**HOTEL BOOKING ANALYSIS USING PYSPARK**

1. **GIỚI THIỆU BÀI TOÁN**

Hotel booking analysis is a multidisciplinary field encompassing the study, evaluation, and optimization of various aspects related to hotel reservations and guest management. With the advent of digital platforms and the widespread use of online travel agencies (OTAs)[2], the hotel booking process has undergone a significant transformation, presenting both challenges and opportunities for the hospitality industry. This introduction provides an overview of the hotel booking analysis problem, highlighting its importance, key research areas, and implications for stakeholders in the hospitality sector.

1. Importance of Hotel Booking Analysis:

Hotel booking analysis plays a crucial role in the strategic decision-making process of hoteliers, revenue managers, and online travel agencies[1]. By leveraging data-driven insights and predictive analytics, stakeholders can optimize pricing strategies, enhance guest experiences, and maximize revenue potential. Moreover, in an increasingly competitive market, understanding consumer behavior, market trends, and booking patterns is essential for gaining a competitive edge and driving business growth[3].

2. Key Research Areas:

Hotel booking analysis encompasses a wide range of research areas and methodologies aimed at addressing various challenges and opportunities within the hospitality industry. Some key research areas include:

Demand Forecasting: Predicting future demand for hotel rooms based on historical booking data, seasonal trends, and market dynamics.[9]

Revenue Management: Optimizing pricing strategies, inventory allocation, and distribution channels to maximize revenue and profitability. .[13]

Consumer Behavior Analysis: Understanding consumer preferences, booking patterns, and decision-making processes to personalize marketing efforts and enhance guest satisfaction.[8]

Cancellation Prediction: Developing models to predict the likelihood of booking cancellations, enabling proactive measures to mitigate revenue loss and optimize resource allocation.[5]

Technology Integration: Leveraging advancements in artificial intelligence, machine learning, and data analytics to automate booking processes, personalize recommendations, and improve operational efficiency.[6]

3. Implications for Stakeholders:

Hotel booking analysis has significant implications for various stakeholders within the hospitality ecosystem:

Hotel Owners and Managers: By leveraging data analytics and predictive modeling, hotel owners and managers can optimize pricing strategies, occupancy rates, and resource allocation to maximize revenue and profitability[7].

Revenue Managers: Revenue managers can use booking analysis tools and techniques to forecast demand, adjust pricing dynamically, and identify opportunities for upselling and cross-selling.[26]

Online Travel Agencies (OTAs): OTAs can leverage booking analysis to enhance user experience, personalize recommendations, and optimize inventory management to attract and retain customers.[14]

Travelers: Improved booking analysis leads to enhanced transparency, better pricing options, and personalized recommendations for travelers, resulting in a more seamless and satisfying booking experience.[2]

4. Future Directions:

As technology continues to evolve and consumer preferences shift, the field of hotel booking analysis is expected to undergo further innovation and development. Future research directions may include:

Advanced Predictive Modeling: Developing more sophisticated predictive models using machine learning algorithms, natural language processing, and deep learning techniques to improve accuracy and granularity in forecasting.[21]

Personalized Recommendations: Integrating artificial intelligence and recommender systems to deliver personalized booking recommendations based on individual preferences, past behavior, and contextual factors.[6]

Real-time Analytics: Leveraging real-time data streams and analytics to enable dynamic pricing, instant decision-making, and proactive management of booking cancellations and fluctuations in demand.

Ethical and Privacy Considerations: Addressing ethical and privacy concerns related to data collection, usage, and transparency to ensure responsible and ethical practices in hotel booking analysis.[22]

In conclusion, hotel booking analysis is a dynamic and multifaceted field that plays a pivotal role in shaping the future of the hospitality industry. By embracing data-driven insights, advanced technologies, and innovative strategies, stakeholders can unlock new opportunities for revenue growth, operational efficiency, and guest satisfaction in an increasingly competitive and digital-driven landscape.

1. **NGHIÊN CỨU LIÊN QUAN**

Hotel booking analysis is a multifaceted domain encompassing various research streams aimed at understanding, optimizing, and innovating aspects of the hotel booking process. Over the years, scholars, researchers, and industry practitioners have explored diverse themes and methodologies, conducting studies to address evolving challenges and opportunities within the hospitality industry. This comprehensive review delves into notable research studies related to hotel booking analysis across different dimensions.

**1. Prediction of Booking Cancellations:**

Prediction models for hotel booking cancellations have garnered significant attention due to their potential to optimize revenue management and resource allocation. Chen et al. (2022) conducted a comparative analysis of machine learning models, including logistic regression, k-Nearest Neighbor (k-NN), and CatBoost[1], to predict hotel booking cancellations. Leveraging datasets from Kaggle, their study demonstrated the efficacy of CatBoost in terms of effectiveness, accuracy, and cost-efficiency, providing valuable insights for hotels to enhance cancellation prediction and revenue management strategies.

Similarly, Saputro et al. (2021) developed booking cancellation prediction models using interpretable machine learning algorithms such as Random Forest and Extra Tree Classifier[9]. By employing techniques like Random Forest, which achieved high precision and recall ratios, the study aimed to assist hotel owners and managers in anticipating and mitigating the impact of booking cancellations, thereby optimizing operational efficiency and guest satisfaction.[12]

**2. Understanding Consumer Behavior:**

Profiling consumer behavior and preferences is essential for personalized service delivery and targeted marketing strategies in the hospitality industry. Strebinger and Treiblmaier (2022) investigated the demographic, psychographic, and service-related factors influencing the adoption of blockchain-based hotel booking applications[2]. Through a survey of 505 US consumers, their study identified key determinants such as discounts, extended services, and brand recognition, providing valuable insights for providers aiming to attract early adopters and enhance user engagement.[2]

Moreover, Salameh et al examined the significance of website quality and online reviews in predicting the intention and usage of online hotel booking platforms [7] . By analyzing factors such as perceived benefits, system quality, and service quality, their study highlighted the critical role of user experience and credibility in influencing consumers' booking decisions. These findings offer actionable recommendations for hoteliers and online travel agencies seeking to optimize their digital platforms and enhance customer satisfaction.

**3. Pricing Optimization:**

Effective pricing strategies are instrumental in maximizing revenue and profitability for hotels and online travel agencies. Trang et al. (2021) explored the use of clustering techniques in conjunction with gradient boosting models to improve price prediction in online booking systems. By leveraging machine learning algorithms such as Gradient Boost and XGBoost, their study aimed to enable more accurate pricing decisions based on location, property type, and other relevant attributes. This research contributes to the development of dynamic pricing strategies that align with market demand and competitive dynamics[3].

Additionally, Lin (2023) investigated the influencing factors of hotel reservation cancellations and proposed strategies to mitigate their impact. By analyzing datasets from Kaggle, the study identified factors such as booking lead time, room type, and customer demographics as significant predictors of cancellation likelihood. Leveraging machine learning algorithms like decision trees and random forests, the research aimed to assist hotel managers in optimizing cancellation policies and revenue management practices to minimize revenue loss and enhance operational efficiency [12].

**4. Incorporating Consumer Reviews:**

Online reviews play a pivotal role in shaping consumer perceptions and booking decisions in the digital era. Yang et al. (2021) proposed a decision-making algorithm combining aspect-based sentiment analysis with intuitionistic fuzzy-VIKOR to analyze and prioritize hotel attributes based on online reviews [4]. By leveraging bidirectional long short-term memory (Bi-LSTM) models and attention mechanisms, their research aimed to provide comprehensive insights into customer preferences and facilitate informed decision-making for potential guests.[4]

Moreover, Wardianti and Hidayah (2023) examined the influence of visual presentations and online reviews on hotel booking intentions on the Tiket.com application. Through a quantitative analysis using the Partial Least Squares Structural Equation Model (PLS-SEM), their study investigated the interplay between visual presentation quality, perceived ease of use, and online review credibility in shaping consumers' booking intentions. These findings offer valuable insights for online travel agencies and hotel chains seeking to optimize their digital platforms and drive conversion rates.[14]

**5. Technological Innovations:**

Advancements in technology, including artificial intelligence (AI) and recommender systems, have revolutionized the hotel booking landscape, offering personalized and seamless experiences for travelers. Remountakis et al. (2023) explored the integration of large language models (LLMs) like ChatGPT with persuasive technologies to automate personalized recommendations in hotel hospitality. By leveraging natural language understanding and persuasive messaging, their research aimed to optimize user engagement and conversion rates, ultimately driving business performance and guest satisfaction.[6]

Furthermore, Tang (2023) investigated the status prediction of hotel reservations using machine learning models such as KNN, Random Forest, and neural networks. By analyzing datasets from Kaggle, the study aimed to identify the most effective method for predicting the future status of hotel reservations, thereby assisting hoteliers in optimizing inventory management and revenue forecasting. These technological innovations hold immense potential for enhancing operational efficiency and guest experiences in the hospitality industry.[11]

In conclusion, the research landscape in hotel booking analysis encompasses a wide array of topics, methodologies, and technological innovations aimed at addressing the evolving needs and challenges of the hospitality industry. By leveraging predictive modeling, consumer behavior analysis, pricing optimization, and technological innovations, researchers and industry practitioners can unlock new opportunities for revenue growth, operational efficiency, and customer satisfaction in the dynamic and competitive landscape of hotel booking.

**I. GIỚI THIỆU BẢN TOÁN**

Phân tích đặt phòng khách sạn là một lĩnh vực đa ngành bao gồm nghiên cứu, đánh giá và tối ưu hóa các khía cạnh khác nhau liên quan đến việc đặt phòng khách sạn và quản lý khách. Với sự ra đời của nền tảng kỹ thuật số và việc sử dụng rộng rãi các công ty du lịch trực tuyến (OTA)[2], quy trình đặt phòng khách sạn đã trải qua một sự chuyển đổi đáng kể, mang đến cả thách thức và cơ hội cho ngành khách sạn. Phần giới thiệu này cung cấp cái nhìn tổng quan về vấn đề phân tích đặt phòng khách sạn, nêu bật tầm quan trọng của nó, các lĩnh vực nghiên cứu chính và ý nghĩa đối với các bên liên quan trong lĩnh vực khách sạn.

1. Tầm quan trọng của việc phân tích đặt phòng khách sạn:

Phân tích đặt phòng khách sạn đóng một vai trò quan trọng trong quá trình ra quyết định chiến lược của chủ khách sạn, người quản lý doanh thu và đại lý du lịch trực tuyến[1]. Bằng cách tận dụng những hiểu biết sâu sắc dựa trên dữ liệu và phân tích dự đoán, các bên liên quan có thể tối ưu hóa chiến lược giá, nâng cao trải nghiệm của khách và tối đa hóa tiềm năng doanh thu. Hơn nữa, trong một thị trường ngày càng cạnh tranh, việc hiểu hành vi của người tiêu dùng, xu hướng thị trường và mô hình đặt phòng là điều cần thiết để đạt được lợi thế cạnh tranh và thúc đẩy tăng trưởng kinh doanh.[3]

2. Các lĩnh vực nghiên cứu chính:

Phân tích đặt phòng khách sạn bao gồm nhiều lĩnh vực và phương pháp nghiên cứu nhằm giải quyết các thách thức và cơ hội khác nhau trong ngành khách sạn. Một số lĩnh vực nghiên cứu chính bao gồm:

Dự báo nhu cầu: Dự đoán nhu cầu về phòng khách sạn trong tương lai dựa trên dữ liệu đặt phòng trước đây, xu hướng theo mùa và động lực thị trường.[9]

Quản lý doanh thu: Tối ưu hóa chiến lược giá, phân bổ hàng tồn kho và kênh phân phối để tối đa hóa doanh thu và lợi nhuận.[13]

Phân tích hành vi của người tiêu dùng: Tìm hiểu sở thích của người tiêu dùng, mô hình đặt phòng và quy trình ra quyết định để cá nhân hóa các nỗ lực tiếp thị và nâng cao sự hài lòng của khách.[8]

Dự đoán hủy đặt phòng: Phát triển các mô hình để dự đoán khả năng hủy đặt phòng, đưa ra các biện pháp chủ động nhằm giảm thiểu tổn thất doanh thu và tối ưu hóa phân bổ nguồn lực.[5]

Tích hợp công nghệ: Tận dụng những tiến bộ trong trí tuệ nhân tạo, học máy và phân tích dữ liệu để tự động hóa quy trình đặt chỗ, cá nhân hóa đề xuất và nâng cao hiệu quả hoạt động.[6]

3. Ý nghĩa đối với các bên liên quan:

Phân tích đặt phòng khách sạn có ý nghĩa quan trọng đối với các bên liên quan khác nhau trong hệ sinh thái khách sạn:

Chủ sở hữu và người quản lý khách sạn: Bằng cách tận dụng phân tích dữ liệu và mô hình dự đoán, chủ sở hữu và người quản lý khách sạn có thể tối ưu hóa chiến lược giá, tỷ lệ lấp đầy và phân bổ nguồn lực để tối đa hóa doanh thu và lợi nhuận.[7]

Người quản lý doanh thu: Người quản lý doanh thu có thể sử dụng các công cụ và kỹ thuật phân tích đặt phòng để dự báo nhu cầu, điều chỉnh giá một cách linh hoạt và xác định các cơ hội bán thêm và bán kèm.[26]

Đại lý du lịch trực tuyến (OTA): OTA có thể tận dụng phân tích đặt phòng để nâng cao trải nghiệm người dùng, cá nhân hóa đề xuất và tối ưu hóa quản lý hàng tồn kho để thu hút và giữ chân khách hàng.[14]

Khách du lịch: Cải thiện phân tích đặt phòng giúp nâng cao tính minh bạch, lựa chọn giá tốt hơn và đề xuất được cá nhân hóa cho khách du lịch, mang lại trải nghiệm đặt phòng liền mạch và hài lòng hơn.[2]

4. Định hướng tương lai:

Khi công nghệ tiếp tục phát triển và sở thích của người tiêu dùng thay đổi, lĩnh vực phân tích đặt phòng khách sạn dự kiến sẽ còn có những đổi mới và phát triển hơn nữa. Các hướng nghiên cứu trong tương lai có thể bao gồm:

Mô hình dự đoán nâng cao: Phát triển các mô hình dự đoán phức tạp hơn bằng cách sử dụng thuật toán học máy, xử lý ngôn ngữ tự nhiên và kỹ thuật học sâu để cải thiện độ chính xác và mức độ chi tiết trong dự báo.[21]

Đề xuất được cá nhân hóa: Tích hợp trí tuệ nhân tạo và hệ thống đề xuất để đưa ra đề xuất đặt phòng được cá nhân hóa dựa trên sở thích cá nhân, hành vi trong quá khứ và các yếu tố ngữ cảnh.[6]

Phân tích thời gian thực: Tận dụng các luồng dữ liệu và phân tích theo thời gian thực để cho phép định giá linh hoạt, đưa ra quyết định tức thì và quản lý chủ động việc hủy đặt chỗ cũng như biến động về nhu cầu.

Cân nhắc về đạo đức và quyền riêng tư: Giải quyết các mối lo ngại về đạo đức và quyền riêng tư liên quan đến việc thu thập, sử dụng và minh bạch dữ liệu để đảm bảo thực hành có trách nhiệm và đạo đức trong phân tích đặt phòng khách sạn.[22]

Tóm lại, phân tích đặt phòng khách sạn là một lĩnh vực năng động và đa diện, đóng vai trò then chốt trong việc định hình tương lai của ngành khách sạn. Bằng cách nắm bắt những hiểu biết sâu sắc dựa trên dữ liệu, công nghệ tiên tiến và chiến lược đổi mới, các bên liên quan có thể mở ra những cơ hội mới để tăng trưởng doanh thu, hiệu quả hoạt động và sự hài lòng của khách hàng trong bối cảnh ngày càng cạnh tranh và định hướng kỹ thuật số.

**II. NGHIÊN CỨU LIÊN QUAN**

Phân tích đặt phòng khách sạn là một lĩnh vực nhiều mặt bao gồm nhiều luồng nghiên cứu khác nhau nhằm tìm hiểu, tối ưu hóa và đổi mới các khía cạnh của quy trình đặt phòng khách sạn. Trong những năm qua, các học giả, nhà nghiên cứu và những người hành nghề trong ngành đã khám phá các chủ đề và phương pháp đa dạng, tiến hành các nghiên cứu để giải quyết những thách thức và cơ hội đang phát triển trong ngành khách sạn. Đánh giá toàn diện này đi sâu vào các nghiên cứu đáng chú ý liên quan đến phân tích đặt phòng khách sạn trên các khía cạnh khác nhau.

1. Dự đoán hủy đặt chỗ:

Các mô hình dự đoán việc hủy đặt phòng khách sạn đã thu hút được sự chú ý đáng kể nhờ tiềm năng tối ưu hóa việc quản lý doanh thu và phân bổ nguồn lực. Chen và cộng sự. (2022) đã tiến hành phân tích so sánh các mô hình học máy, bao gồm hồi quy logistic, k-Nearest Neighbor (k-NN) và CatBoost[1], để dự đoán số lượt hủy đặt phòng khách sạn. Tận dụng các tập dữ liệu từ Kaggle, nghiên cứu của họ đã chứng minh tính hiệu quả của CatBoost về hiệu quả, độ chính xác và hiệu quả chi phí, cung cấp những hiểu biết sâu sắc có giá trị cho các khách sạn để nâng cao chiến lược quản lý doanh thu và dự đoán hủy phòng.

Tương tự, Saputro et al đã phát triển các mô hình dự đoán hủy đặt chỗ bằng cách sử dụng các thuật toán học máy có thể hiểu được như Rừng ngẫu nhiên và Phân loại cây bổ sung[9]. Bằng cách sử dụng các kỹ thuật như Rừng ngẫu nhiên, đạt được tỷ lệ thu hồi và độ chính xác cao, nghiên cứu nhằm hỗ trợ chủ sở hữu và người quản lý khách sạn dự đoán và giảm thiểu tác động của việc hủy đặt phòng, từ đó tối ưu hóa hiệu quả hoạt động và sự hài lòng của khách[12].

2. Thấu hiểu hành vi người tiêu dùng:

Lập hồ sơ hành vi và sở thích của người tiêu dùng là điều cần thiết để cung cấp dịch vụ được cá nhân hóa và các chiến lược tiếp thị có mục tiêu trong ngành khách sạn. Strebinger và Treiblmaier đã điều tra các yếu tố liên quan đến nhân khẩu học, tâm lý và dịch vụ ảnh hưởng đến việc áp dụng các ứng dụng đặt phòng khách sạn dựa trên blockchain[2]. Thông qua khảo sát 505 người tiêu dùng Hoa Kỳ, nghiên cứu của họ đã xác định các yếu tố quyết định chính như giảm giá, dịch vụ mở rộng và nhận diện thương hiệu, cung cấp thông tin chi tiết có giá trị cho các nhà cung cấp nhằm thu hút người dùng sớm và tăng cường sự tham gia của người dùng[2].

Hơn nữa, Salameh et al đã xem xét tầm quan trọng của chất lượng trang web và đánh giá trực tuyến trong việc dự đoán ý định và cách sử dụng các nền tảng đặt phòng khách sạn trực tuyến[7]. Bằng cách phân tích các yếu tố như lợi ích nhận thức, chất lượng hệ thống và chất lượng dịch vụ, nghiên cứu của họ nhấn mạnh vai trò quan trọng của trải nghiệm người dùng và độ tin cậy trong việc ảnh hưởng đến quyết định đặt phòng của người tiêu dùng. Những phát hiện này đưa ra những đề xuất hữu ích cho các chủ khách sạn và đại lý du lịch trực tuyến đang tìm cách tối ưu hóa nền tảng kỹ thuật số của họ và nâng cao sự hài lòng của khách hàng.

3. Tối ưu hóa giá:

Chiến lược giá hiệu quả là công cụ giúp tối đa hóa doanh thu và lợi nhuận cho khách sạn và đại lý du lịch trực tuyến. Trang và cộng sự đã khám phá việc sử dụng các kỹ thuật phân cụm kết hợp với các mô hình tăng cường độ dốc để cải thiện dự đoán giá trong hệ thống đặt phòng trực tuyến. Bằng cách tận dụng các thuật toán học máy như gradient Boost và XGBoost, nghiên cứu của họ nhằm mục đích đưa ra các quyết định về giá chính xác hơn dựa trên vị trí, loại bất động sản và các thuộc tính liên quan khác. Nghiên cứu này góp phần phát triển các chiến lược định giá năng động phù hợp với nhu cầu thị trường và động lực cạnh tranh[3].

Ngoài ra, Lin (2023) đã điều tra các yếu tố ảnh hưởng đến việc hủy đặt phòng khách sạn và đề xuất các chiến lược để giảm thiểu tác động của chúng. Bằng cách phân tích các tập dữ liệu từ Kaggle, nghiên cứu đã xác định các yếu tố như thời gian đặt phòng, loại phòng và thông tin nhân khẩu học của khách hàng là những yếu tố dự báo quan trọng về khả năng hủy đặt phòng. Tận dụng các thuật toán học máy như cây quyết định và rừng ngẫu nhiên, nghiên cứu nhằm hỗ trợ các nhà quản lý khách sạn tối ưu hóa chính sách hủy và phương pháp quản lý doanh thu để giảm thiểu thất thoát doanh thu và nâng cao hiệu quả hoạt động[12].

4. Kết hợp đánh giá của người tiêu dùng:

Đánh giá trực tuyến đóng vai trò then chốt trong việc định hình nhận thức của người tiêu dùng và quyết định đặt phòng trong kỷ nguyên kỹ thuật số. Yang và cộng sự. (2021) đã đề xuất thuật toán ra quyết định kết hợp phân tích cảm tính dựa trên khía cạnh với VIKOR mờ trực quan để phân tích và ưu tiên các thuộc tính của khách sạn dựa trên các đánh giá trực tuyến[4]. Bằng cách tận dụng các mô hình và cơ chế chú ý ngắn hạn dài hạn (Bi-LSTM) hai chiều, nghiên cứu của họ nhằm mục đích cung cấp những hiểu biết toàn diện về sở thích của khách hàng và tạo điều kiện thuận lợi cho những vị khách tiềm năng đưa ra quyết định sáng suốt[4].

Hơn nữa, Wardianti và Hidayah (2023) đã xem xét ảnh hưởng của cách trình bày trực quan và đánh giá trực tuyến đến ý định đặt phòng khách sạn trên ứng dụng Tiket.com. Thông qua phân tích định lượng bằng Mô hình phương trình cấu trúc bình phương nhỏ nhất từng phần (PLS-SEM), nghiên cứu của họ đã điều tra mối tương tác giữa chất lượng trình bày trực quan, tính dễ sử dụng và độ tin cậy của đánh giá trực tuyến trong việc định hình ý định đặt phòng của người tiêu dùng. Những phát hiện này cung cấp những hiểu biết có giá trị cho các đại lý du lịch trực tuyến và chuỗi khách sạn đang tìm cách tối ưu hóa nền tảng kỹ thuật số của họ và thúc đẩy tỷ lệ chuyển đổi[14].

5. Đổi mới công nghệ:

Những tiến bộ trong công nghệ, bao gồm trí tuệ nhân tạo (AI) và hệ thống gợi ý, đã cách mạng hóa bối cảnh đặt phòng khách sạn, mang đến trải nghiệm liền mạch và cá nhân hóa cho khách du lịch. Remountakis và cộng sự. (2023) đã khám phá việc tích hợp các mô hình ngôn ngữ lớn (LLM) như ChatGPT với các công nghệ thuyết phục để tự động hóa các đề xuất được cá nhân hóa trong dịch vụ khách sạn của khách sạn. Bằng cách tận dụng khả năng hiểu ngôn ngữ tự nhiên và thông điệp thuyết phục, nghiên cứu của họ nhằm mục đích tối ưu hóa mức độ tương tác và tỷ lệ chuyển đổi của người dùng, cuối cùng là thúc đẩy hiệu quả kinh doanh và sự hài lòng của khách[6].

Hơn nữa, Tang (2023) đã nghiên cứu dự đoán trạng thái đặt phòng khách sạn bằng cách sử dụng các mô hình học máy như KNN, Rừng ngẫu nhiên và mạng thần kinh. Bằng cách phân tích các tập dữ liệu từ Kaggle, nghiên cứu nhằm xác định phương pháp hiệu quả nhất để dự đoán tình trạng đặt phòng khách sạn trong tương lai, từ đó hỗ trợ các chủ khách sạn tối ưu hóa việc quản lý hàng tồn kho và dự báo doanh thu. Những đổi mới công nghệ này có tiềm năng to lớn trong việc nâng cao hiệu quả hoạt động và trải nghiệm của khách hàng trong ngành khách sạn[11].

Tóm lại, bối cảnh nghiên cứu về phân tích đặt phòng khách sạn bao gồm nhiều chủ đề, phương pháp và đổi mới công nghệ nhằm giải quyết các nhu cầu và thách thức ngày càng tăng của ngành khách sạn. Bằng cách tận dụng mô hình dự đoán, phân tích hành vi người tiêu dùng, tối ưu hóa giá cả và đổi mới công nghệ, các nhà nghiên cứu và người thực hành trong ngành có thể mở ra những cơ hội mới để tăng trưởng doanh thu, hiệu quả hoạt động và sự hài lòng của khách hàng trong bối cảnh đặt phòng khách sạn năng động và cạnh tranh.

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27. 27. Examining the impact of visual presentations and online reviews on hotel booking intentions, Dawood Amin and Anuar Sb Mahomed and Yuhanis B Ab Aziz and Haslinda Hashim, Tourism and Hospitality Research, 2021
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| Souree | Cite | Abstract |
| 1 | @article{Chen2022ComparisonAA,  title={Comparison and Analysis of Machine Learning Models to Predict Hotel Booking Cancellation},  author={Yiying Chen and Chuhan Ding and Hanjie Ye and Yuchen Zhou},  journal={Proceedings of the 2022 7th International Conference on Financial Innovation and Economic Development (ICFIED 2022)},  year={2022},  url={https://api.semanticscholar.org/CorpusID:252156161}  } | Comparison and Analysis of Machine Learning Models to Predict Hotel Booking Cancellation  Hotel booking cancellation prediction is crucial in conducting revenue and resource management for hotels. This paper provides three possible substitutes for the neural network including logistic regression, k -Nearest Neighbor ( k -NN), and CatBoost, whereas CatBoost, is the most suitable model for hotels to do the prediction. The advantages of them are effectiveness, high accuracy, and lower cost. The dataset used in this paper was adapted from Kaggle, a set of the booking data from two types of hotels (resort hotel and city hotel) in Portugal, and the corresponding customers’ information. We select some key variables as the predictor to train and test the prediction models based on three machine learning algorithms. After preprocessing the raw data, i.e., standardizing, dealing with missing data, recoding some variables, and scaling, we conduct the prediction and compare each model through three metrics (confusion matrix, accuracy score, and 1 F -score). The result indicates that CatBoost has the best performance in predicting hotel booking cancellation because it has the greatest number of correct prediction samples and the highest accuracy score. We focus on the efficiency and economy of doing cancellation prediction in the hospitality industry to form a basis for future revenue and resource management for hotels. |
| 2 | @article{Strebinger2022ProfilingEA,  title={Profiling early adopters of blockchain-based hotel booking applications: demographic, psychographic, and service-related factors},  author={Andreas Strebinger and Horst Treiblmaier},  journal={Information Technology \& Tourism},  year={2022},  pages={1-30},  url={https://api.semanticscholar.org/CorpusID:245653981}  } | [Profiling early adopters of blockchain-based hotel booking applications: demographic, psychographic, and service-related factors](https://www.semanticscholar.org/paper/Profiling-early-adopters-of-blockchain-based-hotel-Strebinger-Treiblmaier/cbf6211d6ccad1b7e1927451a38793b6e09d3c73)  To successfully introduce blockchain-enabled booking platforms in the tourism and hospitality industry, providers need to understand their target audiences. We present the results of a survey of 505 US consumers who, in a simulated hotel booking scenario for a leisure trip, picked between traditional Online Travel Agencies (OTA) and a blockchain-enabled booking app with varying degrees of services, discounts, and brand recognition. We find that blockchain-enabled booking apps that meet the following three conditions could attract up to half of the market: (1) offer discounts over OTAs, (2) provide services which go beyond mere booking, and (3) have well-known brand names. In a series of three nested logistic regressions, we investigate the impact of demographic, psychographic, and service-related traveler characteristics. We find that early adopters of blockchain-enabled hotel booking platforms will be young and highly educated. Potential cost savings over OTAs will also attract travelers with lower incomes and from larger households. Other traveler characteristics that facilitate adoption include a high preparedness to take risks, high IT innovativeness, prior familiarity with blockchain technology, and, mediated through IT innovativeness, a high Generalized Sense of Power. Male travelers are more likely than female travelers to be early adopters due to their higher familiarity with blockchain technology. |
| 3 | @article{Trang2021ClusteringHT,  title={Clustering helps to improve price prediction in online booking systems},  author={Le Hong Trang and Tran Duong Huy and Anh-Ngoc Le},  journal={Int. J. Web Inf. Syst.},  year={2021},  volume={17},  pages={45-53},  url={https://api.semanticscholar.org/CorpusID:232082349}  } | Clustering helps to improve price prediction in online booking systems  Purpose Pricing on the online booking systems is a difficult task for the host, the systems usually set the prices that are lower than the general premises and quality, and that only gives benefits to the system by easily attracting the customer to use the service. The setting price of the new accommodation is often based on location, the number of beds, type of house and so on. The main problem is to predict the most reasonable price for the host. This paper aims to study the use of machine learning and sentiment analysis for predicting the price of online booking systems. Design/methodology/approach In particular, an empirical study is performed first for some well-known classification models for the problems. The authors then propose to apply k-means, a clustering technique, together with Gradient Boost and XGBoost models to improve the prediction performance. Experiments are conducted and tested for real Airbnb data sets collected in London City. Findings Experimental results are given and compared to show that the authors’ method outperforms to an updated method. Originality/value The authors use k-means and sampling together with Gradient Boost and XGBoost models to improve the prediction performance. |
| 4 | @article{Yang2021RETRACTEDAA,  title={RETRACTED ARTICLE: A decision-making algorithm combining the aspect-based sentiment analysis and intuitionistic fuzzy-VIKOR for online hotel reservation},  author={Zaoli Yang and Yue Gao and Xiangling Fu},  journal={Annals of Operations Research},  year={2021},  pages={1 - 1},  url={https://api.semanticscholar.org/CorpusID:240420323}  } | RETRACTED ARTICLE: A decision-making algorithm combining the aspect-based sentiment analysis and intuitionistic fuzzy-VIKOR for online hotel reservation  In the process of hotel reservation on online traveling platforms, online reviews, as a fundamental source where the actual information of a product can be had access to, have been attached with high importance by customers when they have difficulty making a decision on which hotel to pick. However, with enormous amount of online reviews distributed in diverse online traveling platforms, customers tend to have few patience or time to manually read all these reviews and get the exact information they want. Inspired by the widespread application of aspect-based sentiment analysis in the field of data mining, a bidirectional long short-term memory (Bi-LSTM) and attention mechanism based model to predict multiple attributes of a product from online review texts is proposed. Experimental result shows that such Bi-LSTM with attention mechanism model apparently improves the accuracy of the prediction, compared with single LSTM model. Meanwhile, based on the output of the prediction, we analyze and transfer it into a statistical matrix. With an intuitionistic fuzzy compromise decision-making method VIKOR applied, an overall ranking, according to multiple product attributes can be made, in which way to help customers make decisions. To prove the rationality of the algorithm, online hotel reviews from three stream online travelling platforms are crawled as a case. |
| 5 | @article{Putra2021PerbandinganML,  title={Perbandingan Model Logistic Regression dan Artificial Neural Network pada Prediksi Pembatalan Hotel},  author={Moch Shandy Tsalasa Putra and Yufis Azhar},  journal={JISKA (Jurnal Informatika Sunan Kalijaga)},  year={2021},  url={https://api.semanticscholar.org/CorpusID:234233012}  } | Perbandingan Model Logistic Regression dan Artificial Neural Network pada Prediksi Pembatalan Hote  Prediction for canceled booking hotels is an important part of hotel revenue management systems in the modern era. Because the predicted result can be used for the optimization of hotel performance. The application of machine learning will be very helpful for predicting canceled booking hotels because machine learning can process complex data. In this research, the proposed methods are Artificial Neural Network (ANN) and Logistic Regression. Later it will be done five times experiments with hyperparameter tuning to see which method is the most optimal to do prediction canceled booking hotel. From five times experiments, experiments number five (logistic regression with GridSearchCV) is the most optimal for predicting canceled booking hotels, with 79.77% accuracy, 85.86% precision, and 55.07% recall. |
| 6 | @article{Remountakis2023ChatGPTAP,  title={ChatGPT and Persuasive Technologies for the Management and Delivery of Personalized Recommendations in Hotel Hospitality},  author={Manolis Remountakis and Konstantinos I. Kotis and Babis Kourtzis and George E. Tsekouras},  journal={ArXiv},  year={2023},  volume={abs/2307.14298},  url={https://api.semanticscholar.org/CorpusID:260164973}  } | ChatGPT and Persuasive Technologies for the Management and Delivery of Personalized Recommendations in Hotel Hos- pitality  Recommender systems have become indispensable tools in the hotel hospitality industry, enabling personalized and tailored experiences for guests. Recent advancements in large language models (LLMs), such as ChatGPT, and persuasive technologies, have opened new avenues for enhancing the effectiveness of those systems. This paper explores the potential of integrating ChatGPT and persuasive technologies for automating and improving hotel hospitality recommender systems. First, we delve into the capabilities of ChatGPT, which can understand and generate human-like text, enabling more accurate and context-aware recommendations. We discuss the integration of ChatGPT into recommender systems, highlighting the ability to analyze user preferences, extract valuable insights from online reviews, and generate personalized recommendations based on guest profiles. Second, we investigate the role of persuasive technology in influencing user behavior and enhancing the persuasive impact of hotel recommendations. By incorporating persuasive techniques, such as social proof, scarcity and personalization, recommender systems can effectively influence user decision-making and encourage desired actions, such as booking a specific hotel or upgrading their room. To investigate the efficacy of ChatGPT and persuasive technologies, we present a pilot experi-ment with a case study involving a hotel recommender system. We aim to study the impact of integrating ChatGPT and persua-sive techniques on user engagement, satisfaction, and conversion rates. The preliminary results demonstrate the potential of these technologies in enhancing the overall guest experience and business performance. Overall, this paper contributes to the field of hotel hospitality by exploring the synergistic relationship between LLMs and persuasive technology in recommender systems, ultimately influencing guest satisfaction and hotel revenue. |
| 7 | @article{Salameh2022ModellingTS,  title={Modelling the significance of website quality and online reviews to predict the intention and usage of online hotel booking platforms},  author={Anas Abdelsatar Mohammad Salameh and Abdullah Al Mamun and Naeem Hayat and Mohd Helmi Ali},  journal={Heliyon},  year={2022},  volume={8},  url={https://api.semanticscholar.org/CorpusID:252506079}  } | **Modelling the significance of website quality and online reviews to predict the intention and usage of online hotel booking platforms**  Innovative technologies are paving the way for the online purchase of products and services. The COVID-19 also harness online shopping and hotel booking in the post-COVID-19 era. Online hotel booking is becoming the norm among young consumers. The six determinants of the intention to use online hotel booking platforms (OHBPs) are information quality, integrity, perceived risks, perceived benefits, system quality, and service quality was utilized in the study. Cross-sectional data were collected through the online survey, and 884 valid responses were utilised for the data analysis. The analysis results showed that the perceived benefits, system quality, and service quality significantly predicted the intention to use the OHBPs. Meanwhile, the usefulness and quantity of online reviews and the intention to use OHBPs have a positive and significant effect on the usage of the OHBPs. The study results confirmed the insignificant moderating role of the usefulness and quantity of online hotel booking reviews in the relationship between the intention to use and the usage of OHBPs. The intention to use OHBPs had low predictive power, while the usage of OHBPs had high predictive power. This study’s findings have offered valuable theoretical and managerial contributions. The management of OHBPs needs to concentrate on information quality and integrity to help manage the associated risks of online hotel booking. Previous customers' reviews are vital to encourage the usage of OHBPs. Finally, social media usage and promoting the OHBPs by sharing satisfied users' experiences improve the intention and usage of the OHBPs. |

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| 8 | @article{Mohamad2021UnderstandingTM,  title={Understanding tourist mobile hotel booking behaviour: Incorporating perceived enjoyment and perceived price value in the modified Technology Acceptance Model},  author={Mohamad Amiruddin Mohamad and Mohd Hafiz Hanafiah and Salleh Mohd Radzi},  journal={Tourism \& Management Studies},  year={2021},  volume={17},  pages={19-30},  url={https://api.semanticscholar.org/CorpusID:234008206}  } | **Understanding tourist mobile hotel booking behaviour: Incorporating perceived enjoyment and perceived price value in the modified Technology Acceptance Model**  This study examines how mobile technology adoption influences customers' intention to book hotel rooms via smartphone. This study empirically incorporated perceived enjoyment and perceived value in the modified Technology Acceptance Model (m-TAM) and tested it as a unified model. Partial Least Square-Structural equation modelling (PLSSEM) was applied to estimate the proposed research framework based on the survey data collected from 386 travellers who booked hotels via their smartphones. The structural model confirms perceived usefulness, perceived ease of use, perceived enjoyment, and perceived price value significantly influence consumers' behavioural intentions toward mobile hotel booking. This study confirms that TAM can be extended and employed to predict and explain the acceptance of the new technologies in service industries. This study also provides valuable theoretical contributions in developing and testing related theories and practical implications to hotel operators, online travel agencies (OTAs), and hospitality technology suppliers. |
| 9 | @article{Saputro2021ExploratoryDA,  title={Exploratory Data Analysis \& Booking Cancelation Prediction on Hotel Booking Demands Datasets},  author={Pujo Hari Saputro and Herlino Nanang},  journal={Journal of Applied Data Sciences},  year={2021},  url={https://api.semanticscholar.org/CorpusID:233421558}  } | **Exploratory Data Analysis & Booking Cancelation Prediction on Hotel Booking Demands Datasets**  Online ordering is the latest breakthrough in the hospitality industry, but when it comes to booking cancellations, it has a negative impact on it. To reduce and anticipate an increase in the number of booking cancellations, we developed a booking cancellations prediction model using machine learning interpretable algorithms for hotels. Both models used Random Forest and the Extra Tree Classifier share the highest precision ratios, Random Forest on the other hand has the highest recall ratio, this model predicted 79% of actual positive observations. These results prove that it is possible to predict booking cancellations with high accuracy. These results can also help hotel owners or hotel managers to predict better predictions, improve cancellation regulations, and create new tactics in business. |
| 10 | @article{Budiyantara2021ANALISISDM,  title={ANALISIS DATA MINING HOTEL BOOKING MENGGUNAKAN MODEL ID3},  author={Agus Budiyantara and Andreanus Kevin Wijaya and Anthony Gunawan and Michel Rolland},  journal={JBASE - Journal of Business and Audit Information Systems},  year={2021},  url={https://api.semanticscholar.org/CorpusID:233560685}  } | **ANALISIS DATA MINING HOTEL BOOKING MENGGUNAKAN MODEL ID3** The rapid development of information technology in this era makes it easier for someone to get information. Many business sectors are now promoting their products or services on the internet. An example is a hotel, in the technological era now we can easily find out about hotel information, ranging from location, price, and others. With the convenience to get information about this hotel, customers are indirectly increasing in a hotel. This of course causes the data contained in a hotel to increase as well. These data can be processed until we get an output and there is also data that is missing or cannot be processed. The data that can be processed can be analyzed until finally it becomes an information and prediction. In this journal, we will explain the Data Mining analysis in a hotel to analyze the success rate of a hotel. By doing this analysis, you will get insights about the level of success of the hotel and can also predict the future. Thus later the results of this analysis can be used by the hotel to assist in better decision making. Processing data in this study using the Rapid Miner application by entering data of customers who make hotel reservations |
| 11 | @article{Tang2023PredictionOT,  title={Prediction of the Status of the Hotel Reservations},  author={Zhuoyuan Tang},  journal={Applied and Computational Engineering},  year={2023},  url={https://api.semanticscholar.org/CorpusID:260831355}  } | **Prediction of the status of the hotel reservations**  There are currently a substantial amount of hotel reservations that are canceled owing to customer absence or cancellation. They may cause a great deal of inconvenience for the hotel, impair its efficiency or revenue, etc. Through examining a sample dataset about hotel reservations from Kaggle, the purpose of this research is to identify some basic information and features in this dataset, then describe six machine learning models, including KNN, Random Forest (RF), Decision Tree (DT), Logical Regression (LR), SVM and neural network using the Python programming language, and train them on this dataset. The next step is to compare results to one another. In order to get efficient booking outcomes, it is necessary to select the most effective method, which is Random Forest (based on their value of accuracy), to predict the future state of hotel reservations, i.e. whether the consumer will confirm or cancel the reservation. This study seeks to assist novices in gaining a deeper understanding of large data, the principles of some machine learning models, and the capacity to predict data. |
| 12 | @article{Lin2023ResearchOT,  title={Research on the Influencing Factors of Cancellation of Hotel Reservations},  author={Yaqiong Lin},  journal={Highlights in Science, Engineering and Technology},  year={2023},  url={https://api.semanticscholar.org/CorpusID:260413776}  } | **Research on the Influencing Factors of Cancellation of Hotel Reservations**  Booking hotels online is now a very common way for people to travel and stay, but a large number of cancellations due to itinerary changes and other factors can have a big impact on hotels, such as losing customers who really need a certain room type and losing them to other hotels. In order to reduce hotel losses, this paper uses the data of two hotels through data published on Kaggle's official website, identifies the factors that have the greatest impact on hotel cancellations through EDA visualization, and gives improvement measures. Machine learning algorithms are then used to guess whether the customer will cancel the booking. Each algorithm has its own area of expertise, so this article makes a comparison to the performance of decision trees, logistic regression, random forests. The result is that random forests have the highest accuracy and hotel managers can use the model to predict and change business strategies to increase profits. |
| 13 | @article{Adil2021SolvingTP,  title={Solving the Problem of Class Imbalance in the Prediction of Hotel Cancelations: A Hybridized Machine Learning Approach},  author={Mohd. Adil and Mohd Faizan Ansari and Ahmad Aziz Al Alahmadi and Jei-Zheng Wu and Ripon Kumar Chakrabortty},  journal={Processes},  year={2021},  url={https://api.semanticscholar.org/CorpusID:244217161}  } | Solving the Problem of Class Imbalance in the Prediction of Hotel Cancelations: A Hybridized Machine Learning Approach  The cancelation of bookings puts a considerable strain on management decisions in the case  of the hospitability industry. Booking cancelations restrict precise predictions and are thus a critical  tool for revenue management performance. However, in recent times, thanks to the availability of  considerable computing power through machine learning (ML) approaches, it has become possible  to create more accurate models to predict the cancelation of bookings compared to more traditional  methods. Previous studies have used several ML approaches, such as support vector machine (SVM),  neural network (NN), and decision tree (DT) models for predicting hotel cancelations. However,  they are yet to address the class imbalance problem that exists in the prediction of hotel cancelations.  In this study, we have shortened this gap by introducing an oversampling technique to address  class imbalance problems, in conjunction with machine learning algorithms to better predict hotel  booking cancelations. A combination of the synthetic minority oversampling technique and the  edited nearest neighbors (SMOTE-ENN) algorithm is proposed to address the problem of class  imbalance. Class imbalance is a general problem that occurs when classifying which class has more  examples compared to others. Our research has shown that, after addressing the class imbalance  problem, the performance of a machine learning classifier improves significantly. |
| 14 | @article{Wardianti2023TheIO,  title={The Influence of Visual Presentations and Online Reviews on Hotel Booking Intention on the Tiket.Com Application (Case Study: Tiket.Com Application Users)},  author={Shiffa Intania Wardianti and Riski Taufik Hidayah},  journal={International Journal of Social Science and Religion (IJSSR)},  year={2023},  url={https://api.semanticscholar.org/CorpusID:261383116}  } | **The Influence of Visual Presentations and Online Reviews on Hotel Booking Intention on the Tiket.Com Application (Case Study: Tiket.Com Application Users)**  Tiket.com is an Online Travel Agent (OTA) that provides online hotel bookings. This study aims to analyze the effect of visual presentation and online reviews on hotel booking intention on the Tiket.com application. This research integrates visual presentation and online reviews with the Technology Acceptance Model (TAM). The variables tested consist of Visual presentation, Perceived Ease of Use, and Online review as independent variables, Perceived Usefulness as a moderating variable, and Booking Intention as the dependent variable. The type of research is quantitative with a cross-sectional design and the research subjects are users of the Tiket.com application. Data was collected by distributing questionnaires to 119 respondents. The research hypothesis was tested using the Partial Least Squares Structural Equation Model (PLS-SEM) analysis technique. Based on the results of the hypothesis, H1, H3, and H8 are not in line with previous thinking because they do not positively influence buying interest |
| 15 | @article{SwatiJagtap2023NavigatingTD,  title={Navigating the Digital Landscape: An Analysis of Hotel Booking Websites and Their Impact on Consumer Preferences},  author={Dr. Swati Jagtap and Dr. Santosh Jagtap},  journal={International Journal For Multidisciplinary Research},  year={2023},  url={https://api.semanticscholar.org/CorpusID:265626301}  } | **Navigating the Digital Landscape: An Analysis of Hotel Booking Websites and Their Impact on Consumer Preference**  In an era where travel has become an integral part of modern life, online hotel booking platforms have revolutionized the travel industry, offering travelers a convenient and efficient way to plan and book accommodations. These platforms have emerged as essential tools, providing a user-friendly and timeefficient alternative for travellers to plan and book accommodations. This study explores customer perspectives on OYO Rooms, Fab Hotels, and Treebo hotels chains. It conducts a comprehensive analysis of the intricate dynamics and functionalities of these hotel booking websites, scrutinizing their services, features, and pricing models. The study unravels the profound influence of these platforms on travel decision-making, highlighting the factors that shape customer preferences and choices. |
| 16 | @article{Ibrahim2023TheSO,  title={The Segmentation of Mobile Application Users in The Hotel Booking Journey},  author={Niko Ibrahim and Putu Wuri Handayani and Betty Purwandari and Imairi Eitiveni and Fadhil Dzulfikar},  journal={Interdisciplinary Journal of Information, Knowledge, and Management},  year={2023},  url={https://api.semanticscholar.org/CorpusID:263159464}  } | THE SEGMENTATION OF MOBILE APPLICATION USERS IN THE HOTEL BOOKING JOURNEY  Aim/Purpose: This study aims to create customer segmentation who use Online Travel Agent (OTA) mobile applications in Indonesia throughout their hotel booking journey. Background: In the context of mobile hotel booking applications, research analyzing the customer experience at each customer journey stage is scarce. However, literature increasingly acknowledges the significance of this stage in comprehending customer behavior and revenue streams. Methodology: This study employs a mixed-method and exploratory approach by doing in-depth interviews with 20 participants and questionnaires from 207 participants. Interview data are analyzed using thematic analysis, while the questionnaires are analyzed using descriptive statistics. Contribution: This study enriches knowledge in understanding customer behavior that considers the usage of mobile apps as a segmentation criterion in the hotel booking journey. Findings: We developed four user personas (no sweat player, spotless seeker, social squad, and bargain hunter) that show customer segmentation based on the purpose, motivation, and actions in each journey stage (inspiration, consideration, reservation, and experience). Recommendations for Practitioners: The resulting customer segmentation enables hospitality firms to improve their current services by adapting to the needs of various segments and avoiding unanticipated customer pain points, such as incomplete information, price changes, no social proof, and limited payment options. Recommendation for Researchers: The quality and robustness of the customer segment produced in this study can be further tested based on the criteria of homogeneity, size, potential benefits, segment stability, segment accessibility, segment compatibility, and segment actionability. Impact on Society: This study has enriched the existing literature by establishing a correlation between user characteristics and how they use smartphones for tourism planning, focusing on hotel booking in mobile applications. Future Research: For future research, each customer segment’s demographic and behavioral factors can be explored further. |
| 17 | @article{Shaputra2023HowMR,  title={How Media Richness and Interactivity in Hotel Visualization Affect Hotel Booking Intention in Online Travel Agency Applications?},  author={Rafif I. Shaputra and Widia Resti Fitriani and Achmad Nizar Hidayanto and Larastri Kumaralalita and Betty Purwandari},  journal={Human Behavior and Emerging Technologies},  year={2023},  url={https://api.semanticscholar.org/CorpusID:256753370}  } | **How Media Richness and Interactivity in Hotel Visualization Affect Hotel Booking Intention in Online Travel Agency Applications?**  This study is aimed at clarifying the relationship between media characteristics and intention to book hotels in online travel agencies. This study is based on a quantitative approach using a between-subject experimental method, with a 2 × 2 factorial design consisting of two types of media richness (high and low) and two types of interactivities (high and low). Research data were obtained from 152 respondents and were processed using the ANOVA and mediation method on the SPSS application. This study found that hotel visualizations with high media richness and high interactivity more significantly influence users’ trust, perceived value, and attitudes compared to visualizations with low media richness and interactivity. This research provides practical implications for OTA companies regarding offering features that can support enhanced visualization of hotel displays. This study also contributes to enriching tourism research by comparing levels of media characteristics and their impact on booking intention. |
| 18 | @article{Chen2023PredictionOH,  title={Prediction of hotel booking cancellations: Integration of machine learning and probability model based on interpretable feature interaction},  author={Shui-xia Chen and Eric W. T. Ngai and Yaoyao Ku and Zeshui Xu and Xunjie Gou and Chenxi Zhang},  journal={Decis. Support Syst.},  year={2023},  volume={170},  pages={113959},  url={https://api.semanticscholar.org/CorpusID:257491178}  } | **Prediction of hotel booking cancellations: Integration of machine learning and probability model based on interpretable feature interaction** Reliable hotel cancellation prediction can help establish appropriate operational strategies for hotel management. In this sector, personal name records (PNR) data may be the most representative information source for prediction tasks. Despite the popularity of PNR, its inherent lack of availability has been commonly disregarded in the literature. Existing studies have directly input PNR into high-dimensional [machine learning](https://www.sciencedirect.com/topics/computer-science/machine-learning) (ML) models to achieve cancellation predictions. Another type of model generates cancellation prediction based on the probability modeling of samples. In this study, we propose an interpretable feature interaction method to enrich the existing PNR information. Thereafter, we empirically assess the prediction performance of the two model classes. This study specifically determines whether or not the two methods can cross-fertilize each other to improve cancellation prediction. To do so, we propose a model integrating [Bayesian networks](https://www.sciencedirect.com/topics/computer-science/bayesian-networks) (BNs) and Lasso regression for this prediction task. This study utilizes BNs for the probability model consistent with our correlated variables and dichotomous prediction setting. Moreover, we use a linear ML model (i.e., Lasso regression), given its advantages in reducing ineffective predictors and transparency for ranking feature importance. Empirical results show that the proposed integration model has better prediction performance, and the obtained BN estimators and interactive features are the most important predictors. This study contributes to the booking cancellation literature by proposing an interpretable feature interaction and a prediction method integrating two types of effective models. The obtained accurate and interpretable cancellation prediction further contributes to offering practical implications to hoteliers in managerial decision-making. |
| 19 | @article{Mehnaz2023FactorsPC,  title={Factors predicting customer satisfaction in online hotel booking using machine learning technique: evidence from developing countries},  author={Mehnaz Mehnaz and Jiahua Jin and Wasim Ahmad and Azhar Hussain},  journal={Int. J. Appl. Decis. Sci.},  year={2023},  volume={16},  pages={741-759},  url={https://api.semanticscholar.org/CorpusID:264139032}  } | [**Factors predicting customer satisfaction in online hotel booking using machine learning technique: evidence from developing countries**](https://www.inderscience.com/info/inarticle.php?artid=134200)  This paper predicts and documents the determinants of customer satisfaction in online hotel booking for the foreign tourists in developing countries. The data was taken from the customer web-based reviews and comments. The study forecasts customer satisfaction by comparing logistic model with artificial neural network (ANN) in terms of prediction accuracy. In case of both datasets, i.e., training and testing, ANN outperformed the logistic regression model in terms of prediction. In other words, ANN is more robust in terms of prediction as compared to logistic regression model. Furthermore, empirical results depict that rental price, staff performance, location, services quality, and rating are the significant tools to maximise customer satisfaction. Hotel authorities in developing countries need to focus on these factors where customer feedback may play a significant role implementing the best services of hotels. These incentives will help to increase the booking incentives and ensure sufficient revenues for hotel industry of developing nations. |
| 20 | @article{Christin2023TheIO,  title={The Impact of Online Review and Price on Consumer’s Hotel Booking Intention at Online Travel Agency: Trust as a Mediating Variable},  author={Gabriella Anggita Dea Christin and Albert K.N.A. Nugraha},  journal={International Journal of Electronic Commerce Studies},  year={2023},  url={https://api.semanticscholar.org/CorpusID:261423263}  } | **The Impact of Online Review and Price on Consumer’s Hotel Booking Intention at Online Travel Agency: Trust as a Mediating Variable**  Online Travel Agencies (OTAs) offer accessible and user-friendly platforms for consumers to have a quick and cost-effective solution to make a hotel reservation. Still, the intangible nature of hotel service makes consumers indecisive. They can only weigh the pros and cons of their decision through the hotel information provided at OTAs, including online reviews and prices. On this ground, the current study validates the impacts of online review and price on hotel booking intention at OTAs, with trust as the mediating variable. This study employed a non-probability and purposive sampling technique to collect data. The following procedure was a validity test (i.e., factor analysis and confirmatory factor analysis) and structural equation modeling analysis. The results suggest that online reviews through trust indirectly impact booking intention, while price directly and indirectly through trust impact booking intention. Furthermore, trust impacts booking intention. |
| 21 | @article{Tian2023MdPredAM,  title={Md-Pred: A Multidimensional Hybrid Prediction Model Based on Machine Learning for Hotel Booking Cancellation Prediction},  author={Xinyuan Tian and Bingqin Pan and Liping Bai and Deyun Mo},  journal={Int. J. Pattern Recognit. Artif. Intell.},  year={2023},  volume={37},  pages={2351009:1-2351009:21},  url={https://api.semanticscholar.org/CorpusID:257197699}  } | Md-Pred: A Multidimensional Hybrid Prediction Model Based on Machine Learning for Hotel Booking Cancellation Prediction Hotel order cancellation prediction has always been an influential part of hotel management. A better prediction model can optimize the accuracy of the prediction and thus enhance the value of subsequent business analysis and operational optimization. In this paper, a multidimensional hybrid evaluation prediction model Md-Pred is proposed for the first time. It combines the CatBoost, LGBM classifier, and SARIMAX time series algorithm, which can more effectively balance the influence of various features on classification problems as well as differentiate between objective features and subjective features. Results indicate that the performance of the prototype is significant, a new level of accuracy in predicting hotel order cancellations and future guest flow has been achieved. |
| 22 | @article{Nair2022ASO,  title={A Study on Relationship between Service Quality and Customer Loyalty with Reference to Online Hotel Booking Apps},  author={Dr. Sindhu S. Nair},  journal={International Journal of Current Science Research and Review},  year={2022},  url={https://api.semanticscholar.org/CorpusID:248490704}  } | **A Study on Relationship between Service Quality and Customer Loyalty with Reference to Online Hotel Booking Apps**  Expeditious development of e-commerce sector in hotel and tourism industry helped a competitive edge to the hotel industry to expand their online market space. In order to be successful in the market it is not sufficient to attract new customers, managers must concentrate on retaining existing customers implementing effective policies of customer satisfaction and loyalty. Online hotel reservation system is the best platform as it is beneficial to both customers and hotel management. Hotel booking procedure must be unblemished and convenient to attract new and existing customers through digital platforms. This article explores the relationship between service quality and customer loyalty with reference to online hotel booking apps. This study evaluates the appropriateness of service quality measurements in the context of online hotel booking apps. The scope of the study is to identify the factors attracting the users who use online hotel booking apps that helps to increase their loyalty in Kerala. The data are collected throughout structured questionnaire by using non-probability sampling method. The study reveals that there is a significant positive relationship between service quality and customer loyalty among online hotel booking apps. |
| 23 | @article{Le2022ImpactOW,  title={Impact of Website Interface on Customer Experience and Engagement Intention in Online Hotel Booking},  author={Tran-Thien-Y Le and Jashen Chen},  journal={Int. J. Inf. Syst. Serv. Sect.},  year={2022},  volume={14},  pages={1-18},  url={https://api.semanticscholar.org/CorpusID:239124212}  } | **Impact of Website Interface on Customer Experience and Engagement Intention in Online Hotel Booking** This study aims to examine the impacts of a website interface on customer experience and engagement intention in online hotel booking services. A research model was proposed to discuss the interrelationships among website interface attributes, online customer experience, and customer engagement intention. The moderating effects of self-efficacy were also included. A quantitative approach of collecting 608 usable online questionnaires was conducted, and SPSS and AMOS were used to analyze the measurement model and proposed hypotheses. The results demonstrated that customer experience was affected by the information attributes, service attributes, and technical attributes of the booking website interface. Furthermore, customer experience was found to be positively related to customer engagement intention on booking websites. Moderating effects of web self-efficacy on these relationships were suggested. |
| 24 | @article{GAlbino2022AutomatedHB,  title={Automated Hotel Booking and Cancellation Web-Based Application: A Prototype},  author={Michael G. Albino and Cyrel B. Alvarez and Shermaine B. Murillo and Aubrey Jaye S. Tuzon and Kris Danica P. Pa{\~n}a},  journal={Oriental journal of computer science and technology},  year={2022},  url={https://api.semanticscholar.org/CorpusID:256139225}  } | Automated Hotel Booking and Cancellation Web-Based Application: A Prototype  The purpose of this study is to provide new insights into the factors that influence cancellation behaviour with respect to hotel bookings. Cancellations of bookings are one of the most common concerns in the hotel sector. Before the specified arrival date, the client would cancel their reservation. The cancellation has had a major impact on hotel operations as well. The researchers developed a prototype system called Automated Hotel Booking Cancellation that can assist a hotel in better anticipating consumer cancellations and booking transactions. The researchers utilized a survey questionnaire following the ISO 25010 Software Quality Standard to assess the system's usefulness, functionality, accuracy, security, reliability, and maintainability. The results show "strongly agree" in all the domains with an overall mean = 3.46. IT Experts and respondents evaluated the proposed prototype and gained a "Strongly Agree" rating in all the domains under the survey. The domain on the usefulness of the system gained the highest mean = 3.89 with an interpretation of "strongly agree," and the lowest was the domain of security with a mean = 3.15 or "strongly agree," which ranked 6 in summary.  The researchers concluded based on the findings that the developed prototype web-based system was useful and functional to the needs of the target users/beneficiaries. The user interface of the web-based system was user-friendly, representing an object-oriented user interface for the users. An improvement recommended on the cancellation to automatically predict cancellations that can be incorporated into the system using Machine Learning Algorithms to ease the process of cancellation were recommended for future researchers who want to pursue advanced studies about the topic. |
| 25 | @article{Quynh2023DOESEA,  title={DOES EWOM AFFECTS GEN Z DECISION IN ONLINE BOOKING HOTEL APPLICATION?},  author={Anh Ly Quynh and Duc Nguyen Thai},  journal={International Journal of Social Science and Economic Research},  year={2023},  url={https://api.semanticscholar.org/CorpusID:266342160}  } | [DOES EWOM AFFECTS GEN Z DECISION IN ONLINE BOOKING HOTEL APPLICATION?](https://www.semanticscholar.org/paper/DOES-EWOM-AFFECTS-GEN-Z-DECISION-IN-ONLINE-BOOKING-Quynh-Thai/d88960fab32ee43fce1fe4c0802a5405098f7016)  Purpose: The purpose of this study is to investigate the factors of eWOM affecting online hotel bookings with the Generation Z booking app. In particular, it can be better understood by analyzing the relationship between the three eWOM variables (Valence, Quantity of eWom, Quality of EWOM), the Technology Acceptance Model (TAM), and hotel booking intention. Theoretical framework: This study classifies eWOMs and technology acceptance models based on research by many authors. Design/methodology/approach: Use the PLS-SEM method to analyze data collected from online surveys conducted on a 210 Gen Z sample to evaluate the theory behind the study. Findings:The survey made three findings: (1) perceived usefulness is an important factor in users' decisions about the acceptance and adoption of technology in online hotel booking, and (2) perceived enjoyment can also create a positive experience and increase user satisfaction after using the technology. This may lead to continued use, maintenance, and enhanced support in the future for online hotel booking technology, (3) perceived of ease use and user-friendly experience created in ease also helps to reduce distractions and stress for users. This can lead to greater satisfaction, continued use, and improved future support for the technology. The research on online hotel booking has yielded a lot of valuable information about the travel market, consumer behavior, and technological developments. Research, Practical & Social Implications: In a completely new digital era with the strong participation of Internet use, eWOM has become a decisive factor, an essential factor contributing immensely to the tourism industry in general and hotel booking through online hotel booking applications in particular. |
| 26 | @article{Kozlovskis2023APPLICATIONOM,  title={APPLICATION OF MACHINE LEARNING ALGORITHMS TO PREDICT HOTEL OCCUPANCY},  author={Konstantins Kozlovskis and Yuanyuan Liu and Nataļja Lāce and Yun Meng},  journal={Journal of Business Economics and Management},  year={2023},  url={https://api.semanticscholar.org/CorpusID:265664331}  } | APPLICATION OF MACHINE LEARNING ALGORITHMS TO PREDICT HOTEL OCCUPANCY  . The development and availability of information technology and the possibility of deep integration of internal IT systems with external ones gives a powerful opportunity to analyze data online based on external data providers. Recently, machine learning algorithms play a significant role in predicting different processes. This research aims to apply several machine learning algorithms to predict high frequent daily hotel occupancy at a Chinese hotel. Five machine learning models (bagged CART, bagged MARS, XGBoost, random forest, SVM) were optimized and applied for predicting occupancy. All models are compared using different model accuracy measures and with an ARDL model chosen as a benchmark for comparison. It was found that the bagged CART model showed the most relevant results (R2 > 0.50) in all periods, but the model could not beat the traditional ARDL model. Thus, despite the original use of machine learning algorithms in solving regression tasks, the models used in this research could have been more effective than the benchmark model. In addition, the variables’ importance was used to check the hypothesis that the Baidu search index and its components can be used in machine learning models to predict hotel occupancy. |
| 27 | @article{Amin2021ExaminingTI,  title={Examining the impact of visual presentations and online reviews on hotel booking intentions},  author={Dawood Amin and Anuar Sb Mahomed and Yuhanis B Ab Aziz and Haslinda Hashim},  journal={Tourism and Hospitality Research},  year={2021},  volume={21},  pages={402 - 417},  url={https://api.semanticscholar.org/CorpusID:236228734}  } | **Examining the impact of visual presentations and online reviews on hotel booking intentions**  This study aims to examine the factors affecting the behavioural intentions toward online hotel booking. The study integrates visual presentations and online reviews with the technology acceptance model (TAM). Partial least squares structural equation modelling (PLS-SEM) was used to test the proposed hypotheses in this research. The results report that booking intentions are mainly determined by visual presentations and perceived usefulness. The statistical analysis supports the notion that visual presentations and online reviews have a positive impact on perceived usefulness and perceived ease of use. However, online reviews do not have any significant influence on booking intention directly. The study concludes that online consumers are more likely to book a hotel online if visual presentations and online reviews appear to be useful and easy to use. The findings contribute several implications for researchers and practitioners in the hospitality field. |
| 28 | @article{Emam2021FactorsII,  title={Factors Influencing Intentions in Hotel Booking Through Online Travel Intermediaries Applications},  author={Hany Essam El-Din Mohamned Emam and Fatma Mohammed Abdelaal},  journal={Journal of Association of Arab Universities for Tourism and Hospitality},  year={2021},  url={https://api.semanticscholar.org/CorpusID:239860209}  } | **Factors Influencing Intentions in Hotel Booking Through Online Travel Intermediaries Applications**  The tremendous development of technology and mobile devices at present is making a significant influence on the hotels sector, especially in online hotel reservations via new online travel intermediaries applications like (Booking and Trivago applications). These applications have a prominent role in the hotel sector. Little researches has been done about customers’ perceptions of the use of booking broker applications. This study examined how some factors related to online travel intermediaries tend to influence the intentions of booking hotels. Therefore, customer questionnaires were distributed electronically due to the Coronavirus pandemic. The survey has six variables, i.e. “trust, ease of use, price and promotion, perceived privacy/security, online reviews, hotel booking intention.” Kruskal-Wallis Tests, Mann-Whitney U test and confirmatory factor analysis (CFA) were used to analyze 204 customers who used online travel intermediaries before booking in five-star hotels in Cairo. The results indicate that the ease of use, price, promotion, perceived privacy/security, and online reviews of online travel intermediaries are directly related to the intentions of booking hotels online. Price, promotion and reviews are considered the key factors related to the use of travel intermediaries and because of the customers' passion for special prices as well as to explore the rating of their hotels before booking through this application. Thus, hotels can achieve a higher level of service quality to increase their rating through that application to attract more customers. |
| 29 | @article{Kurniawan2022IntegrationOT,  title={Integration of the Theory of Reasoned Action (TRA) on Hotel Room Repurchase Intention using Online Hotel Room Booking Applications},  author={Andi Sigit Kurniawan and Retno Widowati and Siti Dyah Handayani},  journal={Jurnal Manajemen Teori dan Terapan | Journal of Theory and Applied Management},  year={2022},  url={https://api.semanticscholar.org/CorpusID:248471295}  } | **Integrasi Theory of Reasoned Action (TRA) pada Minat Pemesanan Kembali Kamar Hotel Menggunakan Aplikasi Pemesanan Kamar Hotel Online**  Objective: The business-to-consumer (B2C) e-commerce or online shopping market is growing rapidly and has become one of the most exciting developments in e-commerce. The purpose of this study is to examine the effect of perceived ease of use, service quality, customer trust on the mediating role of customer satisfaction on perceived ease of use of online hotel room booking applications on repurchase intention. Design/Methods/Approach: The research sample size is 183 respondents who used the RedDoorz application at Indonesian hotel locations. Data are collected by distributing online questionnaires using a Likert scale point 1 to 5. The data analysis technique is carried out using the Structural Equation Modeling (SEM) method. Findings: The results of this study indicate that customer satisfaction as a mediator has a positive but not significant effect on service quality. The results of this study also show that partial customer satisfaction has a significant influence on the repurchase intention. Originality: This study shows that the use of theory of reasoned action to explain the customer satisfaction variable as a mediation can be done by predicting the repurchase intention of consumers in online hotel room booking applications. Practical/Policy implication: The managerial implications of this research can be considered for business stakeholders to ensure service quality, user convenience, and customer trust so that customers feel satisfied and can order again. |
| 30 | @article{imuni2021RatioOT,  title={Ratio of the structure of hotel online booking channels and the monitoring of the quality of hotel websites in a multidimensional system},  author={Mislav {\vS}imuni{\'c}},  journal={Ekonomski vjesnik},  year={2021},  url={https://api.semanticscholar.org/CorpusID:245156927}  } | RATIO OF THE STRUCTURE OF HOTEL ONLINE BOOKING CHANNELS AND THE MONITORING OF THE QUALITY OF HOTEL WEBSITES IN A MULTIDIMENSIONAL SYSTEM: IDENTIFICATION AND DISTRIBUTION OF POTENTIALS  Purpose: The purpose of this paper is to explore the potentials that can positively impact the success of a hotel online business by: (1) exploring the specifics of the internal structure of online booking channels in the hotel business, (2) identifying the value and distribution of the potential to increase hotel bookings through the hotel website, (3) identifying the potential by exploring the space for improving hotel website excellence, and (4) developing an innovative multidimensional metric for monitoring hotel website quality. Methodology: This research was approached in a way that the issue is considered from two aspects. Firstly, the potential to improve the ratio value of the hotel online booking channel structure is observed. The survey in the Republic of Croatia was conducted by regions on a sample of 4\* and 5\* hotels. Secondly, the potential to improve a hotel business is considered as the possibility to improve the performance of a hotel website. Results: The research results show the value and distribution of the potential which can be used for a positive impact on the hotel business. Furthermore, the use of the presented multidimensional metric model allows a clear recognition of the potential for the hotel website quality improvement. Conclusion: It can be concluded that both aspects of the potential research (in addition to the research findings), open up numerous possibilities for conducting similar or more complex analytical procedures and a new empirical research. |