

Thailand Domestic Tourism 2019-2023 (Feb)

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	date	province_thai	province_eng	region_thai	region_eng	variable	value
0	2019-01-01	กรุงเทพมหานคร	Bangkok	ภาคกลาง	central	ratio_tourist_stay	93.37
1	2019-01-01	ลพบุรี	Lopburi	ภาคกลาง	central	ratio_tourist_stay	61.32
2	2019-01-01	พระนครศรีอยุธยา	Phra Nakhon Si Ayutthaya	ภาคกลาง	central	ratio_tourist_stay	73.37
3	2019-01-01	สระบุรี	Saraburi	ภาคกลาง	central	ratio_tourist_stay	67.33
4	2019-01-01	ชัยนาท	Chainat	ภาคกลาง	central	ratio_tourist_stay	79.31
5	2019-01-01	นครปฐม	Nakhon Pathom	ภาคกลาง	central	ratio_tourist_stay	71.7
6	2019-01-01	สิงห์บุรี	Sing Buri	ภาคกลาง	central	ratio_tourist_stay	64.65
7	2019-01-01	อ่างทอง	Ang Thong	ภาคกลาง	central	ratio_tourist_stay	71.21

Insight

Foreign vs. Domestic Tourists: The presence of separate columns for foreign and Thai tourists indicates the importance of both markets to Thailand's tourism industry.

Regional Distribution

Tourists by region data

	display_region	display_variable	value
0	Central	All tourists	354,443,365
1	Central	Foreign tourists	54,556,645
2	Central	Thai tourists	299,886,720
3	East	All tourists	104,002,661
4	East	Foreign tourists	16,990,276
5	East	Thai tourists	87,012,385
6	Northeast	All tourists	115,817,992
7	Northeast	Foreign tourists	3,280,030
8	Northeast	Thai tourists	112,537,962
9	North	All tourists	109,789,226
10	North	Foreign tourists	9,328,152
11	North	Thai tourists	100,461,074
12	South	All tourists	110,311,454
13	South	Foreign tourists	40,454,479
14	South	Thai tourists	69,856,975

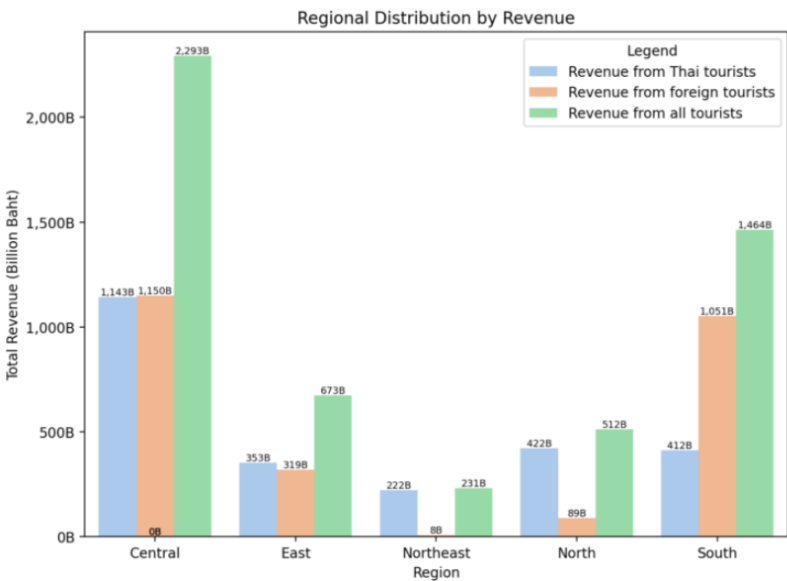
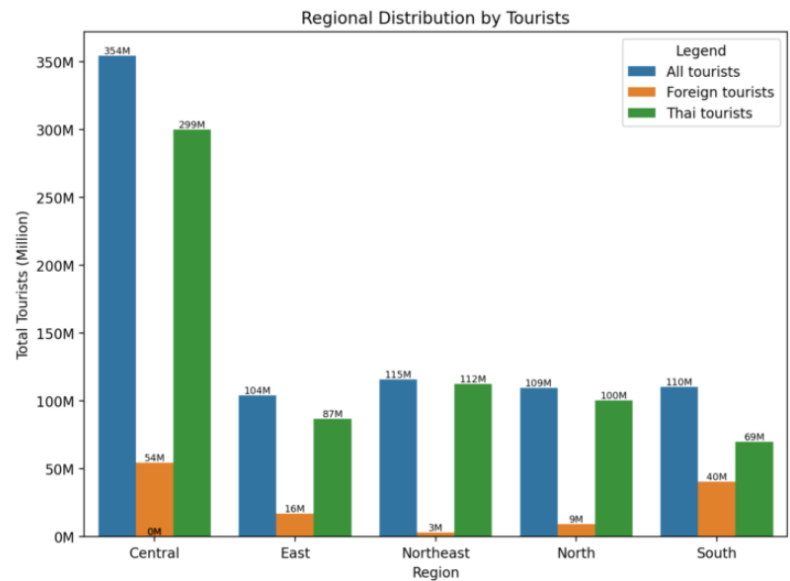
Revenue by region data

	display_region	display_variable	value
2	Central	Revenue from Thai tourists	1,143,241,730,000
1	Central	Revenue from foreign tourists	1,150,041,396,200
0	Central	Revenue from all tourists	2,293,283,126,200
5	East	Revenue from Thai tourists	353,248,030,000
4	East	Revenue from foreign tourists	319,771,590,000
3	East	Revenue from all tourists	673,019,620,000
8	Northeast	Revenue from Thai tourists	222,735,790,000
7	Northeast	Revenue from foreign tourists	8,686,140,000
6	Northeast	Revenue from all tourists	231,421,930,000
11	North	Revenue from Thai tourists	422,901,720,000
10	North	Revenue from foreign tourists	89,213,070,000
9	North	Revenue from all tourists	512,114,790,000
14	South	Revenue from Thai tourists	412,900,640,000
13	South	Revenue from foreign tourists	1,051,181,730,000
12	South	Revenue from all tourists	1,464,082,370,000

Insight

Regional Distribution : here's a significant gap between the central region and others in terms of tourist attraction and revenue generation, indication potential for development in other regions.

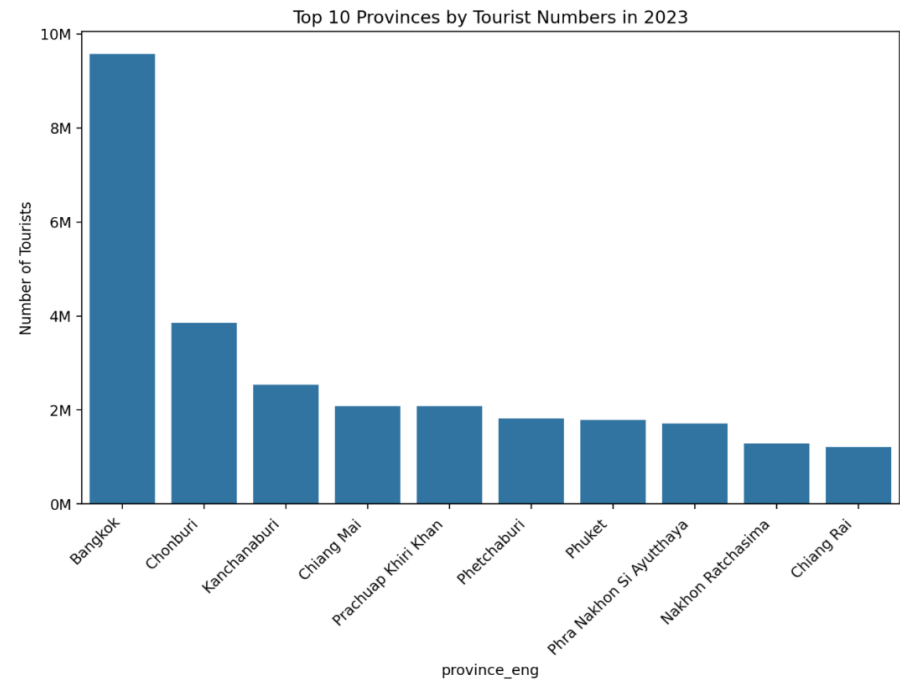
Region distribution visualization



Top Performing Provinces

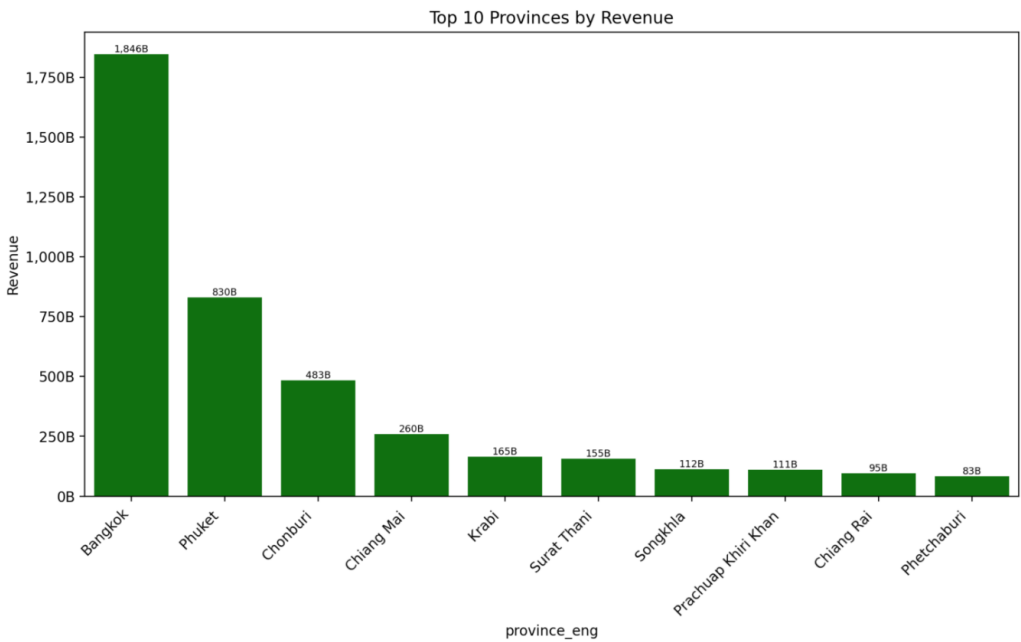
Top 10 Provinces by Tourist Numbers

	province_eng	variable	value
2	Bangkok	no_tourist_all	151,352,500
11	Chonburi	no_tourist_all	46,921,351
15	Kanchanaburi	no_tourist_all	33,877,750
9	Chiang Mai	no_tourist_all	31,762,703
42	Phetchaburi	no_tourist_all	28,039,834
47	Phuket	no_tourist_all	27,140,867
28	Nakhon Ratchasima	no_tourist_all	26,485,401
49	Prachuap Khiri Khan	no_tourist_all	25,871,036
45	Phra Nakhon Si Ayutthaya	no_tourist_all	23,823,643
52	Rayong	no_tourist_all	15,905,222



Top 10 Provinces by Revenue

	province_eng	variable	value
2	Bangkok	revenue_all	1,846,967,430,000
47	Phuket	revenue_all	830,781,130,000
11	Chonburi	revenue_all	483,659,180,000
9	Chiang Mai	revenue_all	260,045,700,000
17	Krabi	revenue_all	165,803,970,000
66	Surat Thani	revenue_all	155,894,120,000
63	Songkhla	revenue_all	112,363,470,000
49	Prachuap Khiri Khan	revenue_all	111,187,260,000
10	Chiang Rai	revenue_all	95,557,770,000
42	Phetchaburi	revenue_all	83,774,300,000



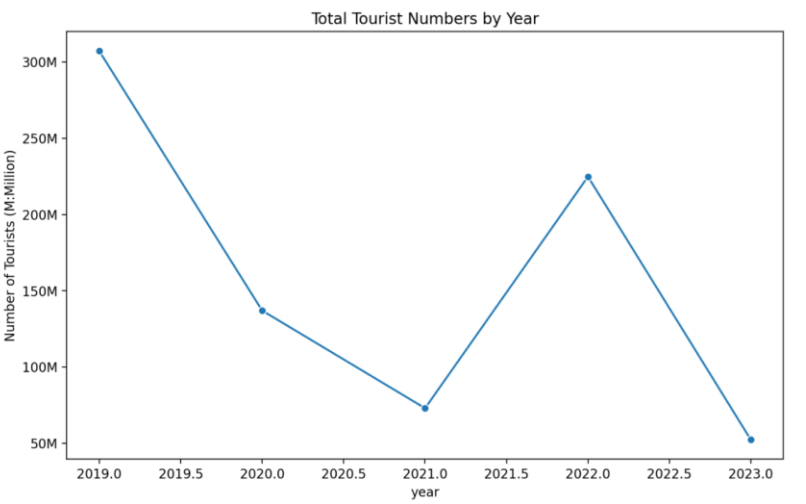
Insight

Bangkok Dominance

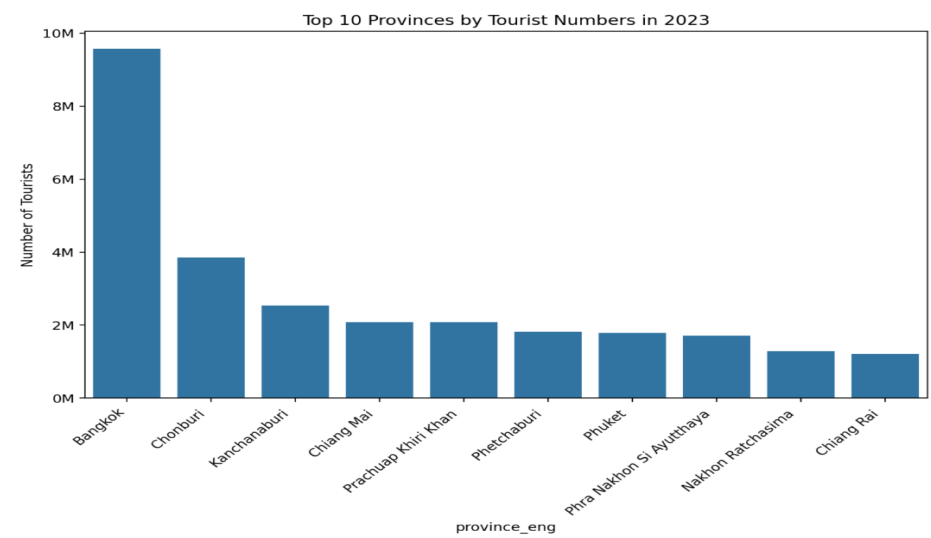
The capital city is the primary driver of Thailand's domestic tourism, leading in both tourist numbers and revenue generation.

Covid Analysis Insights (2019-2023)

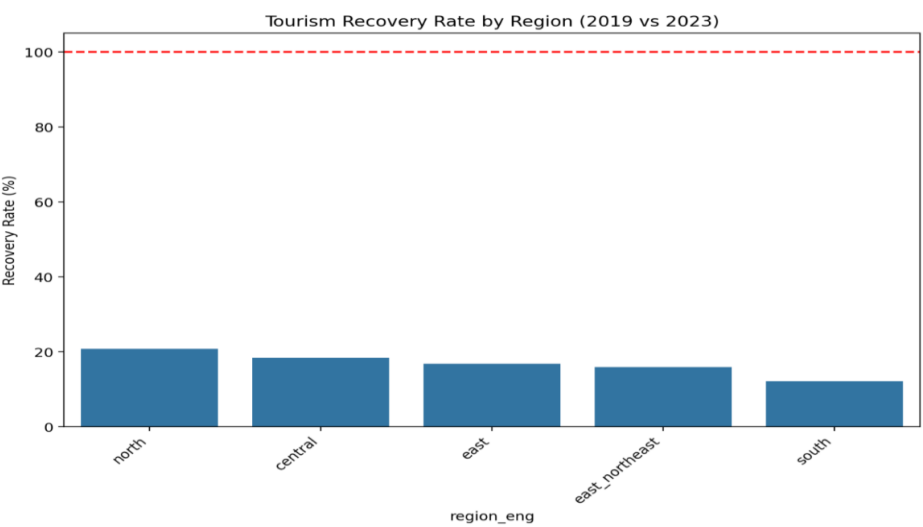
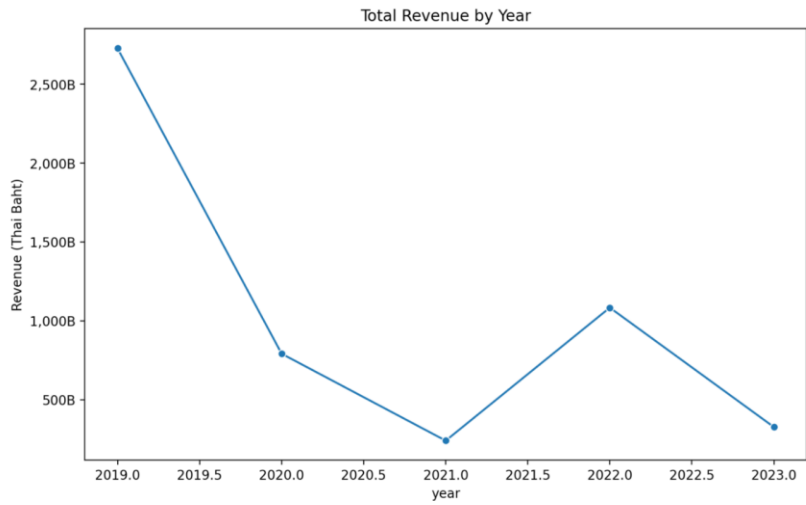
Overall Trends



Top 10 Provinces by Tourist Numbers (Latest Year)



Recovery Rate Analysis



Covid Analysis Insights (2019-2023)

Key Insights

- 1.The COVID-19 pandemic caused a significant drop in tourist numbers and revenue in 2020 and 2021.
- 2.A recovery trend is observed starting from 2022, with varying rates across regions.
- 3.Some regions have shown faster recovery rates than others, potentially due to domestic tourism preferences or local policies.
- 4.The top provinces by tourist numbers in the latest year may indicate shifting travel patterns post-pandemic.
- 5.Overall, the tourism industry has not yet fully recovered to pre-pandemic levels, but shows signs of improvement.

Recommendations

- 1.Focus on promoting domestic tourism in regions with slower recovery rates.
- 2.Investigate successful strategies employed by fast-recovering regions and provinces.
- 3.Develop targeted marketing campaigns for top-performing provinces to maintain their appeal.
- 4.Implement safety measures and communicate them effectively to boost traveler confidence.
- 5.Consider developing new tourism products or experiences that cater to changed traveler preferences post-pandemic.

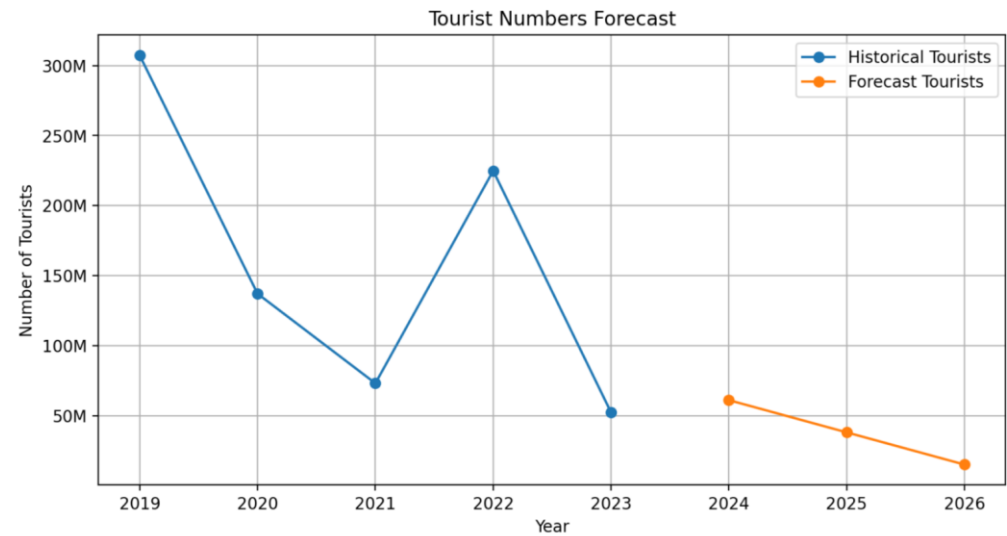
Covid Recovery: Tourism Trends and Forecast

This application analyzes historical tourism data from 2019 to 2023 and forecasts trends for 2024–2026.

Historical Data (2019–2023)

	year	no_tourist_all	revenue_all
0	2,019	307,141,990	2,727,903,840,000
1	2,020	137,030,112	792,534,210,000
2	2,021	73,036,570	241,350,226,200
3	2,022	224,841,768	1,084,575,270,000
4	2,023	52,314,258	327,558,290,000

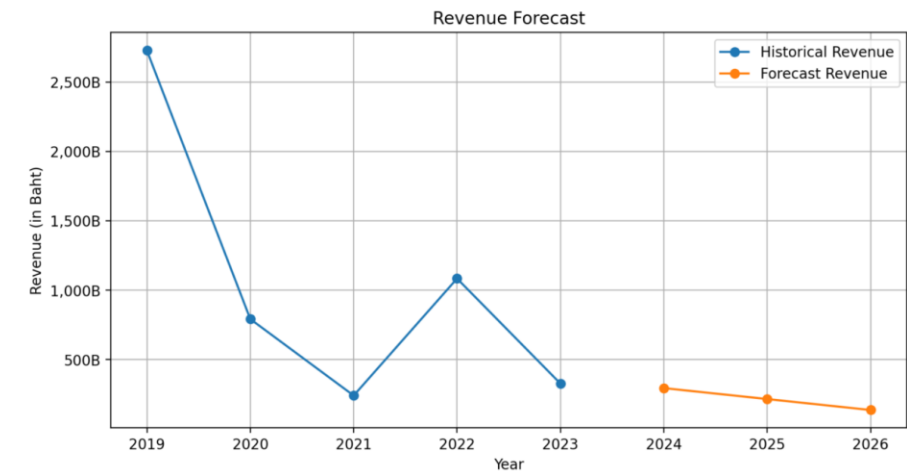
Tourist Numbers Forecast



Forecast Data (2024–2026)

	year	forecast_tourists	forecast_revenue
5	2,024	61,017,314.6404	294,985,504,149.1513
6	2,025	38,002,782.1857	216,059,434,512.2717
7	2,026	14,988,249.7311	137,133,364,875.3921

Revenue Forecast



Covid Recovery: Tourism Trends and Forecast

AI Integration

Uses Exponential Smoothing for accurate time-series forecasting.

Exponential Smoothing

Exponential Smoothing is a widely used forecasting method for time-series data due to its simplicity, efficiency, and ability to capture trends and seasonality. Here's why it was chosen for the analysis and forecasting of post-pandemic recovery trends in tourist numbers and revenue:

1. Ability to Handle Trends

Exponential Smoothing is particularly effective at capturing trends in time-series data. For the dataset provided, which spans 2019–2023, the data exhibits clear trends influenced by the COVID-19 pandemic (sharp declines in 2020–2021) and subsequent recovery (2022–2023). The method adjusts forecasts based on recent changes, making it suitable for tracking recovery patterns.

2. Flexibility in Model Selection

There are different types of Exponential Smoothing models:

- Simple Exponential Smoothing: For data without a trend or seasonality.
- Holt's Linear Trend Method: For data with a trend (used here for both tourist numbers and revenue).
- Holt-Winters Seasonal Method: For data with both trend and seasonality.

In this case, Holt's method was appropriate because the dataset showed a clear trend but lacked strong seasonality over the years analyzed.

3. Responsiveness to Recent Data

Exponential Smoothing gives more weight to recent observations, making it highly responsive to abrupt changes like those caused by the pandemic. This ensures that the model adapts quickly to shifts in trends during recovery periods, such as the rebound seen in 2022–2023.

4. Simplicity and Interpretability

Compared to more complex machine learning models, Exponential Smoothing is computationally efficient and easy to implement. It provides interpretable results, which are crucial for understanding post-pandemic recovery dynamics.

5. Suitable for Short-Term Forecasting

Exponential Smoothing is ideal for short- to medium-term forecasting (e.g., 2024–2026 in this case). It balances accuracy with simplicity without overfitting the data.

Covid Recovery: Tourism Trends and Forecast

AI Integration

Uses Exponential Smoothing for accurate time-series forecasting.

Exponential Smoothing

6. Practical Application

The attached charts (Tourist Numbers Forecast and Revenue Forecast) illustrate how Exponential Smoothing has been applied:

- Tourist Numbers Forecast: Shows a declining trend for 2024–2026 after a partial recovery in 2023.
- Revenue Forecast: Reflects similar dynamics, with revenues stabilizing at lower levels compared to pre-pandemic highs.

These forecasts align with real-world expectations, where the tourism sector may face challenges like economic uncertainties or slower-than-expected international travel recovery.

In summary, Exponential Smoothing was chosen because it effectively captures trends, adapts to recent changes, and provides reliable short-term forecasts while being computationally efficient and easy to interpret.

OpenAI Integration

Integration with OpenAI's GPT-3.5-turbo model for data analysis

AI-Powered Insights

- 1.The central region of Thailand attracts the highest number of tourists, with a total of 354,443,365 tourists. This indicates that the central region is a popular destination for tourists in Thailand.
- 2.Despite having a lower number of tourists compared to the central region, the south region generates the highest revenue from tourism, with a total revenue of 1,464,082,370,000 baht. This suggests that the south region is able to attract high-spending tourists who contribute significantly to the tourism economy.
- 3.The number of tourists in Thailand showed a significant decrease in 2020, likely due to the impact of the COVID-19 pandemic on international travel. However, there was a rebound in tourist numbers in 2021 and 2022, indicating a gradual recovery of the tourism industry in Thailand.

OpenAI Integration

Tourist Analysis

Ask a question about the tourism data:

How about Bangkok in next three year ?

In the next three years,

Bangkok is expected to continue to be a popular tourist destination. The number of tourists visiting Bangkok is likely to remain high, with a high ratio of tourists staying in the province.

This could lead to a continued increase in revenue from both foreign and domestic tourists. The province's central location and diverse attractions are likely to contribute to its popularity among tourists.

Which does province have potential to be new comer about travelling in next three year ?

To determine which province has the potential to be a new comer in terms of traveling in the next three years, we can analyze the data based on factors such as increasing number of tourists, high ratio of tourists staying overnight, and growth in revenue.

One way to identify potential new comer provinces is to look for provinces that have shown significant growth in these factors over the past few years. By analyzing the data provided, we can look at the provinces that have shown a consistent increase in the number of tourists, a high ratio of tourists staying overnight, and a significant growth in revenue.

Based on this analysis, provinces such as Chiang Mai, Phuket, Krabi, and Chiang Rai have shown promising growth in tourism over the past few years and could potentially be new comer provinces in the next three years. These provinces have seen a significant increase in the number of tourists, a high ratio of tourists staying overnight, and a substantial growth in revenue.

Reference

- <https://www.kaggle.com/datasets/thaweewatboy/thailand-domestic-tourism-statistics>

Reporter

Student ID	
Full Name	
Subject	Data Analytics and Data Science Tools and Programming
Term	1/2567
Repository	https://github.com/imyajaii/dads5001-tourism-ai