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# Abstract

In the fiercely competitive online travel booking industry, Airbnb's success hinges on guest satisfaction and loyalty. To tackle the challenge of helping guests make informed decisions amidst a vast array of listings, Airbnb developed a Host Comparison feature. This case study explores how this solution enhances guest experience and fosters customer loyalty. The study utilizes the AHP model to assess host options based on essential criteria and sub-criteria, such as Location, Accommodation, Amenities, Price, and Reviews and Ratings. By employing this systematic approach, Airbnb aims to select the most suitable hosts, aligning with its brand identity and market demands, ensuring a delightful host experience and bolstering its position as a leading accommodation-sharing platform.

# Introduction

In the highly competitive online travel booking industry, ensuring guest satisfaction and loyalty is paramount to Airbnb's success. The challenge lies in providing guests with the right tools to make informed decisions and select the most suitable accommodations from a vast array of listings. To address this business problem, Airbnb has developed and implemented a Host Comparison feature. To accomplish this, the company has turned to the Analytic Hierarchy Process (AHP), a powerful decision-making tool, to thoroughly evaluate five intriguing host options: Skylit Midtown Castle, BlissArtsSpace , Chelsea Perfect, West Side Retreat, Country space in the city. The AHP model enables Airbnb Company to assess each host option across five important criteria: Location, Accommodation, Amenities, Price and Reviews and Ratings. This case study explores how Airbnb's solution tackles the challenge of enhancing guest experience and fostering customer loyalty.

## Problem Description

The goal is to identify the most suitable and promising host option that seamlessly aligns with Airbnb challenge of providing guests with a seamless and user-friendly platform that simplifies the process of finding and selecting the perfect accommodation for their travel needs. The vast number of host listings can be overwhelming for guests, leading to decision paralysis, dissatisfaction, and potential booking drop-offs. Additionally, by employing the AHP model, the company seeks to make data-driven decisions that not only delight customers but also contribute. Lack of transparent information about hosts and their properties may hinder trust-building efforts, impacting the overall guest experience and diminishing repeat bookings.

## Methodology

To address the challenge of enhancing guest experience and fostering customer loyalty in the highly competitive online travel booking industry, Airbnb adopts an innovative and structured approach, using the DMAIC methodology (Define, Measure, Analyze, Improve, and Control) specifically designed for host listing optimization. The DMAIC process serves as a guide, helping Airbnb identify areas for improvement, optimize host listings, and elevate the overall guest experience while aligning with the company's values and aspirations.

**Analytic Hierarchy Process** (AHP): The AHP model is used as the foundation for evaluating and comparing host options. This structured decision-making technique allows for the systematic assessment of host criteria and sub-criteria. The criteria used in the AHP model include Location, Accommodation, Amenities, Price, and Reviews and Ratings, while their respective sub-criteria further refine the evaluation process.

**Define Phase:** In the Define phase, Airbnb clarifies the project's objectives, focusing on creating a new host listing feature that empowers guests to make informed decisions and select suitable accommodations. Key stakeholders, including marketing, technology, and customer support teams, are engaged to ensure a collaborative approach. Initial data is collected to understand guest preferences, pain points, and industry trends, establishing a baseline for the project.

**Measure Phase:** In the Measure phase, essential evaluation criteria and sub-criteria for the AHP algorithm are defined. These criteria may include Location, Accommodation Quality, Amenities, Price, Reviews, and Ratings. Surveys and guest feedback are utilized to conduct pairwise comparisons and assign weights to these criteria and sub-criteria. Detailed data is gathered from various host listings under each sub-criterion to facilitate the evaluation process.

**Analyze Phase:** During the Analyze phase, the strengths and weaknesses of each host listing are thoroughly analyzed based on the defined evaluation criteria. The AHP algorithm is applied to calculate the overall evaluation of each host option, providing valuable insights into the most suitable accommodations that meet guests' preferences and expectations.

**Improve Phase:** In the Improve phase, Airbnb focuses on refining the host listings based on the insights gained from the AHP analysis. Accommodations that align well with guest preferences and have higher evaluation scores are given prominence on the platform. To enhance guest experience and foster loyalty, Airbnb may also introduce features that promote transparency, trust, and better communication between hosts and guests.

**Control Phase:** In the Control phase, Airbnb implements quality control measures to ensure consistent and reliable guest experiences across the platform. Continuous monitoring of guest feedback and metrics related to guest satisfaction and loyalty enables data-driven adjustments and improvements to be made promptly. This iterative approach allows Airbnb to continuously optimize host listings and the overall guest experience.

By following the DMAIC process and conducting a SWOT analysis to identify strengths, weaknesses, opportunities, and threats, Airbnb can revolutionize its host offerings and create excellent customer experience for guests, further solidifying its position as a leading accommodation-sharing platform. The data-driven decision-making facilitated by DMAIC empowers Airbnb to make well-balanced choices that continuously enhance customer trust, satisfaction, and loyalty.

## Strengths

Airbnb holds a strong position in the highly competitive online travel booking industry, benefiting from its pioneering status and established reputation. The company's adoption of the Analytic Hierarchy Process (AHP) for the Host Comparison feature reflects its commitment to data-driven decision-making, ensuring that guest satisfaction and loyalty are prioritized based on a comprehensive evaluation framework. The implementation of the Host Comparison feature demonstrates Airbnb's innovative approach to providing guests with a user-friendly tool to make informed decisions. Additionally, the company's emphasis on brand identity and values strengthens its market position and fosters a positive brand image. With ample resources and a vast network of host listings, Airbnb is well-equipped to continuously enhance guest experiences and maintain its leading position as an accommodation-sharing platform.

## Weaknesses

Despite its strengths, Airbnb may encounter challenges in the online travel booking industry. The vast array of host listings on the platform could lead to information overload for guests, potentially leading to decision paralysis and dissatisfaction. Moreover, the reliance on guest reviews and ratings for evaluations may sometimes result in biased or inconsistent information, impacting the accuracy of the AHP model. Ensuring consistent and transparent data collection and processing could be a complex task, considering the diverse range of accommodations and guest feedback. Additionally, competing with other online travel booking platforms may affect Airbnb's market share and growth prospects, requiring continuous efforts to differentiate its offerings and maintain a competitive edge.

## Opportunities

The highly competitive nature of the online travel booking industry presents opportunities for Airbnb to further enhance guest satisfaction and loyalty through the Host Comparison feature. By continuously optimizing and refining the AHP model, Airbnb can differentiate itself from competitors and attract more guests to its platform. The growing trend of personalized travel experiences and niche accommodation preferences offers an opportunity for Airbnb to tailor its offerings and cater to diverse guest needs. Furthermore, expanding into new markets and geographical regions can help Airbnb reach a broader audience, tapping into previously untapped customer segments. Collaborating with local tourism authorities and influencers can also enhance the credibility and promotion of Airbnb's accommodations.

## Threats

While exploring opportunities, Airbnb must be aware of potential threats in the online travel booking industry. Competitors in the market may introduce similar features or innovations, challenging Airbnb's market leadership and necessitating continuous product enhancement. Negative publicity or incidents related to accommodations listed on the platform could impact customer trust and loyalty, potentially leading to reputational damage. The dynamic nature of the travel industry, including changing travel restrictions, economic fluctuations, and geopolitical events, may also affect travel demand and bookings on the platform. Additionally, regulatory changes and legal challenges related to short-term rentals and online booking platforms could present challenges for Airbnb's operations and business model. Efficient risk management and proactive strategies are crucial to mitigate these potential threats.

# AHP Process

In this conceptual approach Airbnb objective is to select the best host option among five intriguing host options: Skylit Midtown Castle, BlissArtsSpace, Chelsea Perfect, West Side Retreat, Country space in the city. To achieve this goal, a four-level hierarchy decision process is proposed.

Level 1: The top level of the hierarchy outlines the overall goal, which is to identify the most suitable host option for Airbnb launch. The criteria for evaluation are Location, Accommodation, Amenities, Price and Reviews and Ratings.

Level 2: At the second level, each host option represents a category for evaluation. These sub criteria include Safety and Neighborhood, Transportation, Size and Capacity, Privacy, Kitchen Facilities, Entertainment Options, Outdoor Space, Nightly Rate, Additional Fees, Value for Money, Overall Rating, Review Comments and Superhot Status.

Levels 3: The third level of the hierarchy contains the sub-criteria for each major criterion. For example, under the Location criterion, sub-criteria such as Safety and neighborhood, Transportation are identified. Similarly, sub-criteria for the other criteria are established.

Level 4: The fourth level of the hierarchy represents the alternative host options, namely Skylit Midtown Castle, BlissArtsSpace, Chelsea Perfect, West Side Retreat and Country space in the city.

By structuring the host selection decision problem systematically using the AHP model, the Airbnb can effectively evaluate each host option based on the identified criteria and sub-criteria. This approach allows the decision-makers at Airbnb to make informed choices and select the most promising and suitable host option for their new host launch, ensuring it aligns seamlessly with their customer trust, satisfaction, and loyalty, further solidifying Airbnb's position as a leading accommodation-sharing platform.

## Criteria

The AHP model aids in the assessment and ranking of the host options according to their attributes, ensuring they align with Airbnb their customer trust, satisfaction, and loyalty. The given weights indicate the relative significance of each criterion, where higher values indicate greater importance in the decision-making process. The initial stage of the AHP involves establishing the relative importance of each criterion, with weights assigned through pairwise comparisons, where higher values denote higher significance.

## Location

The importance of the location criterion cannot be overstated. The location of a host's accommodation directly impacts the guest's convenience, accessibility to attractions, and overall travel experience. The sub-criteria under location, namely Safety and Neighborhood and Transportation, were compared pairwise to assign weights to each sub-criterion. By using the AHP model, Airbnb can objectively evaluate the popular destinations, public transportation, and amenities. Well-located accommodation can significantly enhance the guest's trip, leading to higher satisfaction and positive reviews.

## Accommodation

The accommodation criterion plays a vital role in guest satisfaction and comfort during their stay. Sub-criteria such as Size and Capacity and Privacy are considered to assess the suitability of the host's space for different group sizes and preferences. Ensuring that the accommodation meets the guests' needs is crucial to enhance their overall experience and foster positive reviews and recommendations.

## Amenities

Amenities offered by the host greatly impact on the guest's convenience and enjoyment during their stay. Kitchen Facilities, Entertainment Options, and Outdoor Space are among the sub-criteria used to evaluate the host's ability to provide a comfortable and enjoyable environment. A well-equipped kitchen, entertainment options, and access to outdoor spaces can significantly contribute to a memorable and satisfying guest experience.

## Price

The price criterion is of utmost importance as it directly influences the guests' decision-making process. Sub-criteria such as Nightly Rate, Additional Fees, and Value for Money are compared to determine the host's pricing strategy and overall affordability. Striking a balance between reasonable pricing and providing value for money ensures that the guests feel satisfied with their investment in the accommodation.

## Reviews and Rating

Reviews and Ratings are a key factor in building trust and credibility for both hosts and guests. Sub-criteria like Overall Rating and Review Comments are considered to assess the host's performance and the satisfaction level of previous guests. Positive reviews and high ratings indicate the host's reliability and commitment to providing a positive experience, which is likely to attract more guests and generate repeat business.

## Evaluation Criteria

A diagram of a company's safety and safety selection

Description automatically generated

## Evaluation The Alternatives

A diagram of a company

Description automatically generated

# Options

Finally, the priorities pertaining to the alternatives and pertaining to the evaluation criteria  
and sub-criteria are synthesized to yield the overall numerical priorities for the alternative  
projects.

# Final Evaluation of Host 1 (Skylit Midtown Castle)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criteria** | **Sub-Criteria** | **Relative Priority Weight (PW)** | **Relative Alternative Weight (AW)** | **Product (PW X AW)** |
| Location | Safety and Neighborhood | 0.25 | 0.3 | 0.075 |
| Transportation | 0.75 | 0.23 | 0.1725 |
| Accommodation | Size and Capacity | 0.75 | 0.22 | 0.165 |
| Privacy | 0.25 | 0.32 | 0.08 |
| Amenities | Kitchen Facilities | 0.45 | 0.33 | 0.1485 |
| Entertainment Options | 0.23 | 0.08 | 0.0184 |
| Outdoor Space | 0.32 | 0.19 | 0.0608 |
| Price | Nightly Rate | 0.38 | 0.26 | 0.0988 |
| Additional Fees | 0.47 | 0.18 | 0.0846 |
| Value for Money | 0.15 | 0.21 | 0.0315 |
| Ratings | Overall Rating | 0.5 | 0.34 | 0.17 |
| Review Comments | 0.5 | 0.23 | 0.115 |
|  | Final Evaluation Result for H1 (Sum of all products) | | | 1.2201 |

# Host 2(BlissArtsSpace)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criteria** | **Sub-Criteria** | **Relative Priority Weight (PW)** | **Relative Alternative Weight (AW)** | **Product (PW X AW)** |
| Location | Safety and Neighborhood | 0.25 | 0.22 | 0.055 |
| Transportation | 0.75 | 0.16 | 0.12 |
| Accommodation | Size and Capacity | 0.75 | 0.13 | 0.0975 |
| Privacy | 0.25 | 0.22 | 0.055 |
| Amenities | Kitchen Facilities | 0.45 | 0.09 | 0.0405 |
| Entertainment Options | 0.23 | 0.3 | 0.069 |
| Outdoor Space | 0.32 | 0.17 | 0.0544 |
| Price | Nightly Rate | 0.38 | 0.2 | 0.076 |
| Additional Fees | 0.47 | 0.2 | 0.094 |
| Value for Money | 0.15 | 0.23 | 0.0345 |
| Ratings | Overall Rating | 0.5 | 0.2 | 0.1 |
| Review Comments | 0.5 | 0.21 | 0.105 |
|  | Final Evaluation Result for H2 (Sum of all products) | | | 0.9009 |

# Host 3(Chelsea Perfect)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criteria** | **Sub-Criteria** | **Relative Priority Weight (PW)** | **Relative Alternative Weight (AW)** | **Product (PW X AW)** |
| Location | Safety and Neighborhood | 0.25 | 0.22 | 0.055 |
| Transportation | 0.75 | 0.22 | 0.165 |
| Accommodation | Size and Capacity | 0.75 | 0.29 | 0.2175 |
| Privacy | 0.25 | 0.1 | 0.025 |
| Amenities | Kitchen Facilities | 0.45 | 0.27 | 0.1215 |
| Entertainment Options | 0.23 | 0.15 | 0.0345 |
| Outdoor Space | 0.32 | 0.27 | 0.0864 |
| Price | Nightly Rate | 0.38 | 0.22 | 0.0836 |
| Additional Fees | 0.47 | 0.2 | 0.094 |
| Value for Money | 0.15 | 0.17 | 0.0255 |
| Ratings | Overall Rating | 0.5 | 0.22 | 0.11 |
| Review Comments | 0.5 | 0.18 | 0.09 |
|  | Final Evaluation Result for H3 (Sum of all products) | | | 1.108 |

# Host 4(West Side Retreat)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criteria** | **Sub-Criteria** | **Relative Priority Weight (PW)** | **Relative Alternative Weight (AW)** | **Product (PW X AW)** |
| Location | Safety and Neighborhood | 0.25 | 0.1 | 0.025 |
| Transportation | 0.75 | 0.21 | 0.1575 |
| Accommodation | Size and Capacity | 0.75 | 0.19 | 0.1425 |
| Privacy | 0.25 | 0.2 | 0.05 |
| Amenities | Kitchen Facilities | 0.45 | 0.14 | 0.063 |
| Entertainment Options | 0.23 | 0.23 | 0.0529 |
| Outdoor Space | 0.32 | 0.19 | 0.0608 |
| Price | Nightly Rate | 0.38 | 0.13 | 0.0494 |
| Additional Fees | 0.47 | 0.21 | 0.0987 |
| Value for Money | 0.15 | 0.22 | 0.033 |
| Ratings | Overall Rating | 0.5 | 0.1 | 0.05 |
| Review Comments | 0.5 | 0.09 | 0.045 |
|  | Final Evaluation Result for H4 (Sum of all products) | | | 0.8278 |

# Host 5(Country Space In The City)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criteria** | **Sub-Criteria** | **Relative Priority Weight (PW)** | **Relative Alternative Weight (AW)** | **Product (PW X AW)** |
| Location | Safety and Neighborhood | 0.25 | 0.16 | 0.04 |
| Transportation | 0.75 | 0.18 | 0.135 |
| Accommodation | Size and Capacity | 0.75 | 0.17 | 0.1275 |
| Privacy | 0.25 | 0.17 | 0.0425 |
| Amenities | Kitchen Facilities | 0.45 | 0.18 | 0.081 |
| Entertainment Options | 0.23 | 0.24 | 0.0552 |
| Outdoor Space | 0.32 | 0.19 | 0.0608 |
| Price | Nightly Rate | 0.38 | 0.2 | 0.076 |
| Additional Fees | 0.47 | 0.22 | 0.1034 |
| Value for Money | 0.15 | 0.18 | 0.027 |
| Ratings | Overall Rating | 0.5 | 0.13 | 0.065 |
| Review Comments | 0.5 | 0.3 | 0.15 |
|  | Final Evaluation Result for H5 (Sum of all products) | | | 0.9634 |

|  |
| --- |
| Ranking |
| The final values for all the alternatives are then prioritized from the highest rank |
|  |
| • Final evaluation result for Host 1 = 1.2201 |  |
| • Final evaluation result for Host 3 = 1.1108 |  |
| • Final evaluation result for Host 5 = 0.9634 |  |
| • Final evaluation result for Host 2 = 0.9009 |  |
| • Final evaluation result for Host 4 = 0.8278 |  |
| The alternative with the highest rank (Host 1) is selected |  |
| Project Management Approach |  |

To manage the development and ongoing improvement of the Host Comparison feature on Airbnb, the team can use an Agile project management approach. Agile is well-suited for the fast-paced and competitive online travel booking industry because it offers flexibility, iterative processes, and the ability to adapt to changing customer needs and market demands.

Here are the key components of the Agile Project Management approach for the Host Comparison feature:

1. Scrum Framework: The project is divided into time-boxed iterations called sprints, which usually last 1-4 weeks. Each sprint has a specific focus, aiming to deliver functionalities or enhancements to the Host Comparison feature. The team holds regular planning meetings to set objectives and prioritize tasks, ensuring they stay on track with the most important features.
2. Cross-Functional Collaboration: Success in developing the Host Comparison feature relies on the collaboration of various teams, including product development, design, engineering, marketing, and customer support. They come together in daily stand-up meetings to communicate, address challenges, and make quick decisions.
3. Customer-Centric Approach: The Agile approach puts a strong emphasis on meeting customer needs and preferences. To gather insights, the team collects feedback from users through surveys, guest reviews, and user testing. This feedback is valuable for making iterative improvements to the Host Comparison feature, making sure it meets guests' expectations and enhances their overall experience.
4. Minimum Viable Product (MVP): To speed up the development process and gather early feedback, the team creates and launches an MVP of the Host Comparison feature. The MVP includes essential functionalities that allow guests to compare hosts based on key criteria. The feedback gathered from users helps refine and expand the feature in subsequent iterations.
5. Continuous Improvement: Agile fosters a culture of continuous improvement. At the end of each sprint, the team conducts retrospective meetings to reflect on the process, identify areas for improvement, and implement changes to boost efficiency and effectiveness.
6. Flexibility and Adaptability: The Agile approach allows the team to be flexible and adapt plans and priorities based on emerging market trends, guest feedback, and competitor actions. This adaptability enables Airbnb to stay responsive to changing requirements and deliver features that cater to guests' ever-evolving preferences.

By adopting the Agile project management approach, Airbnb can effectively develop and enhance the Host Comparison feature. The approach ensures that the feature evolves iteratively, with a strong focus on delivering value to guests and improving customer satisfaction and loyalty. By continuously collaborating with customers and being adaptable, Airbnb can maintain its position as a leading accommodation-sharing platform in the highly competitive online travel booking industry.

# Conclusion

Airbnb's AHP-based Host Comparison feature serves as a powerful solution to enhance guest experience and foster customer loyalty. By leveraging data analysis and the AHP method, the platform empowers guests to make well-informed decisions when selecting accommodations. The case study demonstrates Airbnb's commitment to employing advanced analytics tools to address real-world business challenges, ensuring its competitive edge in the online travel industry.