TOURIST PROPHET

The future of tourism

Group 4

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SUMMARY

Our Project

Tourist Prophet is based on the forecast of time series. By plotting the seasonality trends of tourist arrivals at a given country and running a facebook prophet forecast.

The purpose of our application is to provide projections on tourism for travel destinations around the world.

These projections would allow these providers to forecast resources required to meet increasing or decreasing demand in the future

MODEL

time series

We utilized Prophet which provides automated forecasting that can be tuned manually.

Prophet has a modular regression model with interpretable parameters that can be intuitively adjusted by analysts with domain knowledge about the time series.

Prophet follows the `sklearn` model API. We create an instance of the `Prophet` class and then call its `fit` and `predict` methods.

DATA PREPARATION

Start to Finish – 6 Stage Timeline

Start

We obtained data from Jamaica's visitor arrivals

	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022
Cruise Passenger	7,856	24,863	29,666	21,110	29,335	49,353
Stopover	118,534	152,097	223,333	131,730	162,882	215,789

Published by Statistical Institute of Jamaica. Powered by dataZoa

Idea

The idea was to show seasonality and forecast the future of tourism in Jamaica

Country	*Monthly Data Source*
Jamaica	Statistical Institute of Jamaica
Portugal	Trading Economics
Iceland	Icelandic Tourist Board
Singapore	Singapore Tourism Analytics Network
UK	Statista

Countries Chosen

Jamaica
Portugal
Iceland
Singapore
UK

Source

The data comes from the Tourism boards of each of the above countries

Clean-up

Different Datasets with different formats.
Data format alignment

Storage

Created a database with the cleaned up data

Database

```
[43]: #Database Connection String
      database_connection_string = 'sqlite:///Resources/tourism_data.db'
      #Create Engine
      engine = sql.create_engine(database_connection_string)

[44]: data.to_sql('tourism_data',engine, index = False, if_exists='replace')
```

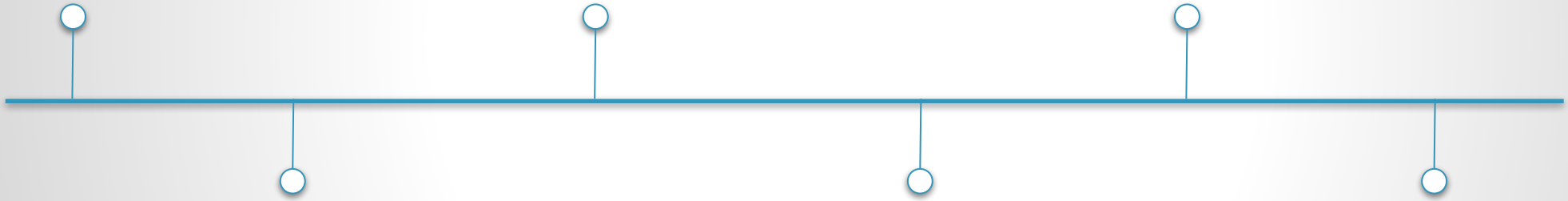
OUR APPROACH

time series

Using Prophet to forecast a country arrivals date

Adjusting Prophet by implementing regressors on the coding

Escalate the model to different countries



Measuring the impact of Covid on the forecasting

Evaluate the two options: with and without specifying pandemic dates

Giving the user the ability to choose the countries and the approach to take in order to better answer their needs

DEMO

time series

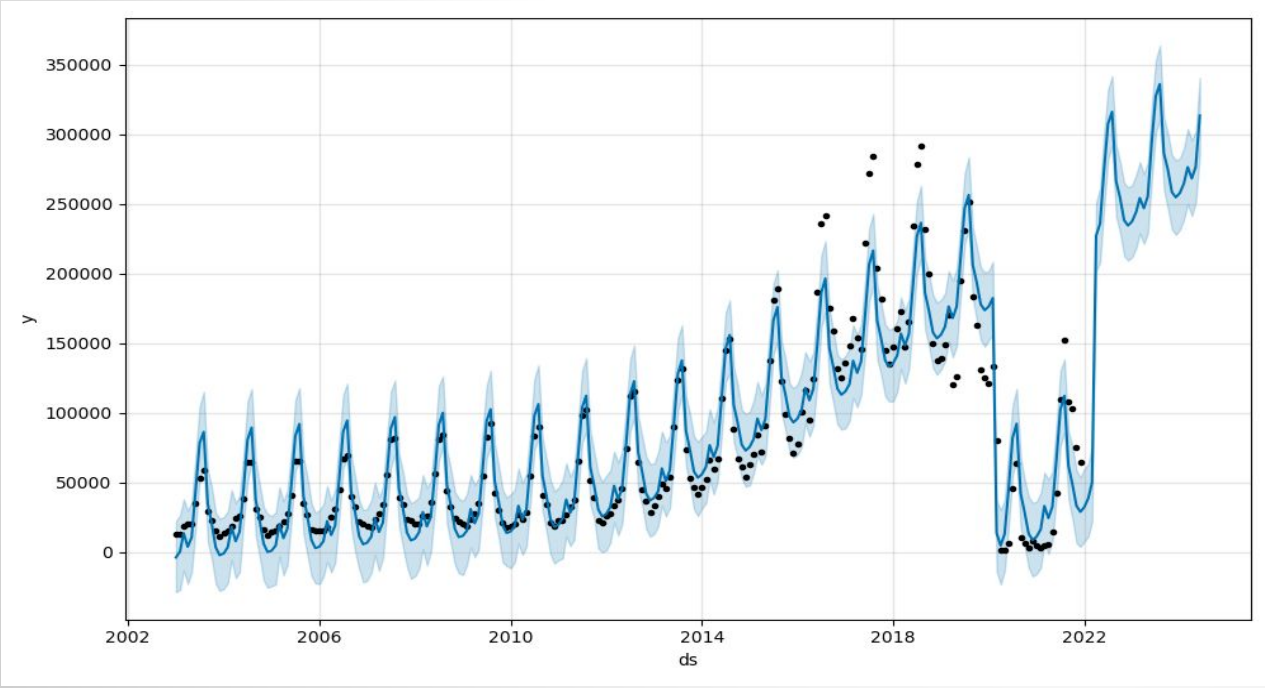
```
(dev)
danie@DESKTOP-JB70TM4 MINGW64 ~/onedrive/documents/python scripts/project 2/Team4_Project2-main
$ python tourist_prophet.py
Welcome to Tourist Prophet
? What country would you like to analyse?  Jamaica
The pandemic had an enormous effect on tourism
Tourist Prophet allows you to isolate its effect
by creating a regressor that takes the value of 1
if the month falls within the pandemic, or 0 otherwise.
? Would you like to create this variable?  Yes
? Enter the first month of the pandemic, use the format YYYY-MM 2020-03
? Enter the last month the pandemic, use the format YYYY-MM 2022-03
? How many months would you like Tourist Prophet to predict? 30
```

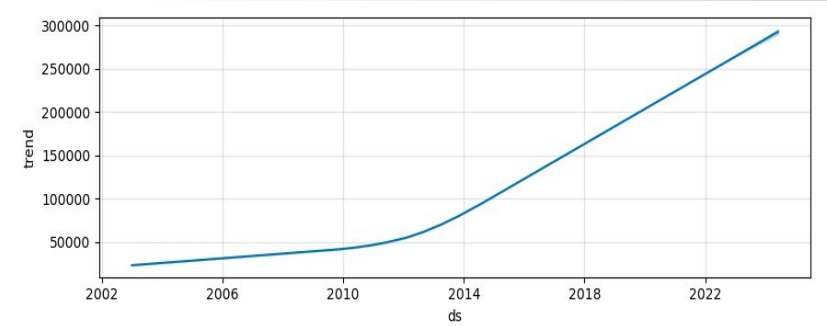
CONCLUSIONS

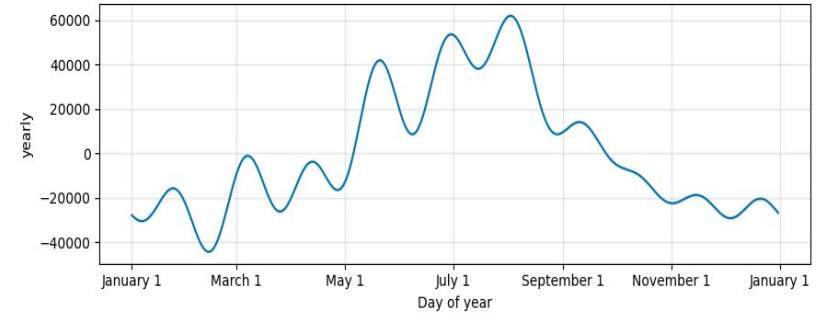
time series

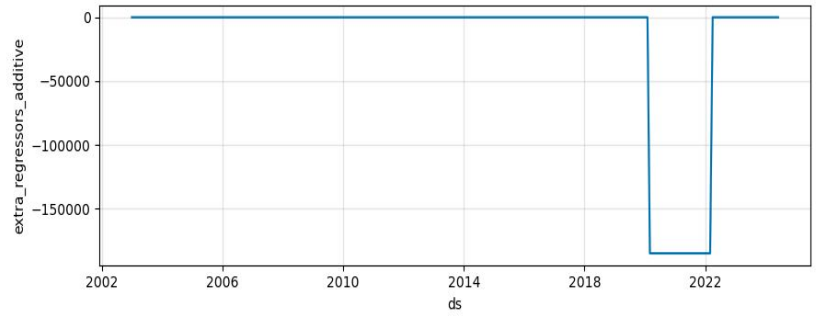
The Tourist Prophet -

- We are able to forecast the future tourist arrival trends
- Huge benefits to manage resources
- Effects of variables









NEXT STEPS

time series

API

Streamline where to get data and output

Data Elements

Automate pulling with robots

Front End App

End points through a web app and API

Dual Focus

Expand our service to forecast more countries and add some of the tourist industry financial projections