Airbnb

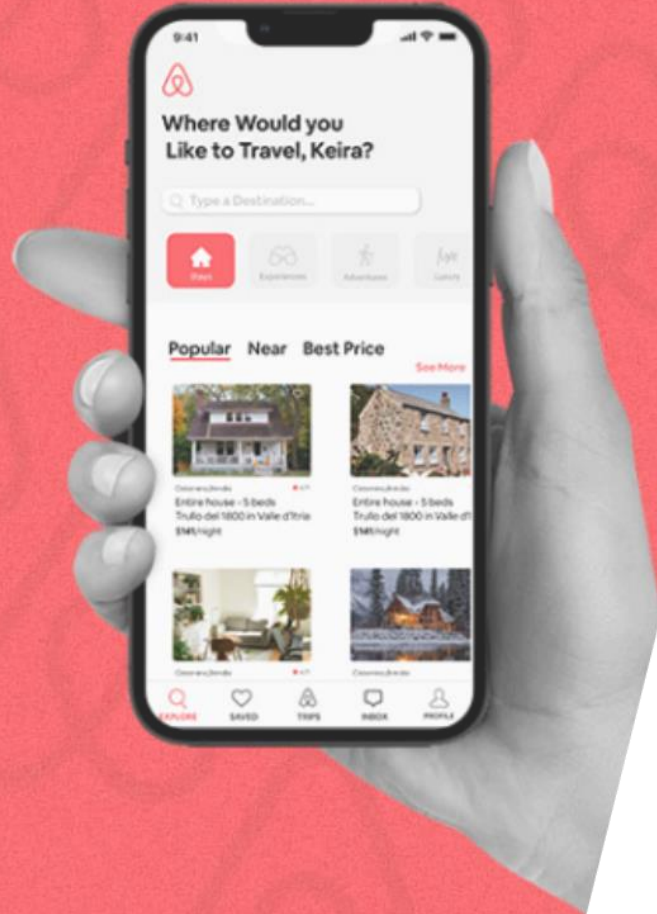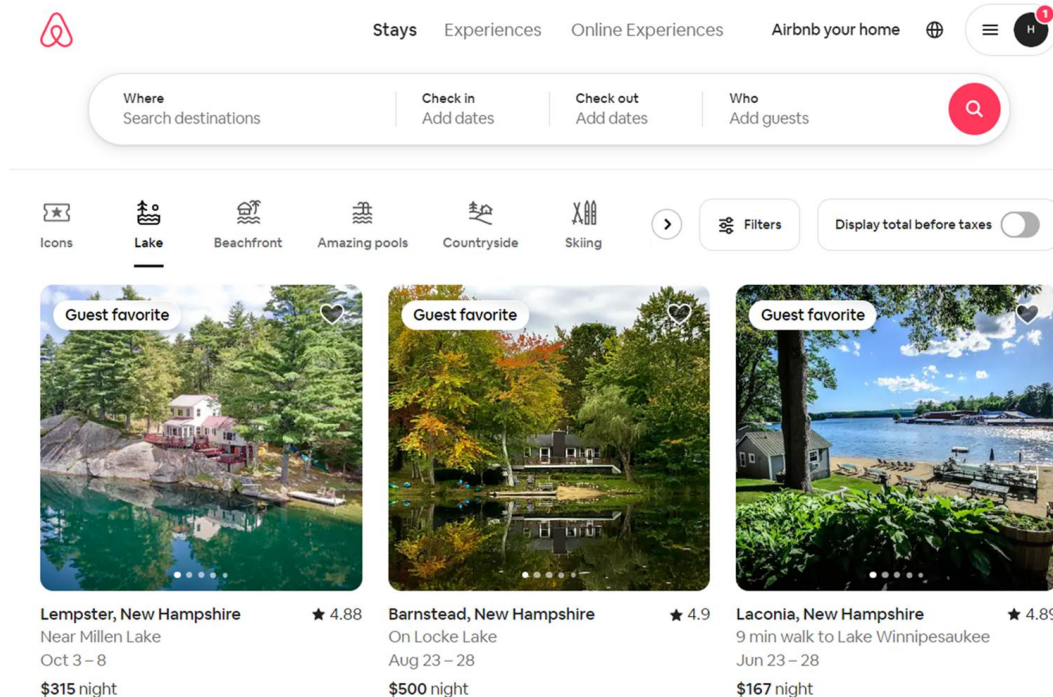## *Positioning, Segmentation and Predictive Modeling*

Project Outline

- Introduction

- Positioning Analysis

- Segmentation Analysis

- Predictive Modeling

- Summary and Recommendation

- Limitations and Improvements

About Airbnb

Airbnb is an online platform founded in 2008 that allows people to rent out their homes, apartments, or unique spaces to travelers seeking short-term accommodations.

airbnb

Data Collection, Cleaning and Transformation

Data Collection
- Primary data were gathered using survey, consisting of perceptions about competitors, preference for Airbnb and demographics
- Google form survey URL: **https://forms.gle/4dUDjfE9PF3DysPq8**

Data Cleaning and Transformation
- Removed incomplete responses
- Remove responses from users who never used the website before
- Transformed the responses by taking averages and input in Enginius for analysis

Competitor Analysis

	Airbnb	Vrbo	Booking.com	Tripadvisor	Expedia
Number of active users (globally)	150 million	48 million	100 million+	400 million	70 million
Number of Listings	7 million	2 million	28 million	11.1 million	3 million
Market Share USA (%)	25-30%	10-15%	20-25%	5-10%	15-20%
Global Revenue	$8.4 billion	$3.3 billion	$17.1 billion	$1.6 billion	$11 billion

Positioning Analysis

Variance explained		
Variance and cumulated variance explained, by dimension.		
	Variance explained	Cumulative variance
Dimension 1	49.1%	49.1%
Dimension 2	45.5%	94.7%
Dimension 3	4.4%	99.1%
Dimension 4	0.9%	100.0%
Dimension 5	0.0%	100.0%

Two dimensions model:
- The cumulative variance of the first two dimensions is 94.7%, capturing most of the data variation.
- Preserve the main information of the data without adding complexity.
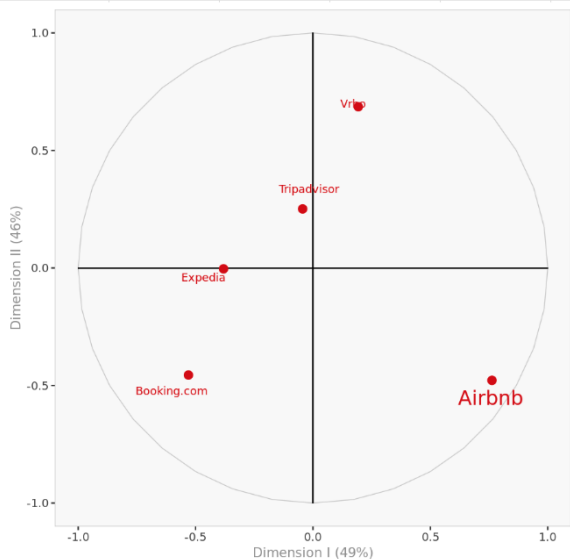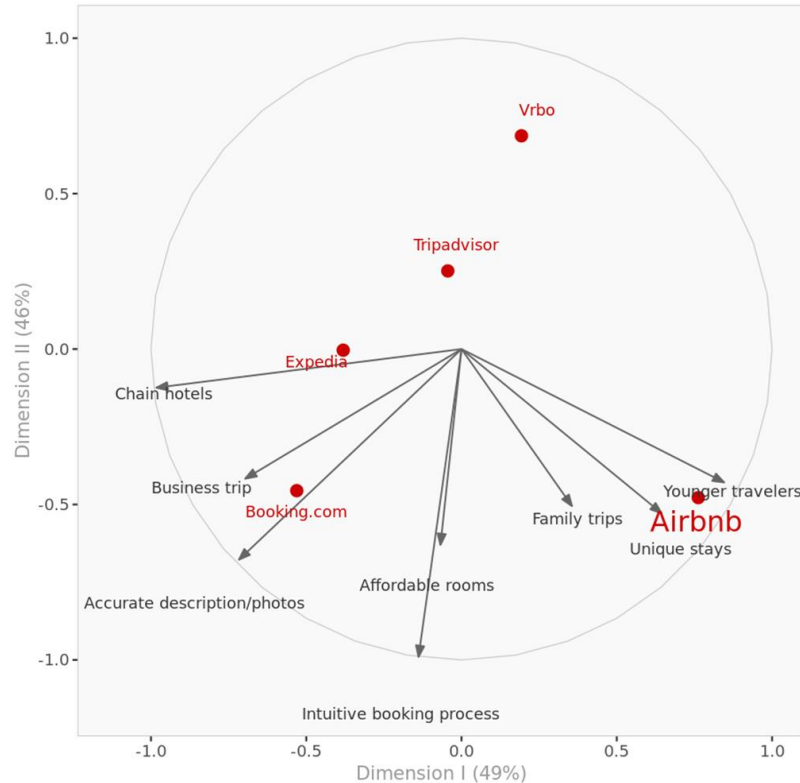
Dimension I (49% Variance Explained):
- Airbnb and Vrbo are on the positive side
- Booking.com and Expedia are on the negative side

Dimension II (46% Variance Explained):
- Vrbo and Tripadvisor are high
- Airbnb and Booking.com are low

Airbnb vs. Other Market Players

Key Insights from Perceptual Map:
- **Airbnb**: Unique stays, Younger travelers and Family trips.
- **Booking.com:** Business trip, Accurate description.
- **Expedia**: Chain hotel.
- **Vrbo & Tripadvisor:** Far from Affordable rooms and intuitive booking process.

Recommendation:
- **Maintain Strengths**: Continue to focus on unique stays and experiences that attract younger travelers and families.
- **Improve listing**: enhance the descriptions and photos of listing to be more accurate.
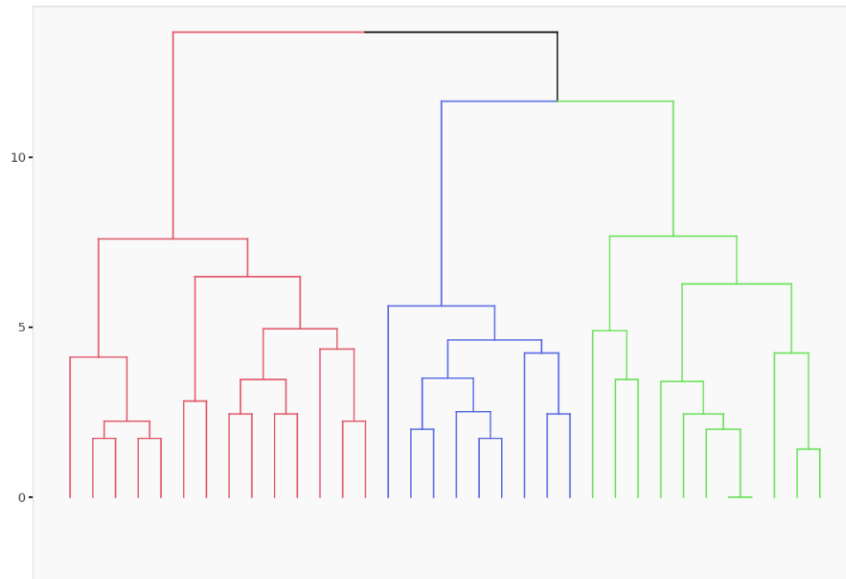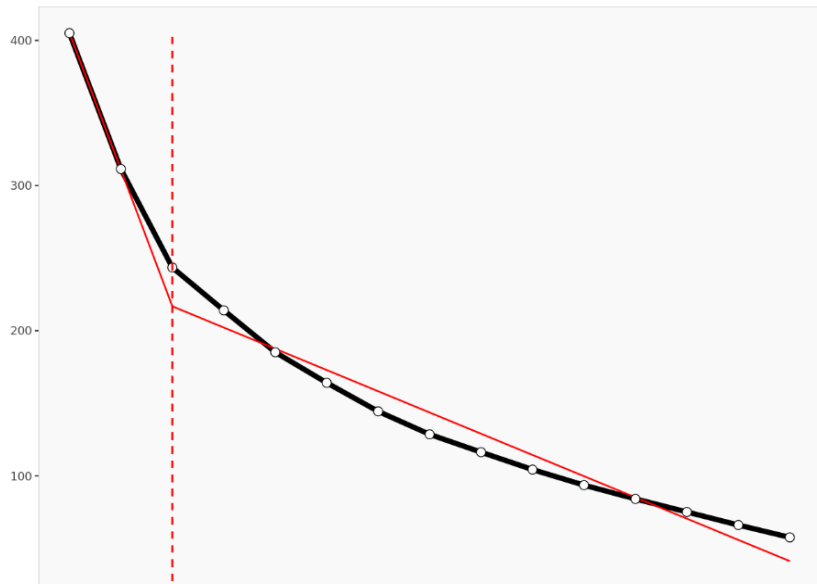
Segmentation Analysis

Optimal Number of Segments

Segment Description

	Population	Segment 1	Segment 2	Segment 3
Booking frequency	1.09	1.07	1.11	1.09
Entire house/apartment	2.85	2.71	1.89	3.82
Private bedroom	1.65	1.79	1.56	1.55
Shared bedroom	1.118	0.929	1.889	0.727
Unique stays	1.79	1.43	1.56	2.45
New feature awareness	1.176	0.714	3.000	0.273
Willingness to explore	2.588	0.714	3.556	4.182

	Population	Segment 1	Segment 2	Segment 3
Age	29.6	31.0	29.8	27.7
Gender=M	0.500	0.357	0.556	0.636
Household income	76471	64286	97222	75000
Frequency of leisure trips	3.15	2.79	3.22	3.55
Frequency of business trips	2.32	1.93	2.44	2.73

Customer Persona-Segment 1
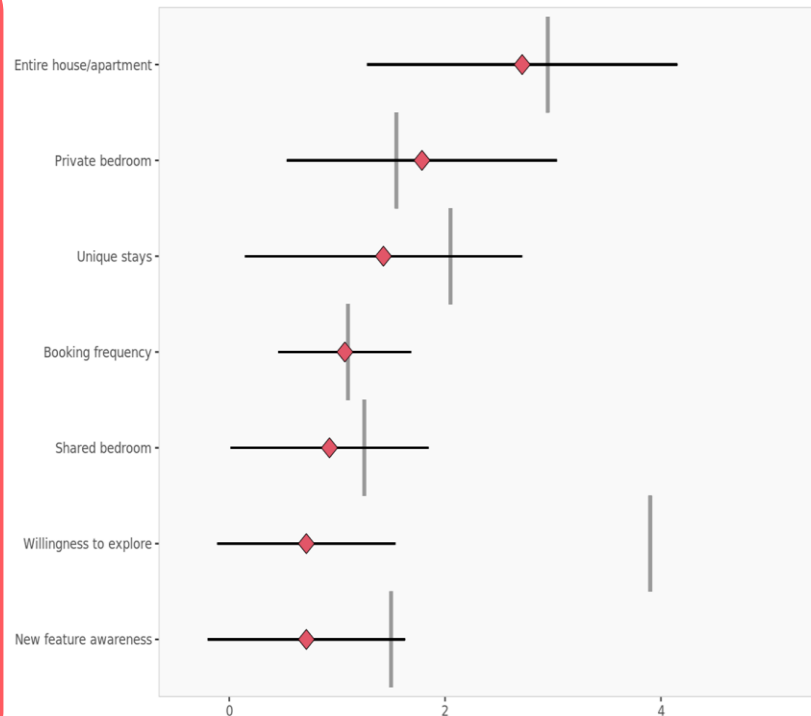
Segment 1:

Family Travelers

Segment 1 members are mainly people who like to travel with their families and prefer entire houses and private bedrooms to shared space.

They are less aware of Airbnb's new features and less willing to explore new things. Sixty-five percent are females, mostly moms in the family, and this group is more in need of family-friendly accommodations.
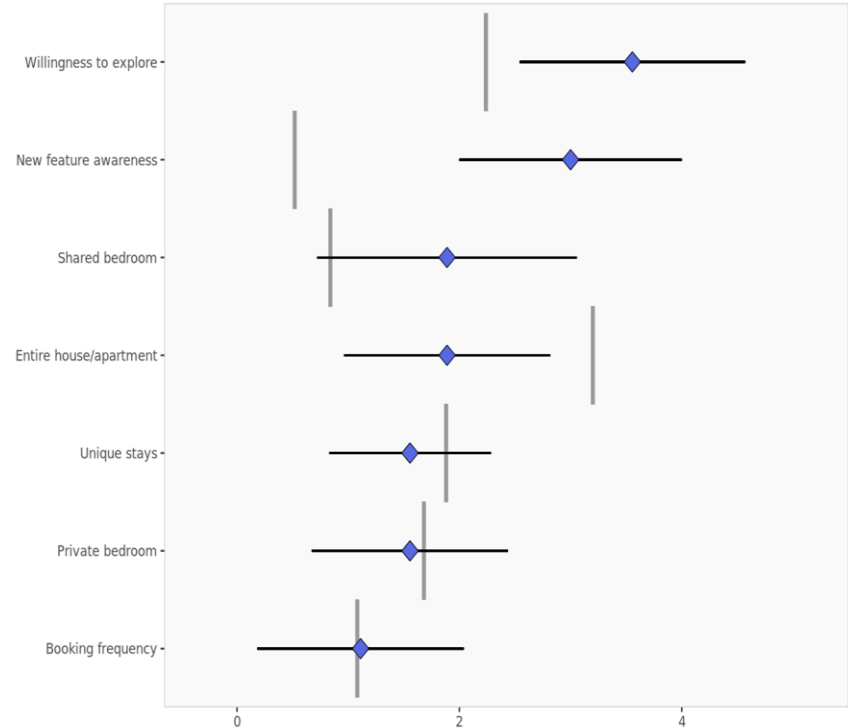
Segment 2:

Regular Users

Members of Segment 2 are regular Airbnb users who are more aware of Airbnb's new features and are willing to explore new things. New features and experiences should be pushed to them.

They have the lowest preference for entire house and are more willing to share space with others. Featured shared housing should be promoted to this group.

airbnb

Segment 3: Explorers


The members of Segment 3 are youngest travelers who like to explore new things. They really like the entire house/apartment accommodation options and have the highest interest in unique accommodations.

Their knowledge of new features is low, but they have the highest level of willingness to explore. So this group is the ideal target to promote Airbnb's new feature and experience.

airbnb
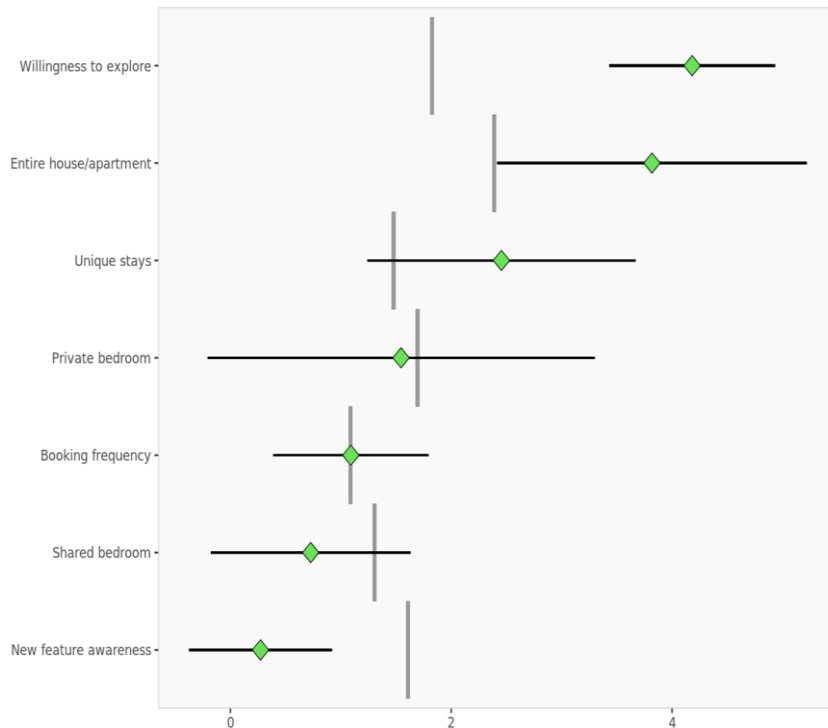
Business Recommendations

Family Travelers
- Recommend family-friendly accommodations: especially the entire house/apartment
- Promotions: offers family package deals and discounts on extended stays.

- -

Regular Users
- New feature updates: notifications about new Airbnb features and how to use them
- Shared accommodation and unique stay promotions: push some shared housing lists, with some unique stay options.

- -

Explorers
- Adventure and unique accommodations: push some distinctive travel experiences and accommodation options, such as campgrounds, eco-resorts, etc.
- Travel story sharing: share other travelers' adventures and experiences to encourage them to explore new destinations.
- Promotions: offer special deals on novel accommodations and destinations to increase their motivations to book stays.

airbnb

Predictive Modeling
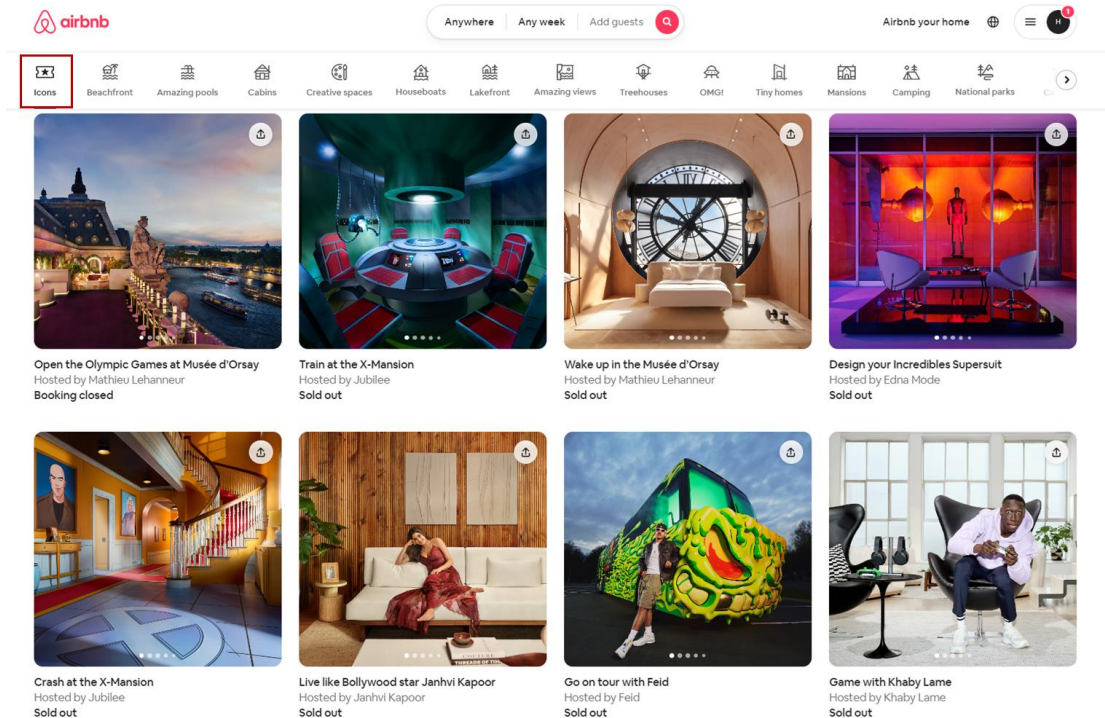## -Promotion of "Icons"

About new category "Icons"

"Icons" is a **new category of epic stays and experiences** hosted by the greatest names in music, film, television and more.

Most "Icons" experiences are **free but by application**; only selected guests will be invited to book an icon stay.
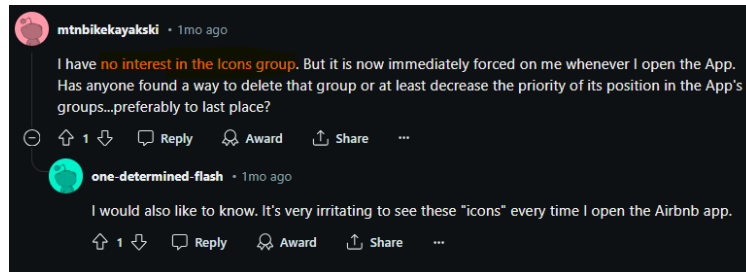
Different customer reactions

Segmentation from survey: **not aware and not applying** versus **not aware but very interested**

	Segment 1	Segment 3
New feature awareness	0.714	0.273
Willingness to explore	0.714	4.182

Real comments from Reddit and LinkedIn: **irritating promotion** versus **appealing promotion**

mtnbikekayakski · 1mo ago

I have no interest in the Icons group. But it is now immediately forced on me whenever I open the App. Has anyone found a way to delete that group or at least decrease the priority of its position in the App's groups...preferably to last place?

1   Reply   Award   Share   ...

one-determined-flash · 1mo ago

I would also like to know. It's very irritating to see these "icons" every time I open the Airbnb app.

1   Reply   Award   Share   ...

Abdullah Aldhafyan, MSc, PMP®, PDM · 3rd+   1mo ···
MSc Graduate Student

It sounds like an incredibly fun and unique opportunity, especially for fans of gaming, manga, and TikTok. Being hosted by a popular figure like Khaby Lame adds a special touch to the experience, making it not just a stay but an interactive event filled with entertainment and learning opportunities. Thank you for sharing Mohammed!

Predictive modeling for the promotion

- Binary choice model (0/1): 0 for not applying for "Icons" and 1 for applying for "Icons"
- Independent variables: frequency of leisure trips, whether or not booked unique stays, household income, age and gender

	Parameter	Standard deviation	P-value
Intercept	-0.4838	0.0009	0.0000
Age	-0.0650	0.0307	0.0341
`Gender = Female`	-1.0910	0.0008	0.0000
`Household income`	0.0000	0.0000	0.3829
`Frequency of leisure trips`	0.6643	0.0028	0.0000
`Booked unique stay`	-0.7852	0.0001	0.0000

From the predictive model, customers who reacting more positively to "Icons":
a. **younger** travelers
b. **male** travelers
c. having **more leisure trips**
d. **never booked unique stays** before

	Predicted 0	Predicted 1
Actual 0	74%	26%
Actual 1	40%	60%

Cost-benefit analysis and customer lifetime value should be considered before promotion!

Summary and Recommendation

❏ Two-dimension model to capture most of the data variation.
❏ Perceived as the brand with unique stays, younger travelers and family trips.
❏ Maintain the strength in unique stays for young travelers and families, while improving accuracy of listings.

❏ Three customer segments: family travelers, regular users, and explorers.
❏ Tailored recommendations and contents to different groups.
❏ Promote our new feature "Icons" to the "Regular Users" and "Explorers" segments.

❏ Applied predictive modeling to guide target promotion of new category "Icons".
❏ Yonger male travelers, often out for leisure, and never booked unique stays.
❏ Cost analysis and customer lifetime value are needed before promotion.

Limitations and Improvements
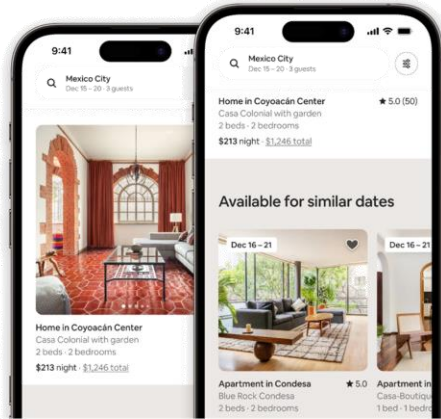
Limitations
- Sampling bias: Most survey data was collected from peers and may not represent the whole population of Airbnb customers.
- Limited number of valid responses.
- Limited variables: Questions in the survey may not capture all aspects of customer behaviors.

Improvements
- Distribute the survey to a broader audience.
- Add questions about customer preferences among different brands to get a comprehensive view of customer needs inside this market.

Thank you!