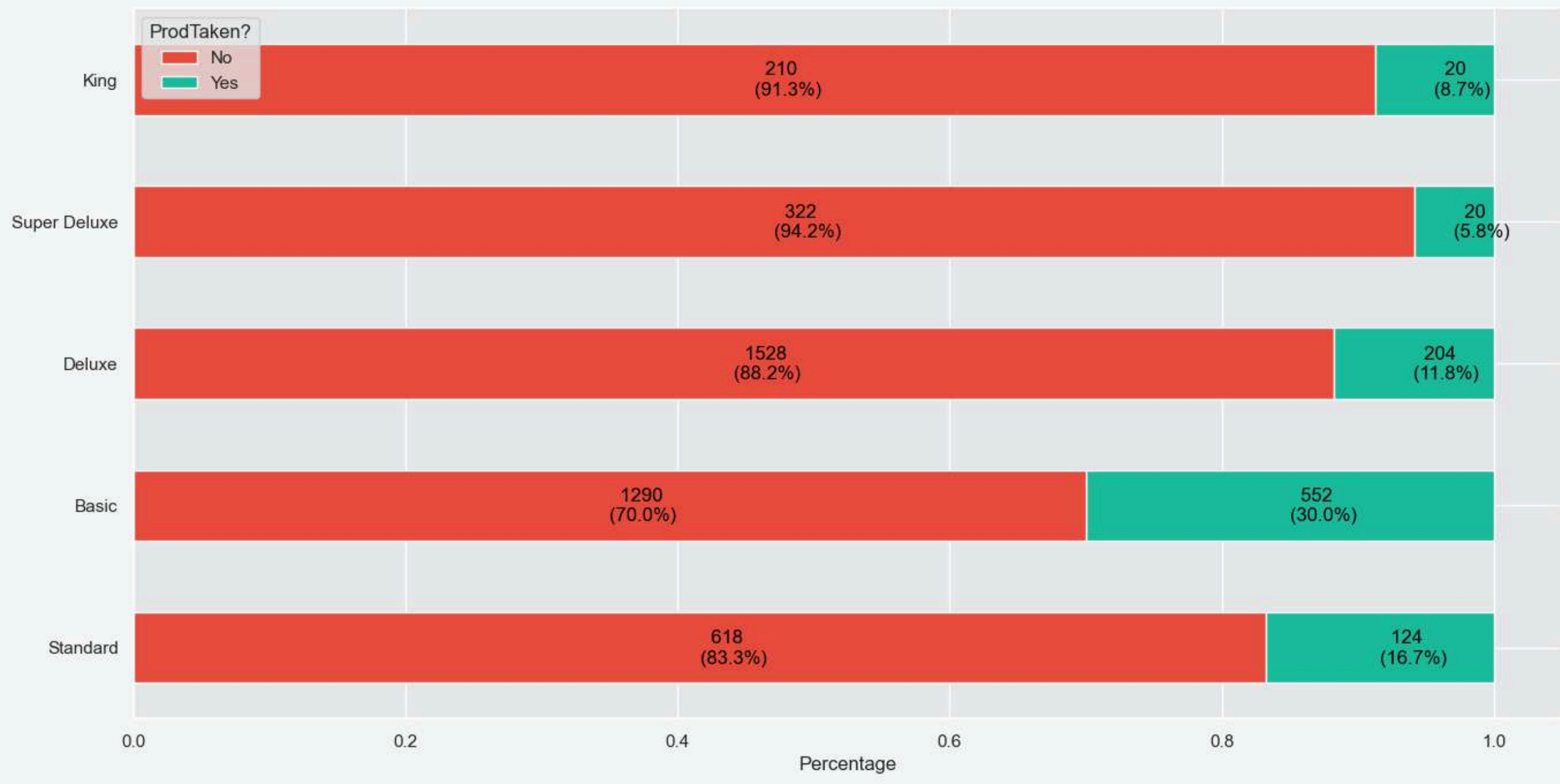
## Target

- ProductTaken



# Product Taken by Category

The decrease in the product category level makes the product relatively more taken compared to the higher product category level.



## Insight

- Majority of customers did not take the product.
- The **Basic category** has the largest percentage of "Yes" responses (30%), showing relatively higher interest compared to other categories.
- The **Super Deluxe** category has the highest percentage of "No" responses (94.2%), indicating the lowest interest among the categories.
- Two of the highest categories (Super Deluxe and King) have the lowest Product Taken.

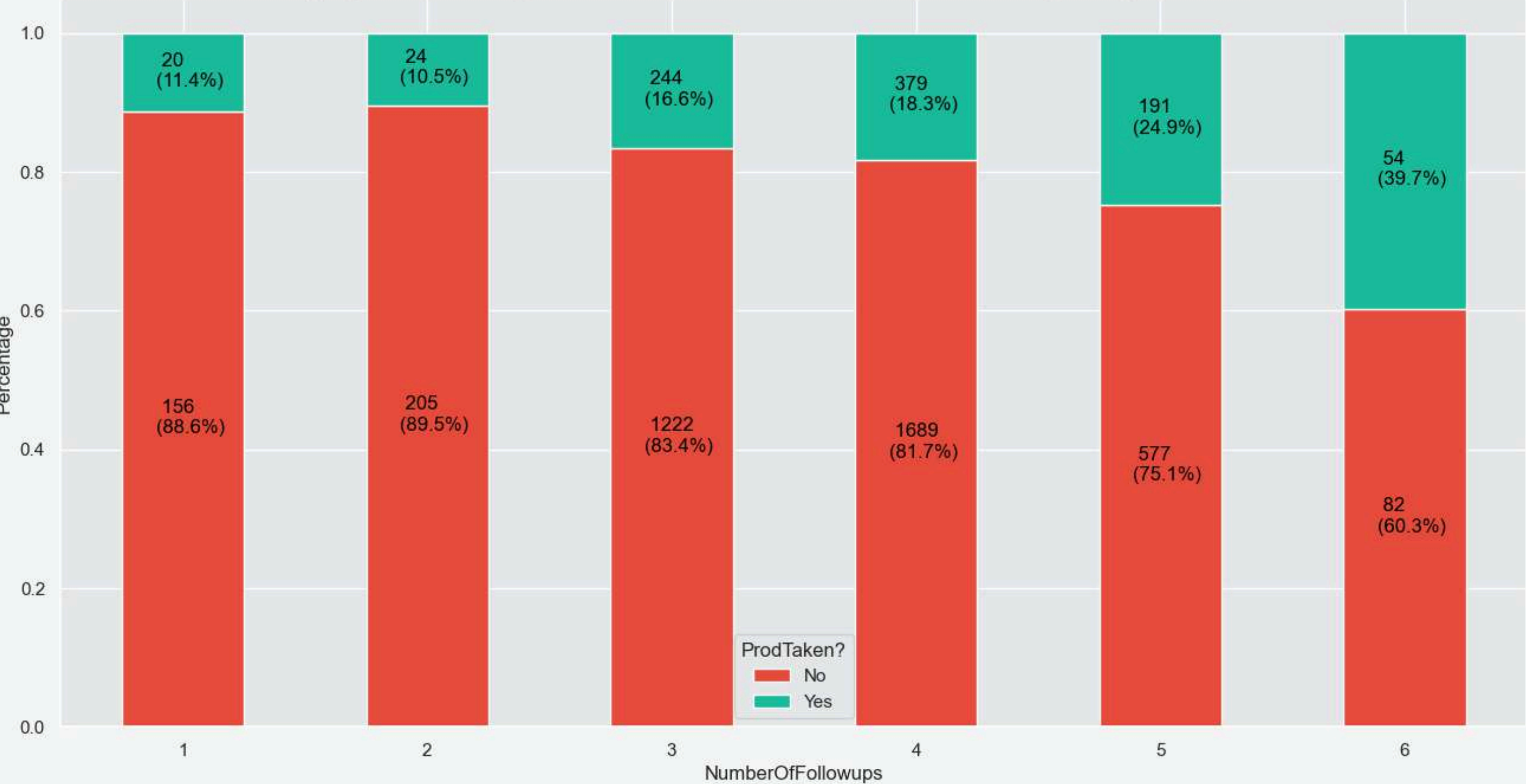
## Recommendation

- Understanding the reasons behind the higher interest in the **Basic** category could provide insights for improving product offerings and reducing marketing costs.
- Marketing strategies or product feature might need to be reassessed, especially for the **Super Deluxe** and **King** categories.



# Impact of Follow-ups on Product Taken

The more follow-ups given, the higher the likelihood of customers taking the product.



## Insight

- More follow-ups enhance the likelihood of customers taking the product. However, this is not efficient because it also increases marketing costs.

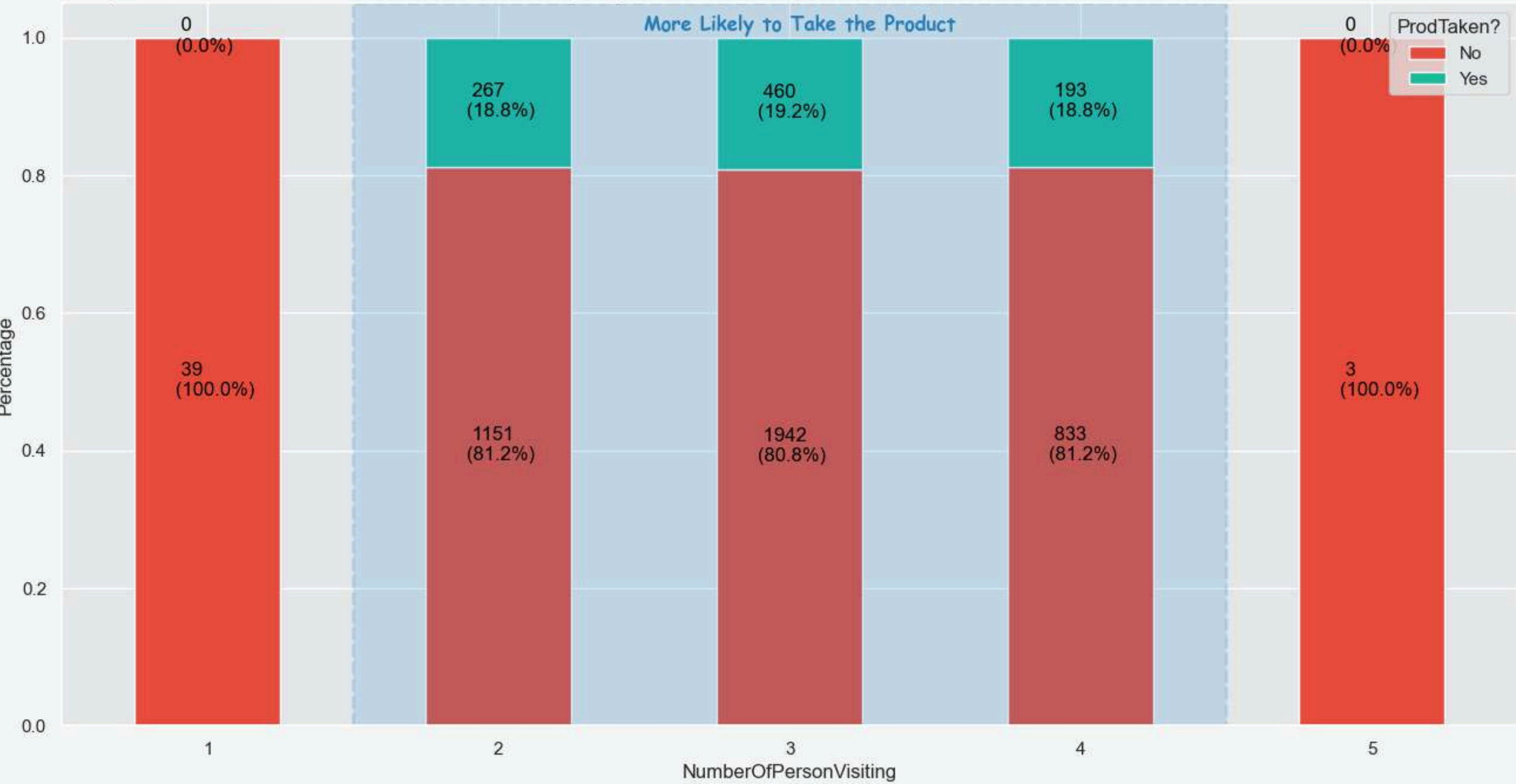
## Recommendation

- An effective follow-up strategy is crucial. We need to identify the best follow-up strategy to limit the number of follow-ups and reduce marketing costs incurred by sales personnel.



# Number of Person Visiting

Only customers who visited with 2-4 people took the product.



## Insight

- Only customers who visited with 2-4 people took the product.

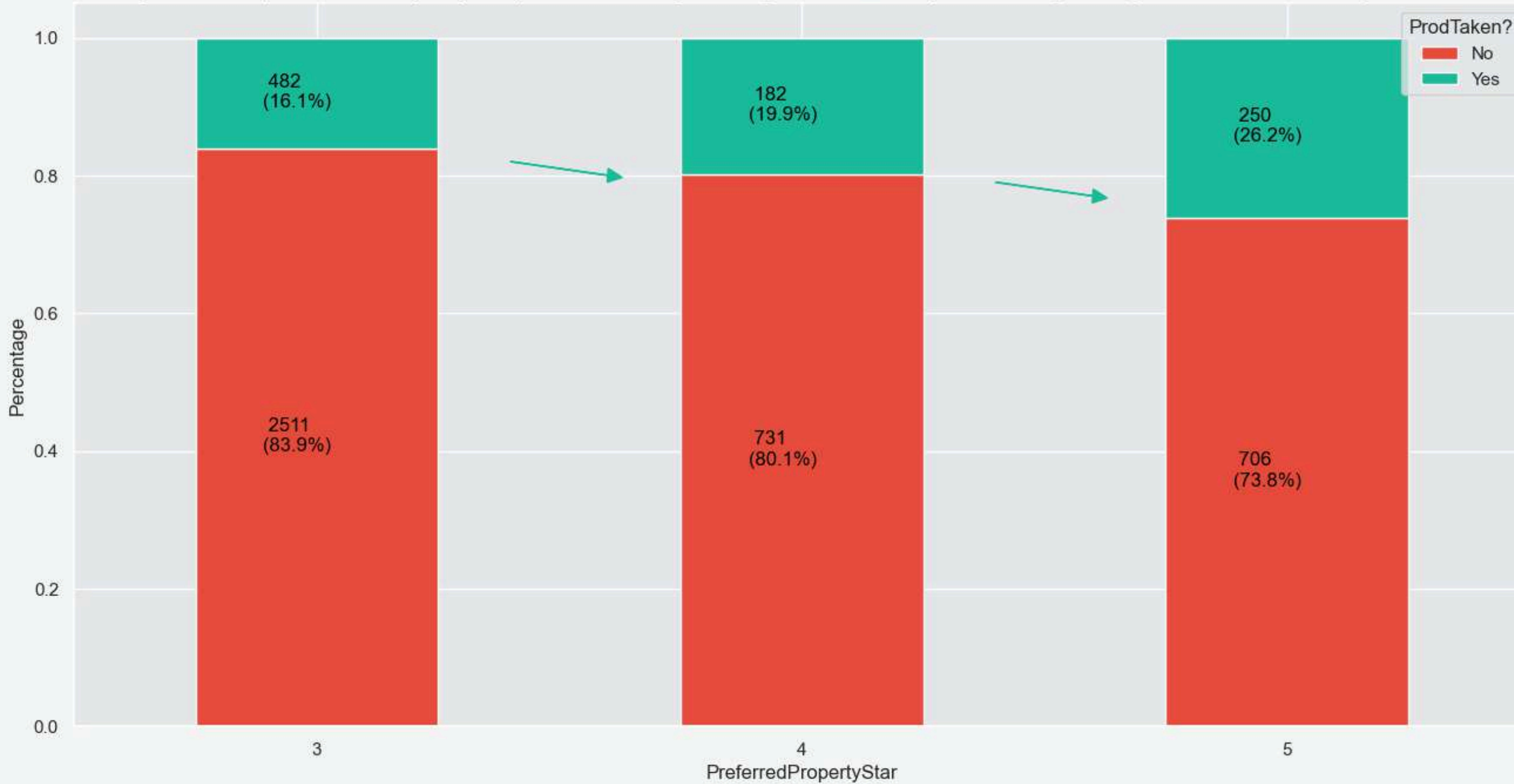
## Recommendation

- Understanding why customers who visited with 2-4 people took the product, while those who visited with 1 or 5 people did not, is crucial for improving marketing strategies.



# Preferred Property Star

The higher the preferred property star rating, the greater the percentage of products taken by customers.



## Insight

- As the preferred property star rating increases, so does the likelihood of customers taking the product.
- However, across all property star ratings, the majority of customers (>70%) still do not take the product.

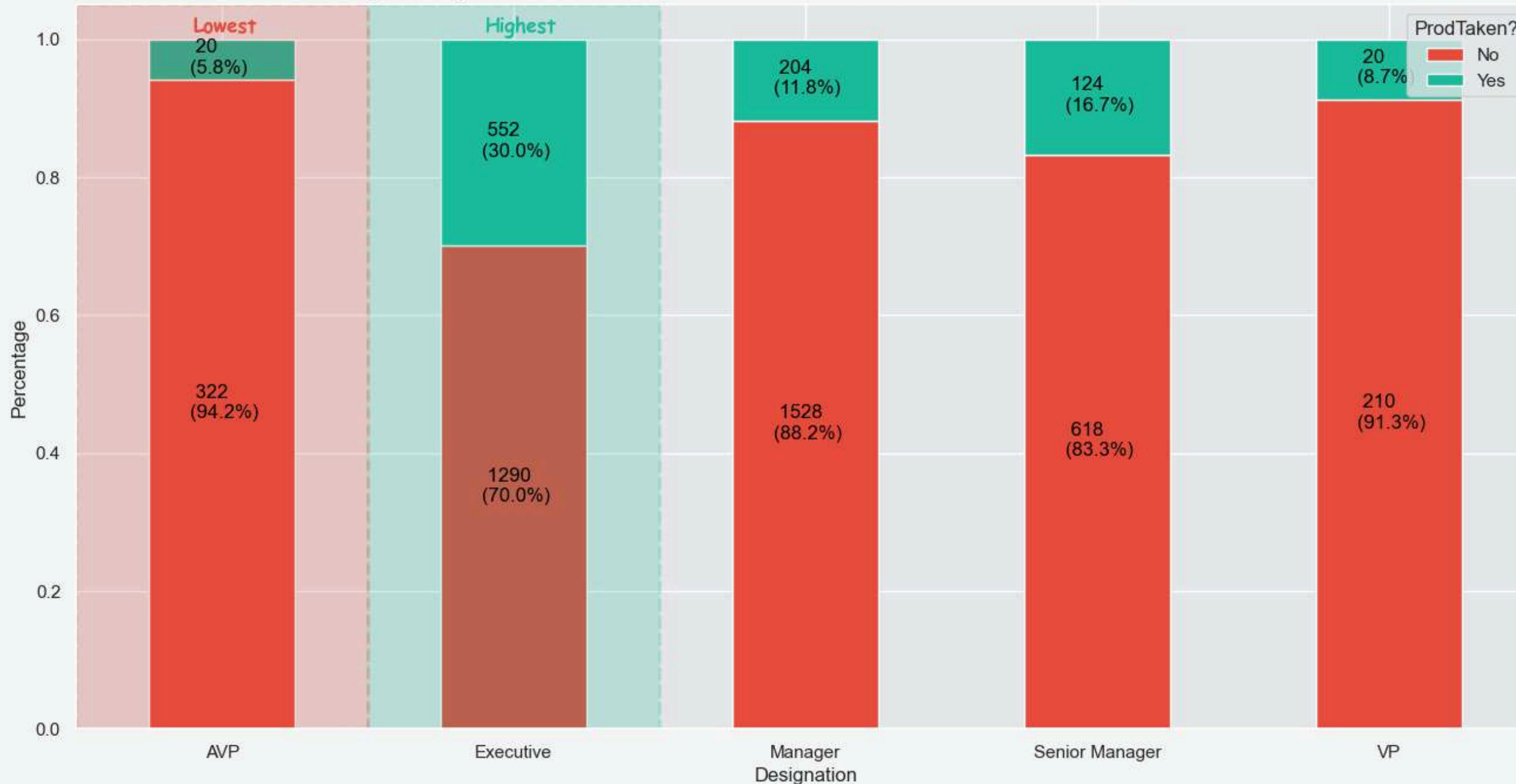
## Recommendation

- Understanding why customers prefer higher star ratings is crucial for refining and enhancing marketing strategies.
- After gaining this understanding, implement targeted marketing campaigns and offers that are more appropriate for these customer preferences.



# Designation

Executives have the highest product taken rate, while AVPs have the lowest.



## Insight

- The designation of customers significantly impacts the likelihood of them taking the product.
- Executives show the highest product take-up rate, with 30.0% (552 out of 1842) taking the product.
- Senior Managers and Managers also show higher take-up rates compared to AVP and VP, with 16.7% and 11.8% respectively.
- AVP and VP have the lowest take-up rates at 5.8% and 8.7%, respectively.

## Recommendation

- Focus marketing efforts on Executives, Senior Managers, and Managers, who show a higher likelihood of taking the product. Tailor campaigns to address their specific needs and preferences.
- Investigate why AVPs and VPs have lower product adoption rates to refine and enhance marketing strategies.
- Develop different marketing approaches based on the unique characteristics and needs of each designation to improve overall product adoption.



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# Data Preprocessing

**01** Handling Duplicate Value

**02** Splitting Data

**03** Handling missing Value

**04** Handling Outlier (Binning)

**05** Encoding Numeric (Categorize)

**06** OHE & Label Encoding

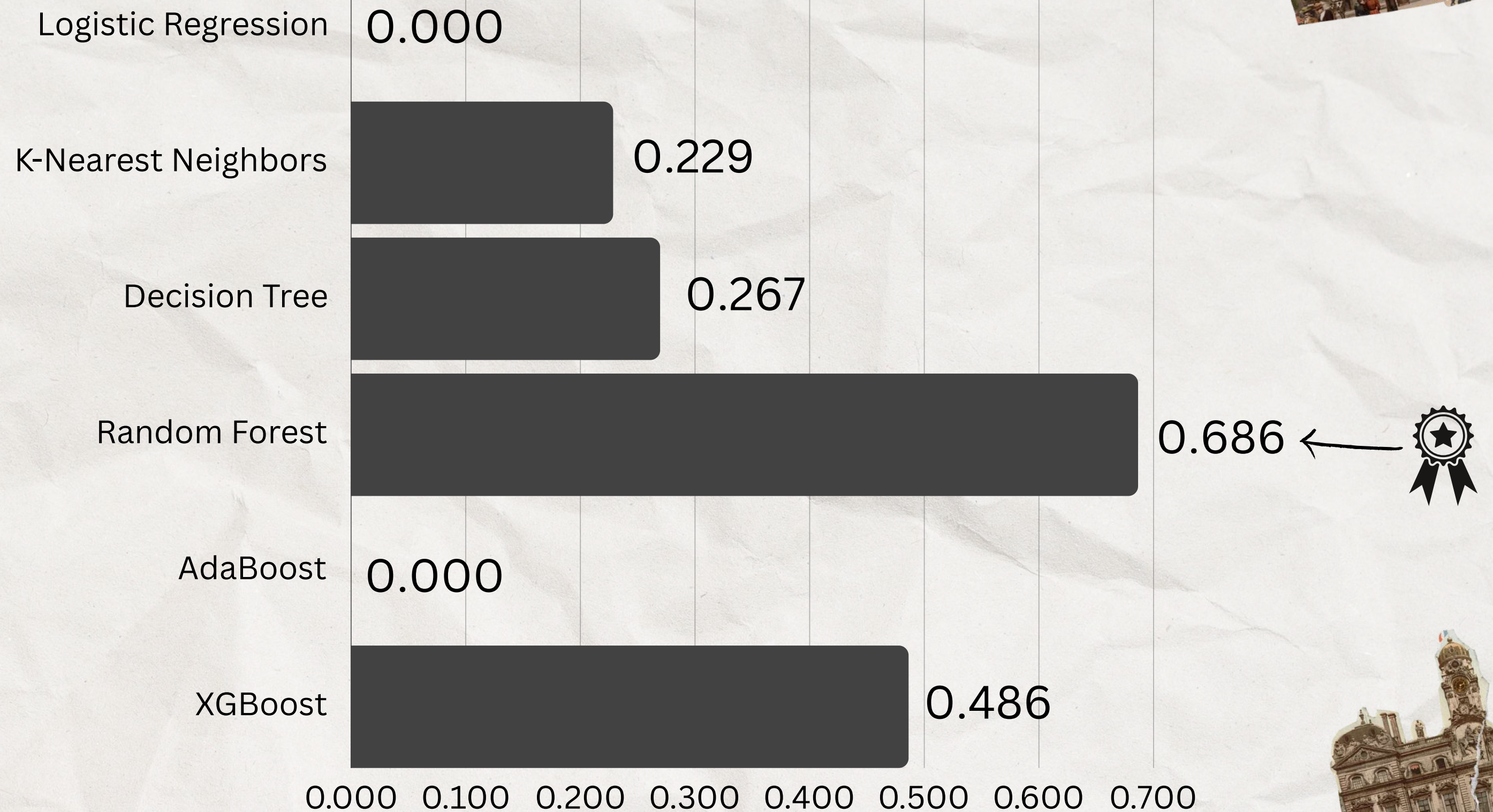
**07** Feature Selection

**08** Feature Scaling



# Model

Since the goal of this project is to reduce marketing costs while increasing the purchase rate, the primary focus for evaluation will be on precision.





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# Business Recommendation



**Understanding Customer Preferences:** To refine our marketing efforts, it's crucial to first investigate why the Basic product is more frequently chosen by customers. Additionally, we should explore why groups of 2-4 visitors are more likely to make a purchase and analyze the correlation between Designation and the product purchase rate.

**SPECIAL  
offer**

**Promotions and Discounts:** Offering special promotions or discounts is essential to boosting purchase rates. These incentives can effectively drive sales and attract more customers



**Cost-Effective Marketing:** To reduce marketing costs, we can implement the predictive model we've developed. For customers who are not identified as potential buyers, we can focus on broader, less direct channels such as social media or the company website. This approach ensures that even if these customers aren't directly targeted by marketing, they still have access to product information.



# Business Simulation

$$\text{ROI} = \frac{\text{Revenue} - \text{Marketing}}{\text{Total Marketing Cost}} \times 100$$

Assumption:

Marketing per Customer = Rp. 100.000

Revenue per Product = Rp. 1.000.000

## Before applying model

Customers Purchase = 157

Customers Not Purchase = 678

Total Targeted Marketing = 835 (all customers)

**Net Profit = 73500000**

**Total Marketing Cost = 83500000**

**ROI = 88%**

## After applying model

- TP (Customer purchased the product and predicted purchased) = 92
- FP (Customer not purchased the product, but predicted purchased) = 42
- TN (Customer not purchased the product and predicted not purchased) = 633
- FN (Customer purchased the product, but predicted not purchased) = 68

## Calculation

**Net Profit = 92000000**

**Total Marketing Cost = 13400000**

**ROI = 586.5%**

Based on our calculations, we successfully reduced total marketing costs, which in turn significantly improved the profitability of product sales