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apinyasapri60880 2m

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I will produce project that use this dataset for topic "Data-centric product with an AI add-on"

Please use this csv file to analyze the data and create a barplot set x axis as "Province" and y axis as "Total Revenue". Make sure to use "seaborn error" "UserWarning: You are passing a parameter that has been deprecated" how to use plt.subplots

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I will produce project that use this dataset for topic "Data-centric product with an AI add-on"

"please summary report to one poster template that include at least follwing information i.e. Title, Issue and motivation, Traditional solution, AI add-on solution, Visualization."

Pro Search

Analyze the provided dataset to extract relevant information for the poster template including Title, Issue and motivation, Traditional solution, AI add-on solution, and Visualization

Summarize the findings and create a poster template with the required sections

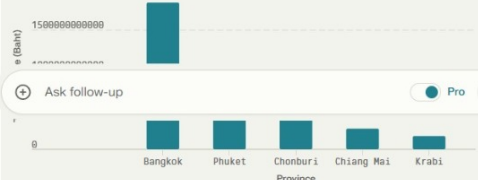
Sources

thailand\_domestic\_tourism.csv

thailand\_domestic\_tourism

Answer

Top 5 Provinces by Total Revenue



Ask follow-up Pro

Poster: Data-Centric Product with AI Add-On for Domestic Tourism in Thailand

Title

Data-Centric Product with AI Add-On for Domestic Tourism in Thailand

Issue and Motivation

The dataset reveals the distribution of domestic and foreign tourists across various provinces in Thailand, along with their revenue contributions. The challenge lies in optimizing tourism strategies to maximize revenue while ensuring tourist satisfaction. Traditional methods of analyzing tourism data are time-consuming and prone to human error, limiting the ability to identify actionable insights efficiently.

Traditional Solution

- Manual analysis of tourism data to identify trends and make decisions.
- Dependence on historical data without predictive capabilities.
- Inefficient marketing strategies due to lack of personalization.

AI Add-On Solution

An AI-powered system can revolutionize tourism management by:

- Predicting Tourist Trends:** Using machine learning models to forecast tourist inflows based on historical data, seasonality, and external factors.
- Optimizing Marketing Strategies:** Identifying high-revenue provinces and targeting campaigns accordingly.
- Personalized Recommendations:** Leveraging AI to provide tailored suggestions for accommodations, attractions, and activities based on tourist preferences.
- Real-Time Insights:** Offering dashboards that visualize key metrics like revenue, tourist demographics, and satisfaction levels.

Visualization

Below is a bar chart showcasing the **Top 5 Provinces by Total Revenue (Baht):**

Top 5 Provinces by Total Revenue

Key Insights from Visualization:

- Bangkok generates the highest total revenue, followed by Phuket, Chonburi, Chiang Mai, and Krabi.
- These provinces are key targets for enhancing tourism strategies due to their significant economic contributions.

This AI-enhanced product can empower stakeholders in Thailand's tourism sector to make data-driven decisions, improve tourist experiences, and boost overall revenue.

Share Rewrite

Please provide python code for "Predicting Tourist Trends: Using machine learning models to forecast tourist inflows based on historical data, seasonality, and external factors." by using streamlit and seaborn

Pro Search

Prepare a Python code to predict tourist trends using machine learning models with the provided dataset, incorporating Streamlit for the web app interface and Seaborn for data visualization

Sources

thailand\_domestic\_tourism.csv

thailand\_domestic\_tourism

Answer

Below is the Python code for creating a Streamlit app to predict tourist trends using a machine learning model. The app uses historical data, external factors, and seasonality to

machine learning model. The app uses historical data, seasonal trends, and seasonality to forecast tourist inflows. It also visualizes results with Seaborn.

```
python
import streamlit as st
import pandas as pd
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestRegressor
from sklearn.metrics import mean_squared_error
import seaborn as sns
import matplotlib.pyplot as plt

# Load dataset
@st.cache
def load_data():
    url = "https://ppl-ai-file-upload.s3.amazonaws.com/web/direct-
files/21682887/3ff849c2-cd56-49a6-86db-
67592c1cc761/thailand_domestic_tourism.csv"
    data = pd.read_csv(url)
    data['travel_date'] = pd.to_datetime(data['travel_date'])
    data['month'] = data['travel_date'].dt.month
    return data

data = load_data()

# Sidebar for user input
st.sidebar.header("User Input Parameters")
province = st.sidebar.selectbox("Select Province",
data['province_eng'].unique())
month = st.sidebar.slider("Select Month (1-12)", 1, 12, 1)

# Filter data by province
province_data = data[data['province_eng'] == province]

# Prepare features and target variable
X = province_data[['month', 'no_tourist_foreign', 'no_tourist_thai']]
y = province_data['no_tourist_all']

# Train-test split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2,
random_state=42)

# Train Random Forest model
model = RandomForestRegressor(n_estimators=100, random_state=42)
model.fit(X_train, y_train)

# Predict and evaluate the model
y_pred = model.predict(X_test)
mse = mean_squared_error(y_test, y_pred)
st.write(f"Model Mean Squared Error: {mse:.2f}")

# Forecast for user-selected month
forecast_input = pd.DataFrame({'month': [month], 'no_tourist_foreign':
[X['no_tourist_foreign'].mean()],
'no_tourist_thai':
[X['no_tourist_thai'].mean()]})
forecast = model.predict(forecast_input)[0]
st.write(f"Predicted Tourist Inflow for {province} in Month {month}:
{forecast:.0f}")

# Visualization: Actual vs Predicted
st.subheader("Actual vs Predicted Tourist Inflows")
fig, ax = plt.subplots()
sns.scatterplot(x=y_test, y=y_pred, ax=ax)
ax.set_xlabel("Actual")
ax.set_ylabel("Predicted")
ax.set_title("Actual vs Predicted Tourist Inflows")
st.pyplot(fig)

# Visualization: Monthly Tourist Trends
st.subheader(f"Monthly Tourist Trends for {province}")
monthly_trends = province_data.groupby('month')
['no_tourist_all'].mean().reset_index()
fig2, ax2 = plt.subplots()
sns.lineplot(data=monthly_trends, x='month', y='no_tourist_all',
marker='o', ax=ax2)
ax2.set_title(f"Monthly Trends for {province}")
ax2.set_xlabel("Month")
ax2.set_ylabel("Average Tourists")
st.pyplot(fig2)
```

**Key Features:**

- 1. **Data Loading and Preprocessing:**
  - The dataset is loaded from a CSV file and preprocessed to extract features like 'month'.
- 2. **Model Training:**
  - A 'RandomForestRegressor' is trained to predict total tourist inflows based on historical data.
- 3. **User Interaction:**
  - Users select a province and month to forecast tourist inflows interactively.
- 4. **Visualizations:**
  - Scatter plot of actual vs predicted values.
  - Line chart showing monthly trends for the selected province.

To run this app:

- 1. Save the code in a file named 'app.py'.
- 2. Install required libraries: 'streamlit', 'pandas', 'numpy', 'scikit-learn', 'seaborn', 'matplotlib'.
- 3. Run the app using the command: 'streamlit run app.py'.

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**Related**

- What machine learning models are best suited for predicting tourist trends +
- How can I integrate historical data and seasonality into my tourist trend prediction +

model

What are the steps to visualize tourist trend predictions using Streamlit and Seaborn +

How can external factors like weather or events influence tourist inflow predictions +

What are some common pitfalls when using machine learning for tourism trend forecasting +