CISC 6745: FINAL PROJECT REPORT
Travel and Tourism Trends: Insights from Google Destination Insights
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Abstract

Google has been a standing world's number-one search engine and it has continuously gained popularity due to its efficiency in providing high-quality resources. Our capstone data visualization project will explore the Google Trends and Google Destination Insights datasets provided by Google themselves in which we will analyze and visualize the behavior of travel-specific online search trends over time. Our focus for this project is mainly on the travel category, looking at top countries and U.S. states traveled to, along with their increased demand over time. Moreover, we will explore other aspects related to travel such as accommodations, flights, travel agencies, etc. Our main goals will be to clean and preprocess the data which will allow us to represent our insights from the dataset better. We also aim to discover the relationship between the growth of global internet usage and time (between 2004 - 2023). Along with that, we look forward to identifying patterns in people's travel interests around the world based on their Google search queries. Doing this will allow us to gain a better understanding of human behaviors, specifically in travel, as this capstone project will demonstrate what factors might influence these searches. In order to do this, we plan to use Tableau to show our work as it is an intuitive and effective tool for data visualization. Overall, this project focuses on providing valuable travel-related insights into online search behavior around the world.

Introduction

Google is considered one of the most powerful companies in the world. It has the ability to generate information that is universally accessible in seconds. Since its inception, Google has been known for its ability to provide relevant and accurate search results, thanks to its sophisticated algorithms and advanced search technologies. Google's success in providing people with the resources they need stems from several factors. Firstly, Google has an enormous index of websites and web pages that it regularly crawls and indexes, which allows it to provide users with a vast array of search results. Secondly, Google's algorithms are designed to analyze a user's search query and provide them with the most relevant and useful results based on a range of factors, such as the quality and relevance of the content, the popularity of the site, and the user's location and search history. This means that users are more likely to find what they are looking for quickly and easily, without having to wade through pages of irrelevant results. Finally, Google is constantly improving its search technologies, incorporating new features such as voice search, visual search, and natural language processing, to make search even more intuitive and user-friendly. All of these factors contribute to Google's success in providing people with the resources they need and making the web more accessible and useful for everyone.

However, Google's impact goes beyond just providing search results. The company has also been at the forefront of collecting search trends and data, which is then used to gain valuable insights into consumer behavior and preferences. By analyzing search trends, Google is able to predict future trends and help businesses and individuals make more informed decisions. This data also helps Google improve its search algorithms, making it an indispensable tool for users seeking information online.

Background

There have been significant changes in the travel industry caused by the COVID-19 pandemic, such as increased travel restrictions and safety concerns impacting travel behavior and preferences**.** As we move towards a post-pandemic world, it is important to understand how travel has been impacted and what the future of travel may look like. The current travel industry still inhabits uncertainty by many people, with changing regulations and consumer preferences which has caused some shifts in the market. In this context, the use of data analysis and visualization is essential for gaining insights and making informed decisions. *Google Destination Insights* is a powerful tool that enables users to gain valuable insights into travel and tourism trends by analyzing aggregated search data from Google. As one of the world's largest search engines, billions of online searches are conducted every day. This gives Google access to a vast amount of data on travel-related queries, which can be used to pinpoint emerging trends such as popular destinations, travel demographic, and other insights. Utilizing both *Google Destination Insights* and *Google Trends* allows us to better understand current travel and tourism trends and create compelling data visualizations to present our findings to our audience. By leveraging these tools, researchers and businesses can gain a deeper understanding of the current travel industry and make data-driven decisions to adapt to the changing market.
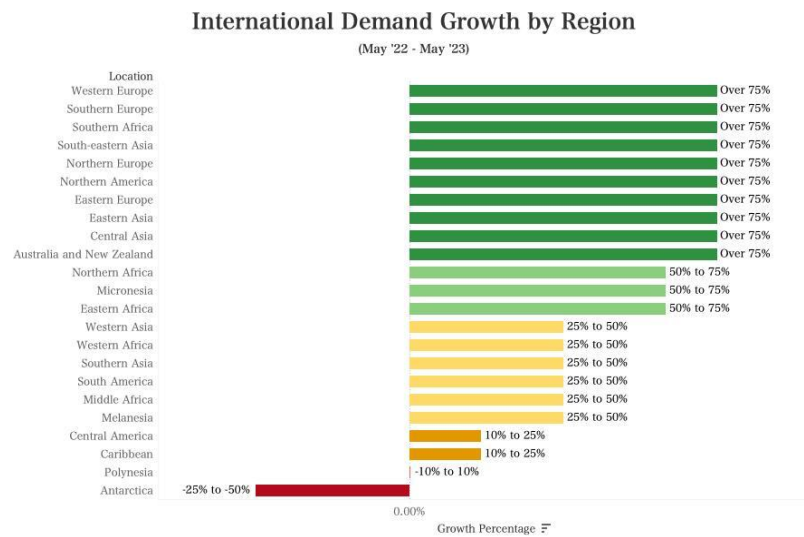
Notes Before Data Visualization Analysis

According to Google Search Trends and Google Destination Insights, the numerical values displayed on the chart that indicates "search rank" on the graphs below demonstrate the level of search interest in relation to the highest point recorded for that specific region and/or time frame. A score of 100 represents the peak popularity for a given term, while a score of 50 indicates that the term is half as popular. A score of 0 means that there is insufficient data available for that term.

Data Visualization

1. *International Comparison*

Top 10 Most Search Countries (from the U.S.)
(2004 - 2023)

Map based on Longitude (generated) and Latitude (generated). Color shows details about Location. Details are shown for Location. The data is filtered on sum of Rank, which ranges from 12 to 100. The view is filtered on Location and Latitude (generated). The Location filter keeps 11 of 50 members. The Latitude (generated) filter includes everything.

To uncover the latest international search trends, we leveraged invaluable data from Google Destination Insights. Our objective was to identify the top 10 international destinations that US citizens searched for, and we achieved this by analyzing the "Outbound Destination Demand" and "Country and Regional Demand" datasets. Our findings revealed that the most in-demand destinations for outbound travel were Mexico, the Dominican Republic, France, India, Italy, Jamaica, Puerto Rico, Spain, the United Arab Emirates, and the United Kingdom. These trends spanned from 2004, which is the earliest date we could extract, until most recently, May 2023. Notably, we discovered that India was among the top 10 outbound destinations for US citizens, a fascinating discovery that could be attributed to the significant Indian population in the US seeking to visit their homeland. On the other hand, Mexico's rank as the top destination did not come as a surprise, given its proximity to the US, affordability, and breathtaking beaches that make it a prime vacation spot for Americans.

International Demand Growth by Region
(May '22 - May '23)

Location	Growth
Western Europe	Over 75%
Southern Europe	Over 75%
Southern Africa	Over 75%
South-eastern Asia	Over 75%
Northern Europe	Over 75%
Northern America	Over 75%
Eastern Europe	Over 75%
Eastern Asia	Over 75%
Central Asia	Over 75%
Australia and New Zealand	Over 75%
Northern Africa	50% to 75%
Micronesia	50% to 75%
Eastern Africa	50% to 75%
Western Asia	25% to 50%
Western Africa	25% to 50%
Southern Asia	25% to 50%
South America	25% to 50%
Middle Africa	25% to 50%
Melanesia	25% to 50%
Central America	10% to 25%
Caribbean	10% to 25%
Polynesia	-10% to 10%
Antarctica	-25% to -50%

0.00%

Growth Percentage

We delved further into the data and uncovered the growth of demand for each region of international destinations. Remarkably, all of Europe and Asia, as well as Southern Africa, had experienced over 75% growth in demand over the years. Europe's popularity as a tourist destination is no surprise, given its enchanting landscapes and delectable cuisine. However, what caught our attention was the significant increase in demand for Southeast Asia by Americans. This region boasts a vibrant yet traditional lifestyle, captivating climate, and dynamic culture, and is also an affordable travel option. In the mid-point of demand, Northern Africa, Micronesia, and Eastern Africa experienced a 50% to 75% increase. Meanwhile, Western Asia and Africa, Southern Asia, Southern America, Middle Africa, and Melanesia witnessed a 25% to 50% growth. On the other end of the spectrum, Polynesia recorded a negative 10% to 10% decrease in demand, while Antarctica experienced a negative 25% to 50% decrease. It is heartening to note that people are gradually developing an interest in traveling to Africa, a continent that has been labeled as one of war, disease, corruption, and poverty. However, Africa is a continent rich in diverse cultures, landscapes, and experiences that one can only find there.
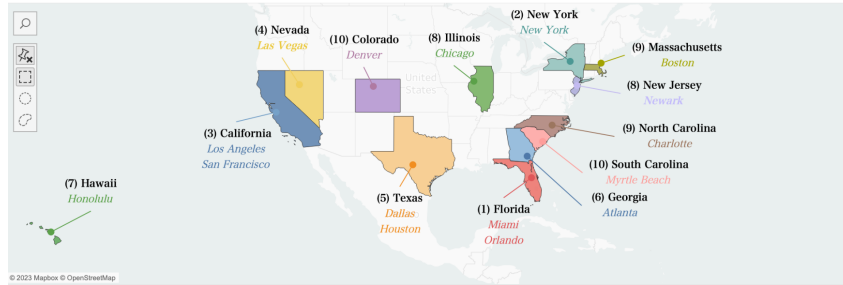
2. *Domestic Comparison*

Domestic Travel Trends

You decide that an international trip is too much right now and would rather stick to going somewhere within the US.
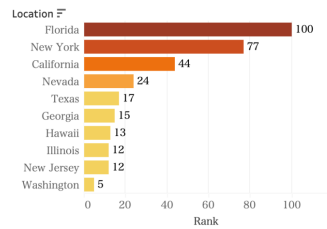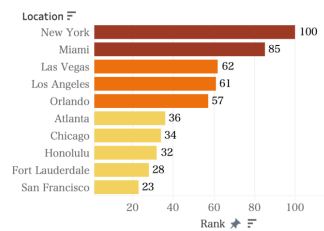
Top 10 Most Search States

(2004 - 2023)

But Where Are New Yorkers Going?

Below are the top 10 searches from users based on both air travel and / or accomodations.
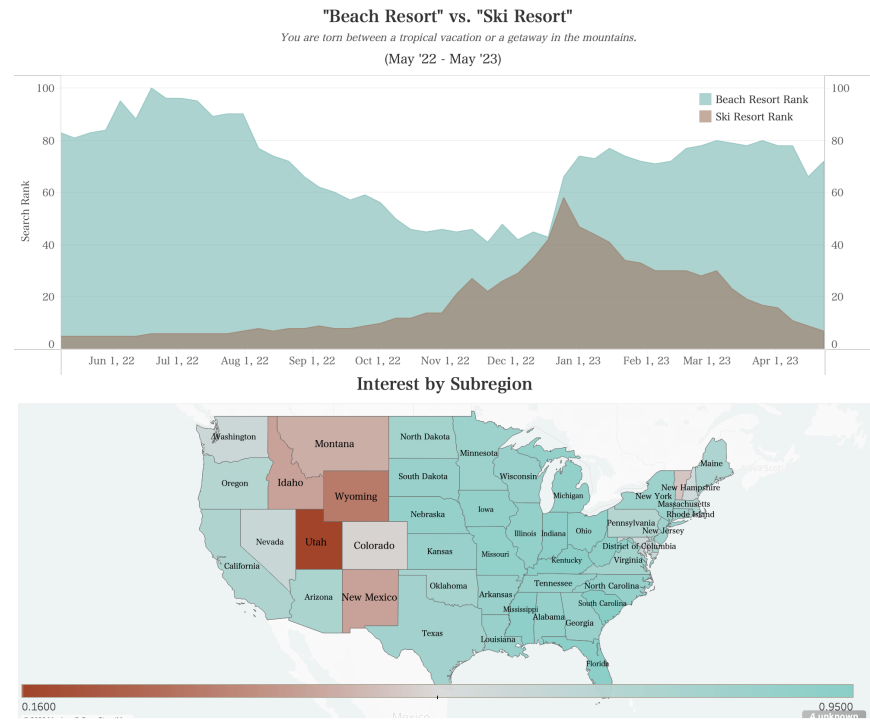
Top 10 Searched States from New York

Location

State	Rank
Florida	100
New York	77
California	44
Nevada	24
Texas	17
Georgia	15
Hawaii	13
Illinois	12
New Jersey	12
Washington	5

Rank

Top 10 Searched Cities from New York

Location

City	Rank
New York	100
Miami	85
Las Vegas	62
Los Angeles	61
Orlando	57
Atlanta	36
Chicago	34
Honolulu	32
Fort Lauderdale	28
San Francisco	23

Rank

In addition to conducting an international analysis of search interest in countries, we thought it was also important to recognize the significance of examining domestic trends. By scraping data back to 2004, we gained insights to the popularity of various states within the United States. Unsuprisingly, the following states were listed as the most popular, which showcases the diversity and widespread interests of different regions throughout the country. For example, Florida's appeal can be attributed to its sunny beaches and retirement communities, while New York's iconic landmarks and prestigious institutions – all likely contribute to its high search volume and interest.

3. Beach vs. Ski

"Beach Resort" vs. "Ski Resort"

You are torn between a tropical vacation or a getaway in the mountains.

(May '22 - May '23)

Interest by Subregion

When comparing the Google search trends for "Beach Resort" and "Ski Resort", it is evident that there is a significantly higher number of people searching for "Beach Resort". Firstly, the appeal of beach destinations is universal. The idea of warm weather, sandy shores, and crystal clear water is something that everyone would want to be in. Additionally, the popularity of beach resorts can be attributed to their accessibility, as many coastal areas are easily reachable and offer a range of accommodation for people on different budgets. On the other hand, ski resorts are associated with skiing and snowboardwing which requires specific weather conditions which limits the availability and accessibility of such destinaitons. Additionally, the cost of skiing can be a deterrent for some individuals. In terms of geographical location, the search interest for "Ski Resort" is most popular in the western region. More specifically, it is evident that Montana, Idaho, Wyoming, Utah, Colorado and New Mexico are prominent in this search term. This can largely be attributed to its location as well as the culture and lifestyle in these regions where they have embraced skiing as a popular recreational activity.
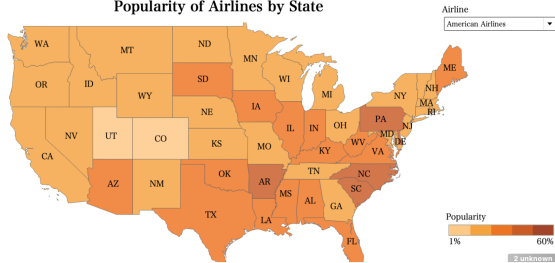
4. Airlines

Airline Trends

Now that we have figured out a destination to go to, we want to find out which airline is best.
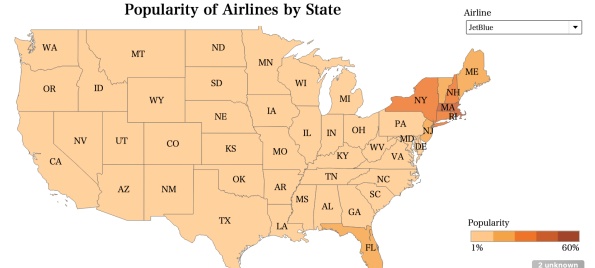
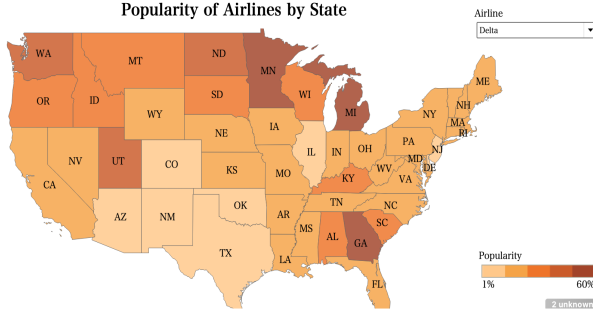## Airlines - Search Interest Over Time
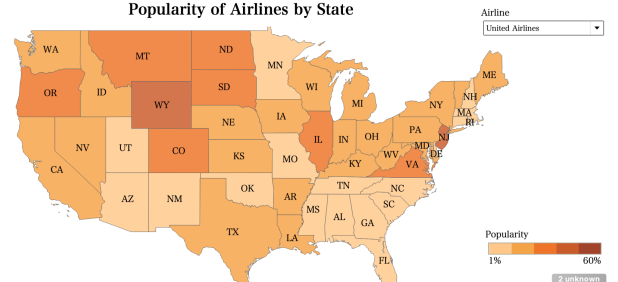### (May '22 - May '23)
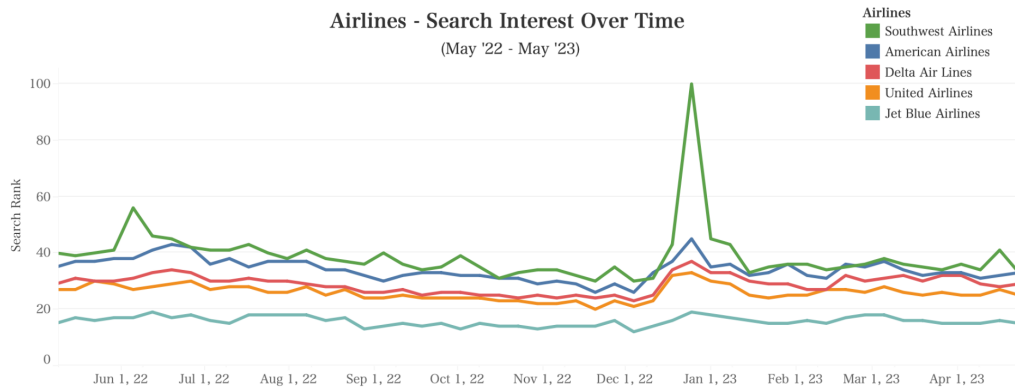
Airlines
- Southwest Airlines
- American Airlines
- Delta Air Lines
- United Airlines
- Jet Blue Airlines

Popularity of Airlines by State
Airline: American Airlines

Popularity 1% — 60%
2 unknown

Popularity of Airlines by State
Airline: JetBlue

Popularity 1% — 60%
2 unknown

Popularity of Airlines by State
Airline: Delta

Popularity 1% — 60%
2 unknown

Popularity of Airlines by State
Airline: United Airlines

Popularity 1% — 60%
2 unknown

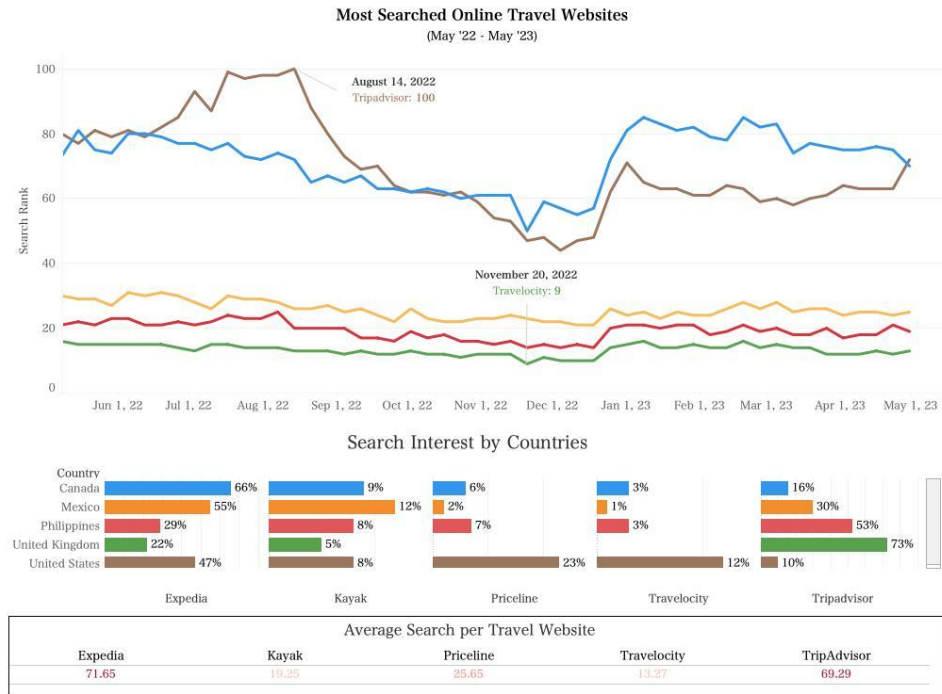### Popularity of Airlines by State
Airline: Southwest

Popularity 1% — 60%
2 unknown
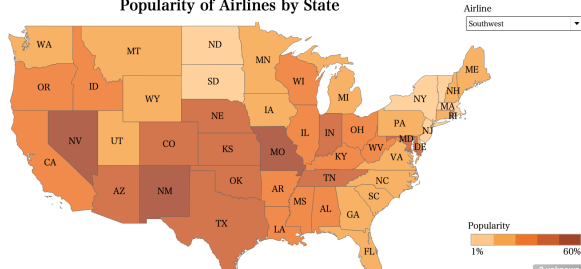
The above includes a time series of each airline, as well as corresponding maps to indicate popularity densities for each airline. When analyzing airline trends on Google, it is interesting to note that Southwest Airlines comes up as the most searched airline, surpassing American Airlines, Delta Airlines, United Airlines, and JetBlue. This popularity can be due to many factors. First and foremost, Southwest has a strong reputation for low-cost fares, free checked bags and no change fees. This is likely very appealing to many travelers who are seeking affordable options. It is also evident that Southwest has a significant presence in the Southwest region with flights to destinations across the country, also noting their popularity density on the map. Another interesting thing to note is that there was peak interest in Southwest around December 25, 2022. One could infer that there is increased interest around this time because it is a time when people often travel to see family and loved ones. So increased interest in this day could be attributed to people searching for flights to visit family or because of their low cost deals around that time.
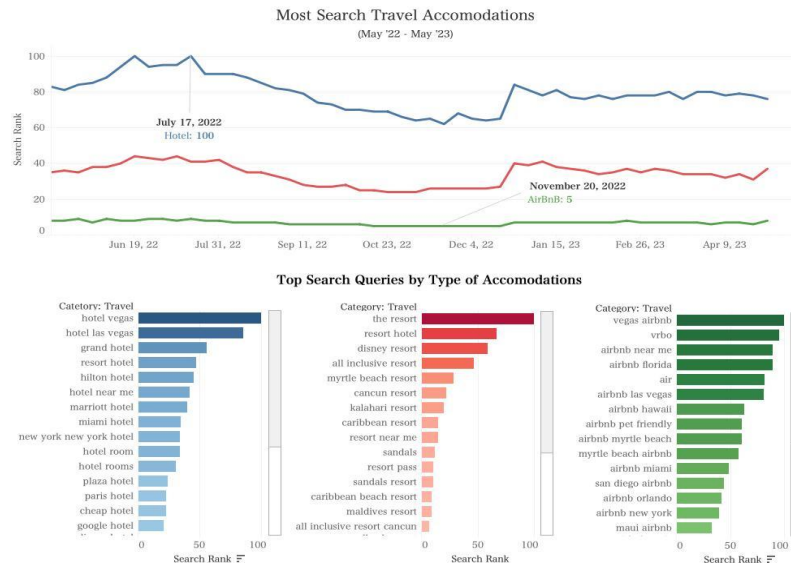
5. *Travel Websites Search Trend*

Most Popular Travel Websites

Most Searched Online Travel Websites
(May '22 - May '23)

August 14, 2022
Tripadvisor: 100

November 20, 2022
Travelocity: 9

Search Interest by Countries

Country	Expedia	Kayak	Priceline	Travelocity	Tripadvisor
Canada	66%	9%	6%	3%	16%
Mexico	55%	12%	2%	1%	30%
Philippines	29%	8%	7%	3%	53%
United Kingdom	22%	5%			73%
United States	47%	8%	23%	12%	10%

Average Search per Travel Website				
Expedia	Kayak	Priceline	Travelocity	TripAdvisor
71.65	19.25	25.65	13.27	69.29

When planning a trip, it's important to consider not only the destination and activities, but also deals and websites for booking. To gain insights into the most popular travel websites, we analyzed search trends for TripAdvisor, Expedia, Travelocity, Priceline, and Kayak over the past year. Our findings revealed that Expedia has the highest average search volume, while Travelocity has the lowest. Additionally, we examined search interests by the top five countries with the most search traffic: Canada, Mexico, the Philippines, the United Kingdom, and the United States. Interestingly, Expedia was the preferred website for Americans, Mexicans, and Canadians, whereas TripAdvisor was the top choice for English people and Filipinos. This indicates that different regions may have varying preferences when it comes to travel booking websites. Overall, our research highlights the significant popularity of Expedia in the travel website category.

6. Travel Accommodations Search Trend

Most Search Travel Accomodations
(May '22 - May '23)

July 17, 2022
Hotel: 100

November 20, 2022
AirBnB: 5

Top Search Queries by Type of Accomodations

When it comes to travel, choosing the right accommodation is a critical part of the planning process. To gain a deeper understanding of the most popular options, we considered hotels, Airbnb (or vacation rentals), and resorts. Over the past year, the search term "hotel" consistently ranked highest in the travel category, reaching a peak of 100 at one point. "Resort" was the second most frequently searched term, followed by "Airbnb." The dominance of "hotel" as a top search term comes as no surprise, given its status as a tried-and-true accommodation type. Hotels offer convenience, reliability, and cleanliness, as most adhere to strict hygiene guidelines. While vacation rentals like Airbnb are gaining popularity, they are still a relatively new concept for many travelers. We also examined the top search queries for each accommodation type, with darker shades indicating higher rankings. The results were intriguing, to say the least.

Conclusion

In conclusion, our analysis of Google search trends has provided valuable insights into consumer behavior and preferences. The results have highlighted key trends in international country searches, with Mexico emerging as the most searched destination. The significant growth in demand for travel to Europe, Asia, and South Africa showcases the increasing interest in exploring these regions. Furthermore, the preference for beach resorts over ski resorts indicates the universal appeal of sunny and tropical destinations for leisure and relaxation. Southwest Airlines turns out to be one of the most popular airlines, potentially due to its reputation for low-cost fares and extensive domestic coverage. Additionally, the high search volume for Expedia suggests its popularity as a travel booking platform. Lastly, the fact that

"Hotel" was searched more frequently than "Resort" and "Airbnb" indicates that traditional accommodation options remain popular and relevant in travel planning.

Overall, these findings shed light on the current trends in the travel and hospitality industry, providing valuable information for potential businesses, travelers, and researchers. Future work could include a deeper dive into specific factors that drive the popularity of certain destinations, airlines, and accommodation options. Additionally, exploring the influence of certain events, holidays and other external factors on search trends could provide further insights. Ultimately, the analysis of Google search trends proves to be a powerful tool for understanding consumer preferences and behaviors in the world of travel.

Works Cited

Google Trends, Google, https://www.google.com/trends.

Destination Insights with Google. https://destinationinsights.withgoogle.com.

Using Google Trends and Google Destination Insights datasets, we analyzed the behavior of travel-specific online search trends over time. We hope that these insights will motivate travel lovers to get back out there and see the world!