Analyze Growth and Insights of Telangana Tourism

Abstract

This project analyzes the growth and development of Telangana's tourism sector by examining annual data on domestic and foreign visitors. It aims to evaluate the performance of various tourist destinations, identify emerging hotspots, and compare visitor trends. Through statistical analysis and visualizations, the study highlights popular locations and changing tourism patterns. Predictive analysis is also used to forecast future trends and potential revenue. The insights gained will support strategic planning and contribute to the sustainable development of tourism in Telangana.

Introduction

This project focuses on analyzing the growth and development of Telangana's tourism sector. Tourism plays a vital role in the state's economy, and this analysis aims to uncover trends and patterns that reflect its progress. The core objective is to evaluate the performance of various tourist spots across Telangana by studying annual data on both domestic and foreign visitors.

By examining visitor inflow year by year, the project will highlight the most popular destinations, track emerging tourist attractions, and identify potential hotspots that are gaining popularity. A comparison between domestic and international tourism will provide insights into the diversity of the tourist base and help understand visitor preferences.

Additionally, the project will include a predictive analysis to estimate future trends and project potential revenue from tourism for the upcoming year. This forward-looking perspective will assist stakeholders in strategic planning and decision-making. The analysis will be supported by data visualization and statistical techniques to provide a clear and comprehensive understanding of the tourism growth in Telangana. Ultimately, the project aims to contribute valuable insights that can support sustainable tourism development in the state.

Tools & Dataset

For this project, I collected tourism data from all 34 districts of Telangana, covering the years 2016 to 2019. The data includes daily records of both domestic and foreign tourists. Initially, I had eight separate CSV files—four for domestic tourists and four for foreign tourists, each corresponding to one year. To streamline the analysis, I merged all these datasets into a single CSV file, allowing for a comprehensive and unified view of tourism trends over the four-year period.

For this project, I utilized several tools to perform comprehensive analysis and generate meaningful insights. I used **PostgreSQL** to execute SQL queries for data exploration, pattern identification, and calculations such as the Compound Annual Growth Rate (CAGR) of visitors and the ratio between domestic and foreign tourists.

In addition, I used **Python** for deeper analysis, including identifying monthly and daily visitor patterns, and analyzing district-wise growth trends.I used Google Colab platform to do coding

To visualize insights effectively, I created an interactive **Power BI** dashboard. This dashboard presents analyses such as day-wise and year-wise visitor trends, highlights the best and worst performing districts, and includes future projections to estimate potential visitors and expected tourism revenue.

Experimental Results and Discussion

Uncovering Yearly and Monthly Trends Of Telangana Tourism From 2016-2019

The yearly rise and fall in visitor numbers appears to be influenced by factors such as Sundays, holidays, and temporary closures of certain spots. These special days likely impacted overall footfall throughout the years. Notably, there was a decline in visitors in 2019 compared to 2018. Despite these fluctuations, the average number of visitors each year remained relatively stable, around **120,000**. This suggests a consistent annual interest, even though external factors caused temporary variations in monthly or seasonal visitor trends.

Yearly visitors Trend
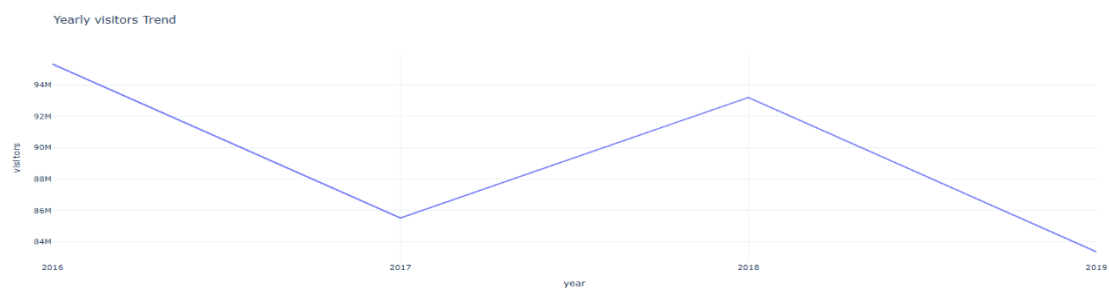
To explore visitor trends more deeply, I analyzed monthly data and found that February recorded the highest number of tourists. With Telangana's average temperature around 33°C during this time, the weather is pleasant for sightseeing. June also shows a rise in visitors due to the onset of the monsoon and summer vacations, offering lush green landscapes and waterfalls. Interestingly, December, usually a peak tourist season, showed a drop in footfall. This could be due to colder nights in recent years and shifting travel preferences, as many tourists may choose to travel during the holidays themselves rather than before or after.


Monthly visitors trend
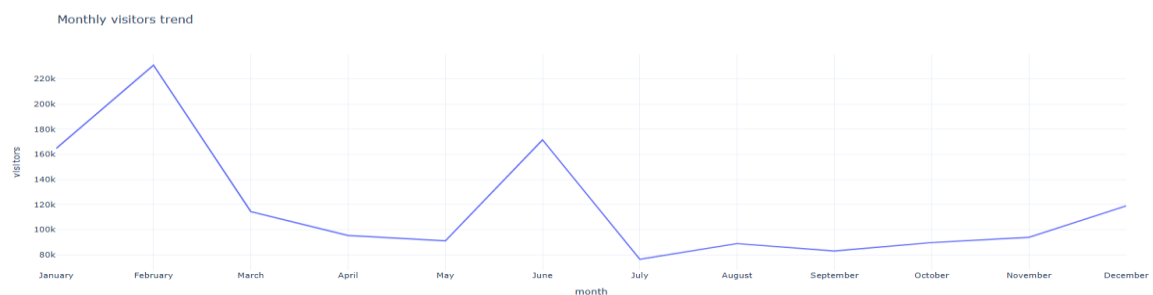
Based on these insights, we can effectively understand the yearly and monthly trends of tourist activity and observe the overall growth in visitor numbers. This analysis provides a strong foundation for identifying key patterns in tourism behavior. Moving forward, we will dive deeper into the data to uncover more meaningful insights, address potential challenges, and explore trends that could inform strategic decisions and planning for future tourism-related projects.

Deep Drive and Calculation of find Insights From Telangan Tourism 2016-2019

I observed that 99% of the visitors to tourist spots in Telangana are domestic. Telangana comprises 34 districts, and now I would like to identify the top districts with the highest number of domestic visitors.

I am going to calculate top **10 districts** visitors according to domestic visitor.
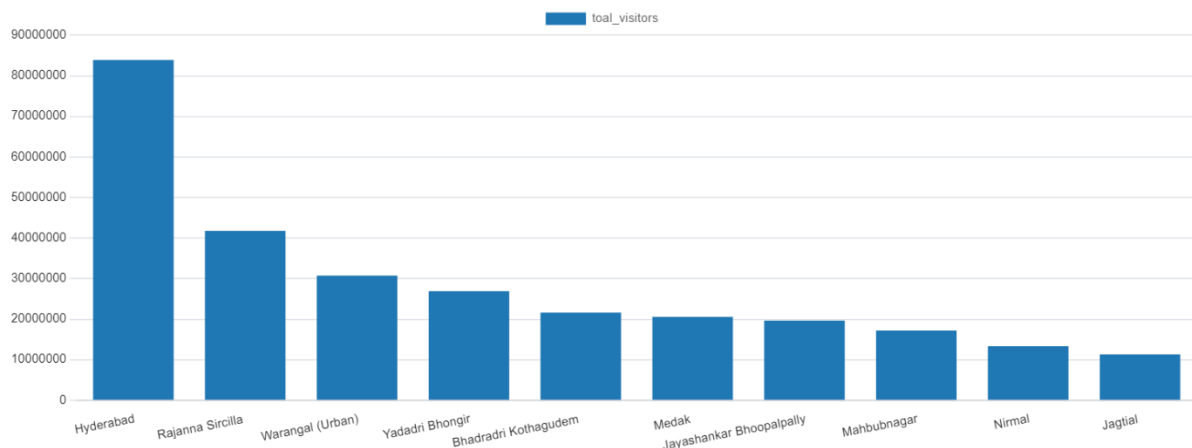
So ,The **Hyderabad** is the most one that atract domestic visitors also **Rajanna Sircilla**, **Warangal (Urban)** these are most growing districts attracting domestic visitors.

So up next let's see International Visitors . We have already watched that foreign visitors are growing in every years so we have to see which districts are attracting more.
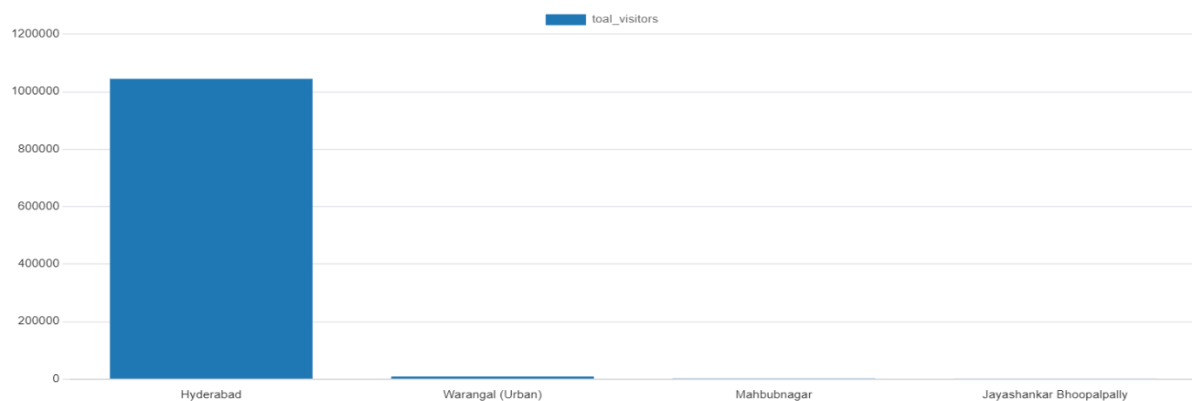
As Foreign visitors are very few numbers (less than 1%) but still Hyderabad leads with **1,044,898** visitors for their architectural tourist spots .Another districts are not so much attract foreign visitors till.

To analyze the growth of tourism across Telangana districts, I will calculate the Compounded Annual Growth Rate (CAGR) of visitors. This will reflect the yearly growth trend for each district. Based on the CAGR, I will identify the top three districts to observe their growth patterns effectively.

| district character varying (40) 🔒	visitor_type character varying (20) 🔒	start_year integer 🔒	end_year integer 🔒	lowest_visitor integer 🔒	highest_visitor integer 🔒	cagr numeric 🔒
1	Karimnagar	Domestic	2016	2019	3393	1984442	7
2	Nalgonda	Domestic	2016	2019	3508	988102	6
3	Warangal (Urban)	Domestic	2016	2019	107133	20703778	5

The CAGR implicts the districts those tourist are rapidly growing into the 4 years. So in their Karimnagar is the top most rapdily growing district due to historical sites, improved infrastructure, cultural heritage, and scenic beauty.

district character varying (40) 🔒	visitor_type character varying (20) 🔒	start_year integer 🔒	end_year integer 🔒	lowest_visitor integer 🔒	highest_visitor integer 🔒	cagr numeric 🔒
1	Hyderabad	Foreign	2016	2019	8084	38933	1
2	Warangal (Urban)	Foreign	2016	2019	39	459	1
3	Mahbubnagar	Foreign	2016	2019	20	126	1

As I have seen **Hyderabad** have highest Foreign visiors also their annual compound growth of foreigner visitor is to high cause of their popularity.

Analyzing Top 3 Districts tourist spots & their growth

Let's Analyse some top growing district in Telangana . At first the most popular district and also their capital **Hyderabad** has the highest visitor, best infrastructure . Some popular tourist spot like charminar , Birla Mandir , Zoology park attract both domestic and international visitor.They are constanly growing tourism and 50% of visitors prefered Hyderabad.
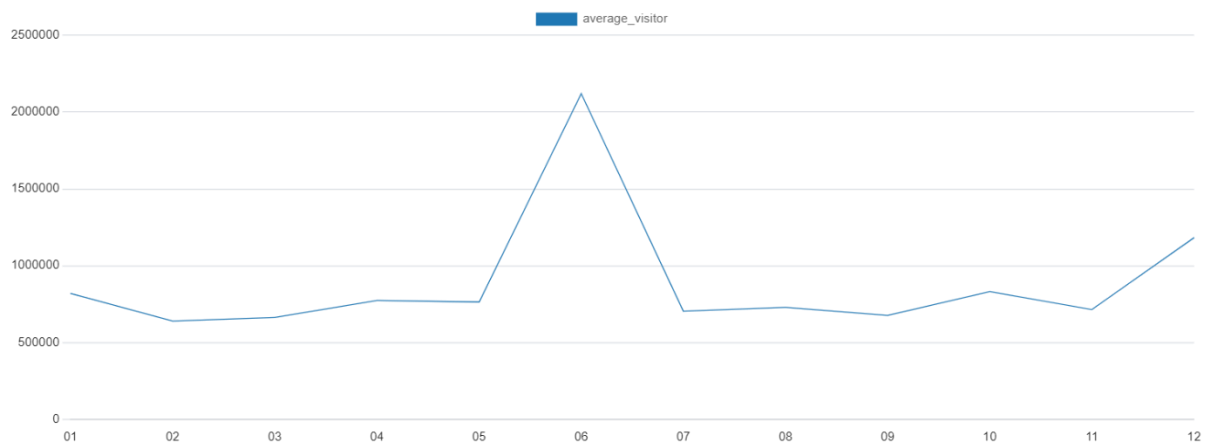

Hyderabad has pick tourist at **June** month that means visitors are more prefering summer vacation spends in the 'City of Nizams' The Infrastructure of Hyderabad is best so they are attracting foreign tourist . So it is sure that Hyderabad will increase visitors count yearly and also generate good estimation revenue .

So After the Hyderabad their are 2 more districts those are increasing rapdily one of these is **Warangal**. This district has two side urban and rural . The urban side is most growing ,tourist are increasing yearly . Because of the historic Thousand Pillar Temple (also known as Brindavanam), Warangal Fort (a Kakatiya dynasty architectural marvel), and the serene Laknavaram Lake.
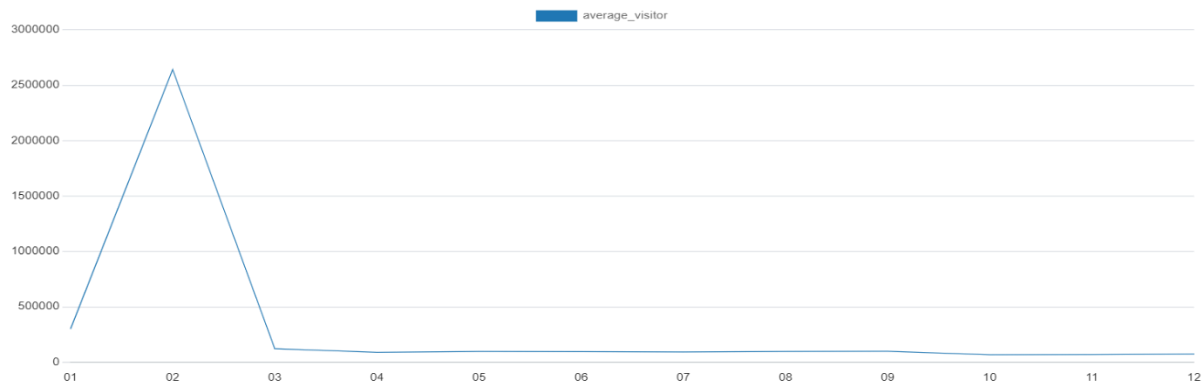
In the month **February** most visitors comes in this tourist spots . Waranagal is also attracting foreign tourist that's why the are second best in foreign tourist count.

Another growing district is **Rajanna Sircilla** , this district has good tourist spot like some historical and religious that attracting domestic visitors . This district has a good performance of infrastructure development
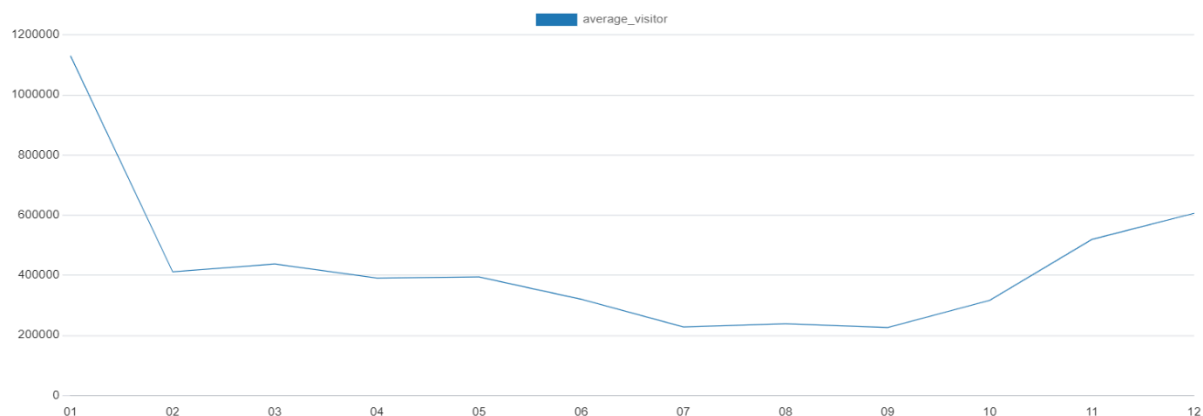
Rajanna has a good number of tourist at **January** as the new year and winter time . Like the Singa Samudram Cheruvu , Vemulawada and Nampally tourist spot mainly attracting visitors starting of the year.

In Telangana, every district boasts its own unique charm, with beautiful tourist spots and stunning architecture that attract visitors from all over. Among them, the top three districts record the highest number of tourists. Additionally, districts like Bhadradri Kothagudem, Mancherial, and Yadadri Bhuvanagiri are also seeing a good number of visitors, with steady year-on-year growth. Each district experiences peak tourist seasons at different times of the year. Therefore, the government should focus on strategies to further boost tourism in these emerging areas. Next, I will present a future projection, predicting the yearly growth of visitors and estimating the revenue generation for the years 2025 to 2030.

2020-2024 Tourist Analysis

I have data available for the years 2016 to 2019. To predict future values for the years 2020 to 2024, I need to estimate the data, as it is currently unknown. Therefore, I must make certain assumptions to project the figures for this period.

In 2020, due to the **COVID-19 pandemic**, the number of visitors to tourist spots across India dropped sharply—by approximately 60%. In 2021, tourism saw a slight recovery with a modest 5% increase,

although the pandemic continued to impact travel significantly. However, by 2022, the situation began to normalize, and the number of tourists started to rise noticeably. This upward trend continued into 2023 and 2024, with tourism numbers showing consistent growth during these years.

These observed trends will form the basis for estimating the tourist data for the years 2020 to 2024.

This is a line chart of total tourist from 2016-2024
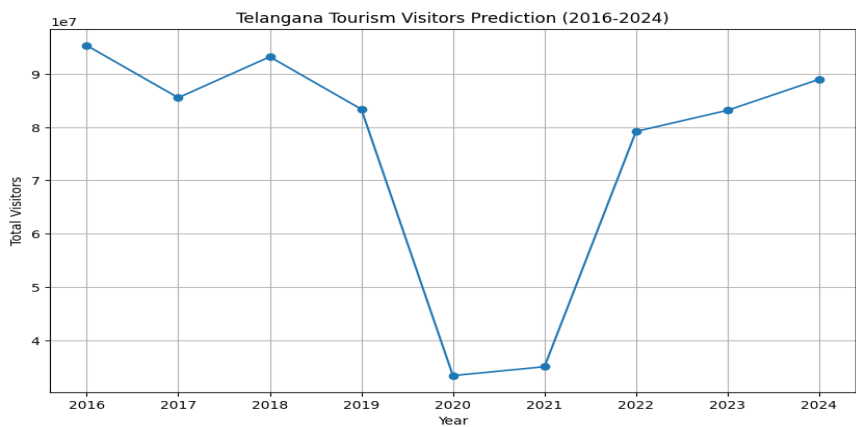
Predicting 5 Years Total Tourist of Telangana

I am now going to predict the total number of visitors to Telangana for the years 2025 to 2030. For this prediction, I will use historical data from 2016 to 2019, along with the estimated tourist data from 2020 to 2024. These combined figures will serve as the basis for forecasting future trends.

Here is the line chart of Yearly Future prediction
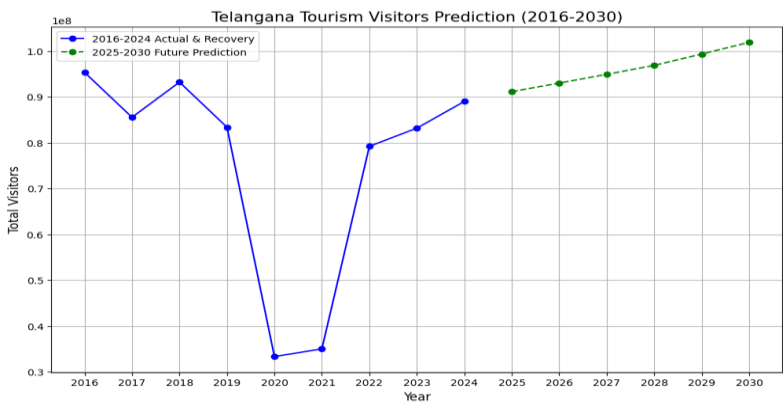
In the line chart, the green color represents the predicted number of visitors for the years **2025** to **2030**. The upward trend in the graph indicates a steady annual increase in tourist numbers. This growth can be attributed to improved infrastructure and the rising popularity of Telangana as a travel destination, especially among international tourists. Based on these factors, it is reasonable to predict a significant and rapid increase in the number of visitors in the coming year.

The number of visitors has been steadily increasing each year. In 2025 and 2026, there will a modest growth of 1–2% compared to 2024. However, from 2027 onward, tourism began to surge significantly. The most notable growth will occur between **2028** and **2029**, with a remarkable 3–4%

increase in visitor numbers. By **2030**, the number of tourists is expected to reach a record high. This upward trend in tourism will greatly contribute to the revenue of the Telangana government, boosting the state's economy.

Prediction of Future Revenue from the Telangana Tourism

I have predicted the estimated tourism revenue for the upcoming five years. This analysis can assist the Government of Telangana in forecasting future tourism trends. Based on these projections, the government can strategically plan and develop more tourist attractions across the state. Additionally, the revenue estimates will help set realistic investment targets to boost the tourism sector and drive economic growth.

year	total visitors	domestic_visitors	foreign_visitors	domestic_revenue	foreign_revenue	total_revenue
2025	91040845	90.77M	0.27M	108921.68M	1527.55M	110449.23M
2026	93277911	93.00M	0.28M	111598.12M	1565.08M	113163.20M
2027	95774152	95.49M	0.29M	114584.63M	1606.97M	116191.60M
2028	98394704	98.10M	0.29M	117719.87M	1650.93M	119370.81M
2029	100902943	100.60M	0.30M	120720.74M	1693.02M	122413.76M
2030	102961753	102.65M	0.31M	123183.91M	1727.56M	124911.48M

The table reflects the projected future revenue for Telangana's tourism sector, showing a consistent yearly increase. Starting from 2025, Telangana Tourism is expected to implement reasonable pricing for domestic visitors, which is likely to boost domestic tourism further. Additionally, with a steady rise in international tourists— the dip observed between 2016 and 2019—there is potential to revise and increase pricing for foreign visitors, contributing to greater overall revenue.

Decisions and some Recomendations to Telangana Tourism Department

- February and June are peak months for tourism, averaging 170.4K visitors.
  However, December sees lower footfall, despite being a prime tourist season in other states. To boost December tourism, the government should launch strategic initiatives, events, and promotions, investing in attractions that draw visitors

- Hyderabad ranks as the top district for tourism, drawing 85 million visitors. Notably, foreign tourist numbers are rising annually by 1.43%. To capitalize on this growth, the government should invest in high-quality hotels and restaurants to enhance the visitor experience and attract even more international travelers.

- The districts of Rajanna Sircilla, Warangal (Urban), and Yadadri Bhuvanagiri are witnessing rapid growth in domestic tourism, driven by their rich heritage of Hindu temples. To further boost tourism, the government should intensify promotion of these destinations, especially during festive seasons, by organizing cultural events and targeted advertising to attract more domestic travelers.

- Tourist spots in districts with poor infrastructure and lack of cleanliness must be identified and prioritized for improvement. The government should invest in rebuilding and maintaining these areas to enhance their appeal. Upgrading facilities and ensuring hygiene will significantly boost visitor interest and promote sustainable tourism growth across these regions.

- Conduct monthly surveys targeting tourists to gather feedback on infrastructure and overall experience. Analyze a representative sample from these surveys to assess progress and identify areas needing improvement. Based on data-driven insights, the government can

allocate an appropriate budget to enhance infrastructure and elevate the quality of tourist destinations.

- In modern times, social media is a powerful tool for promotion. Sharing vlogs and videos on platforms like YouTube and Facebook increases visibility and engagement. Consistent content helps attract and retain visitors, boosting reach and influence effectively. Utilize social media to grow your audience and build a strong presence.

- The predicted number of visitors from 2025 to 2030, along with the estimated revenue, will provide valuable insights for the government to set strategic targets. This data-driven approach can guide planning, resource allocation, and infrastructure development in the tourism sector. Accurate forecasts will encourage informed decisions, promoting sustainable growth and enhancing the overall tourist experience. Moreover, the potential revenue projection will attract both public and private investment in tourism-related projects, boosting local economies and creating employment opportunities. This forward-looking strategy is essential for positioning the region as a competitive and attractive tourist destination in the coming years.

Reference

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