



# Park Pal

## NPS Chatbot



## Collaborators

Nicole Blakkan-Esser  
Lauralyn Curry-Leech  
Courtney Gibson

YEARLY  
VISITORS:

300  
Million

JOBS  
ADDED:

300  
Thousand

20  
Billion

IN LOCAL  
ECONOMIC  
CONTRIBUTIONS



NO VIRTUAL  
ASSISTANT  
CAPABILITIES

## National Park Service: Park Pal



You can ask questions about parks, amenities, events, fees, and more.  
Type 'exit' to end the chat.

👤: How can I help you?

Where can I find Zion National Park?

👤: Zion National Park is located at Zion National Park 1 Zion Park Blvd. in Springdale, Utah 84767

What is the description of the Grand Canyon?

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Type your message here

Send

Chat with  
Park Pal  
Today!



## PROJECT ROADMAP

1 Prepare  
Synthetic Data



Fine-tune GPT 2



3 Host Park Pal



## Synthetic Data

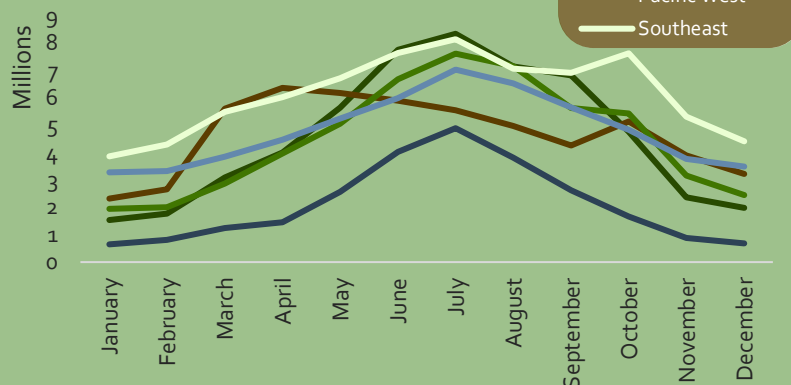
Synthetic queries were developed to represent questions that users may ask in association with five NPS API endpoint. The team used an 80/20 split to create test & validation data. Separate queries were developed for evaluating the models to prevent data leakage.

82k  
Queries

## Model Evaluation

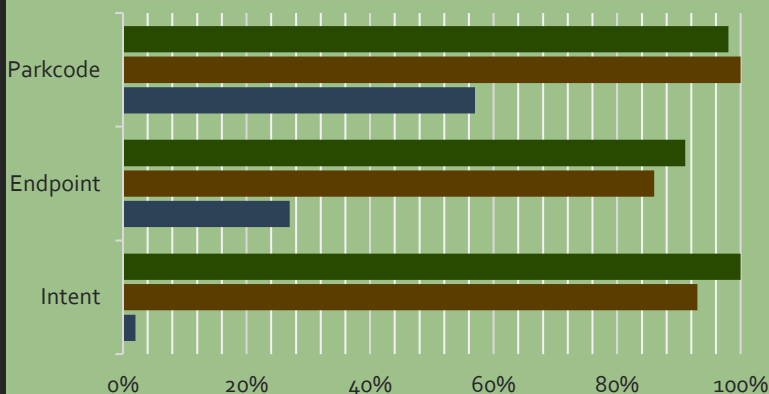
Evaluation methodology

## Recreational Visits 2023



## API Parameter Prediction Accuracy

■ GPT ■ TF-IDF ■ SpaCy



## Fine-Tuned GPT

The NPS API documentation and URL structure did not lend itself to easy interpretation by typical chatbot models. The team explored fine-tuning GPT models to create the parameters for NPS API calls based on a user query.

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OPENAI

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## FLAN-T5

2012

Studying at ABC

Choose Change Graphic from the options.

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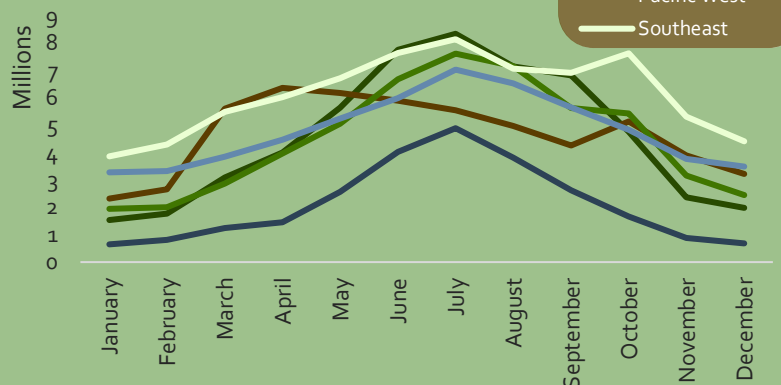
Send

Chat with  
Park Pal  
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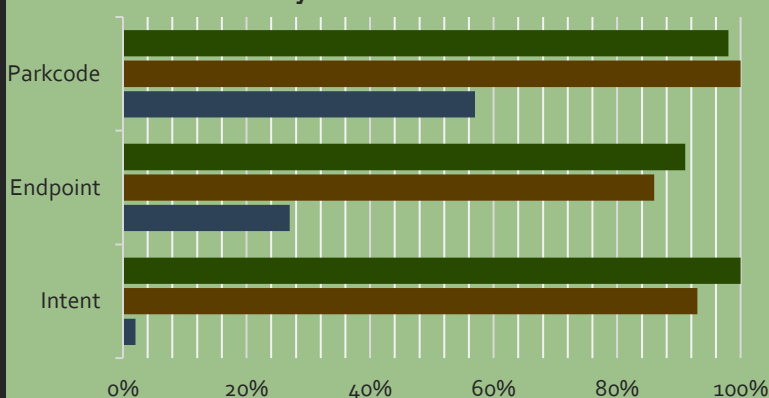
Intermountain  
Midwest  
National Capital  
Northeast  
Pacific West  
Southeast

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PREPARE SYNTHETIC  
DATA



1

FINE-TUNE GPT



2

FINE-TUNE FLAN-T5



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HOST PARK PAL



4

COMPUTE WITH

LAMBDA



5

STORE WITH S3



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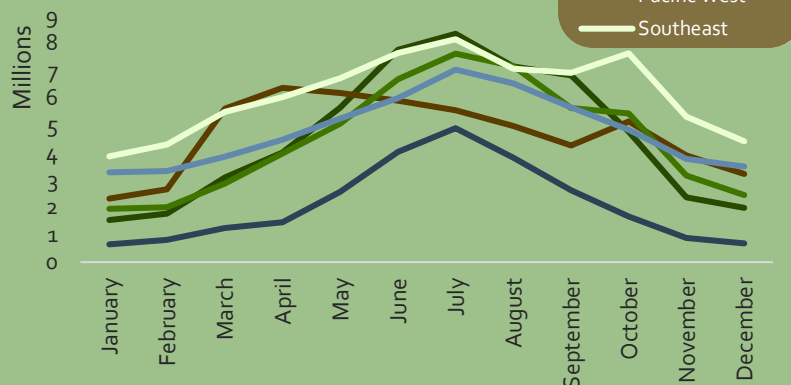
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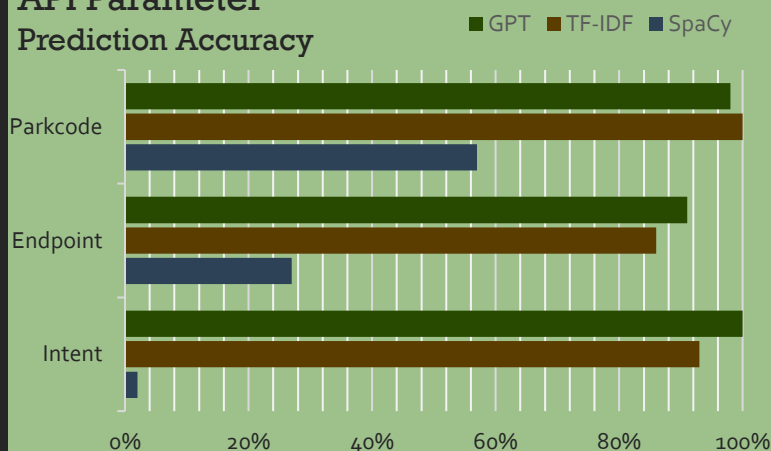
Find Me  
on GitHub  
Today!



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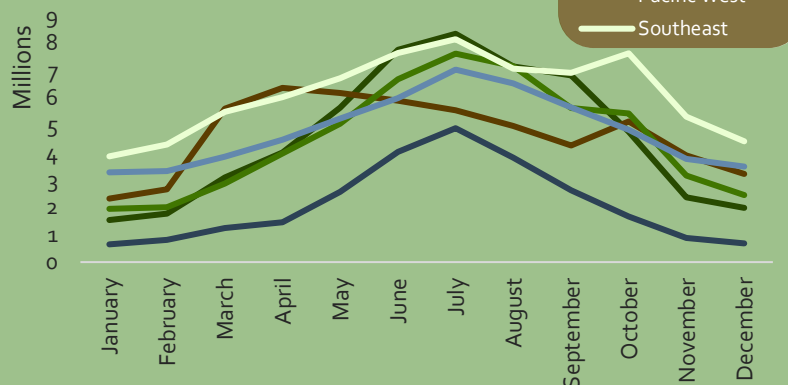
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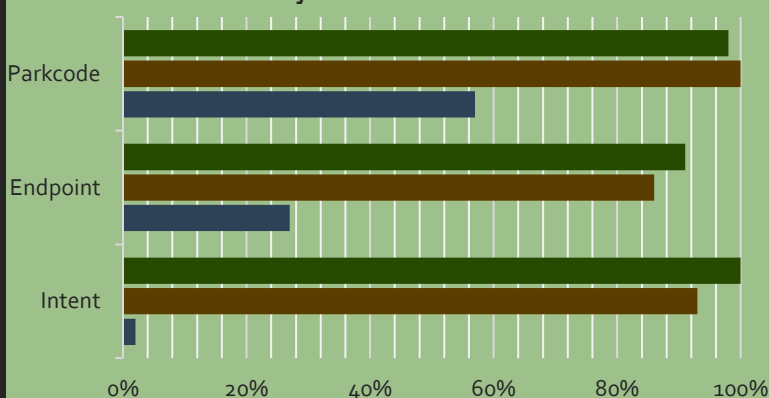


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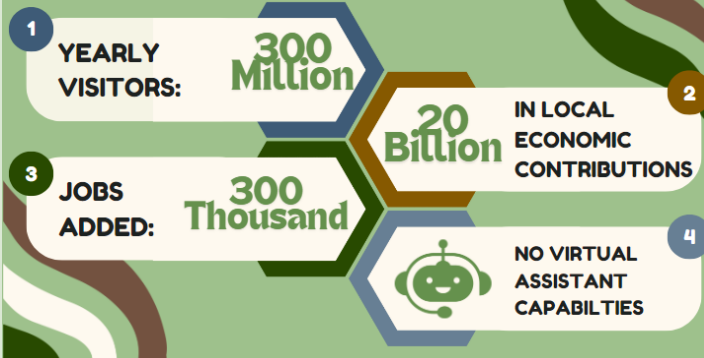
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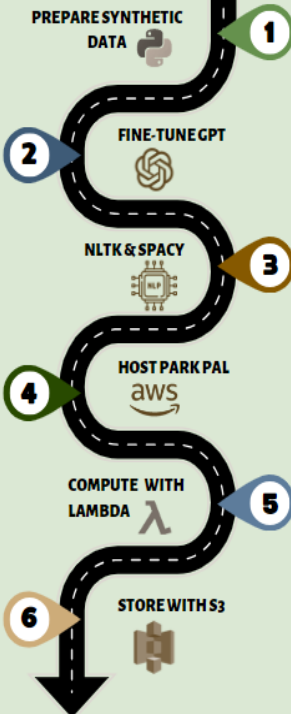
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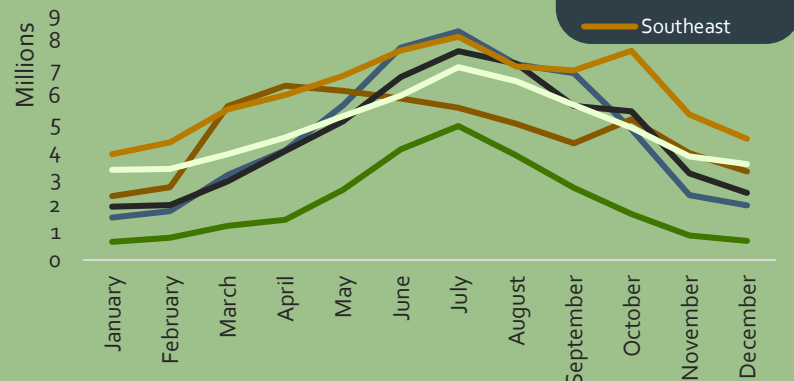
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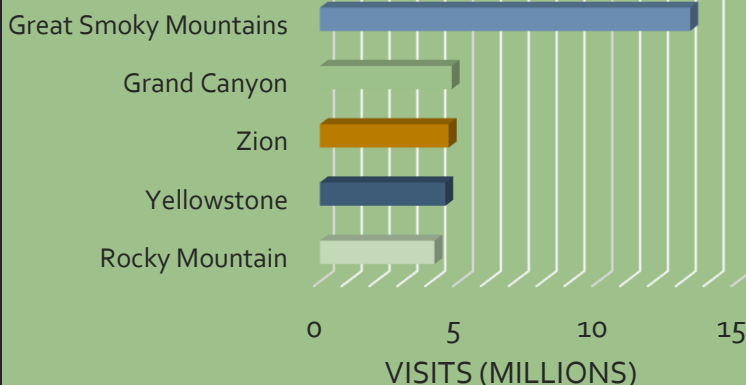
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## Top 5 National Parks 2023



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## SpaCy & NLTK

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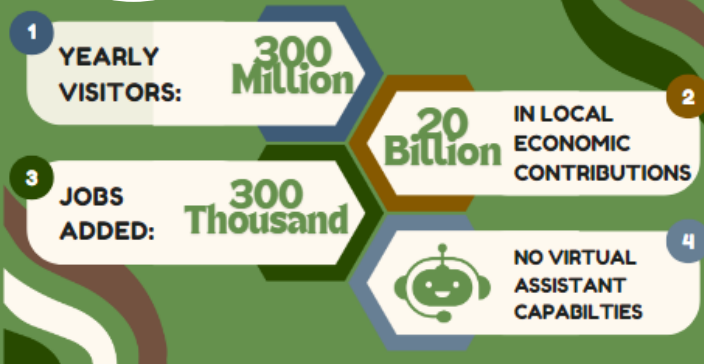
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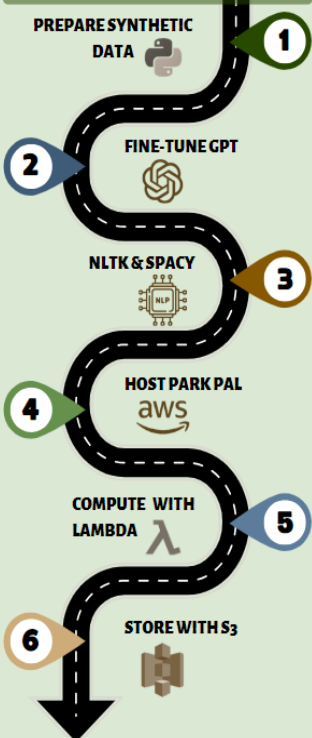


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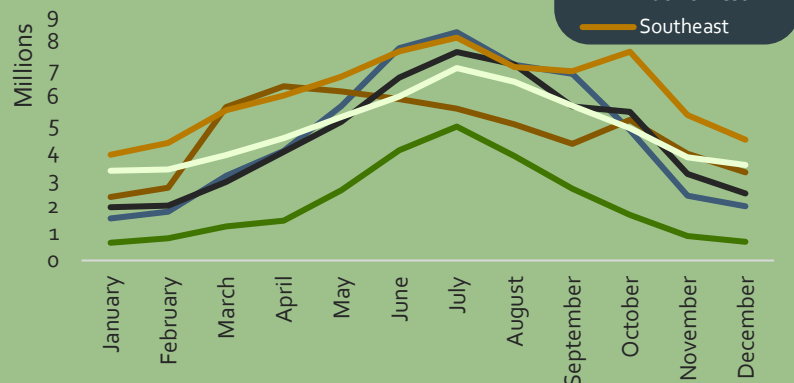
Type your message here

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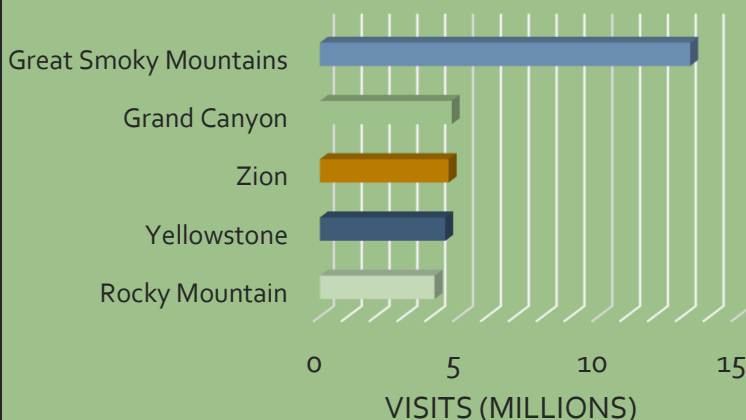
Chat with Park Pal Today!



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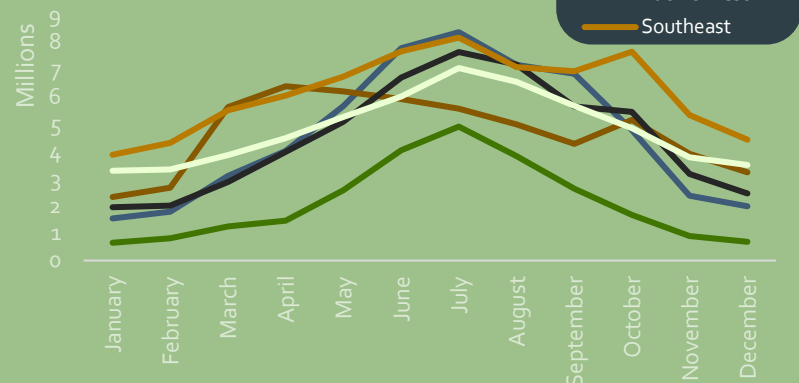
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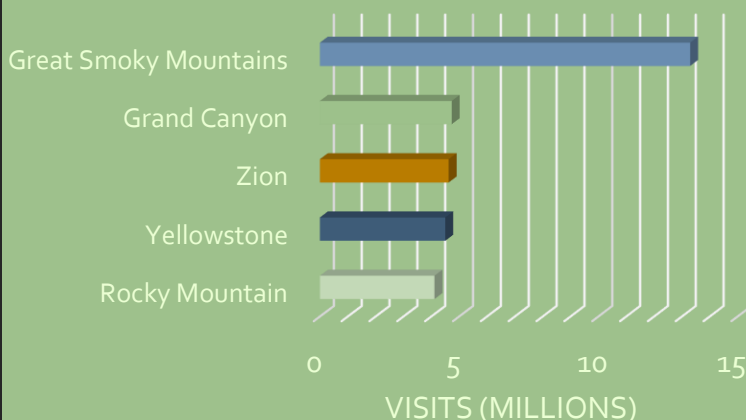
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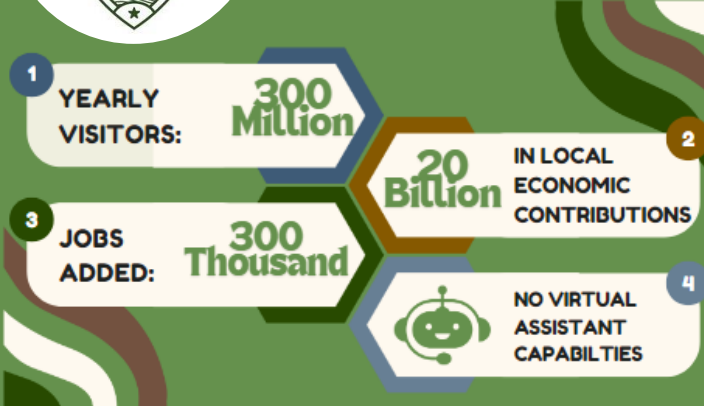
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1 PREPARE SYNTHETIC DATA

2 FINE-TUNE GPT

3 NLTK & SPACY

4 HOST PARK PAL

5 COMPUTE WITH LAMBDA

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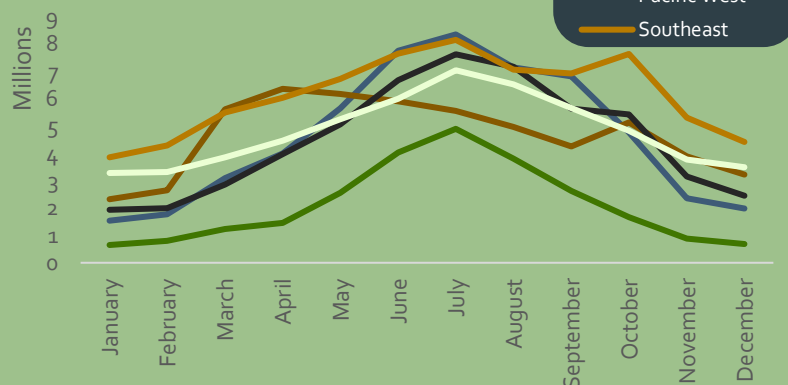
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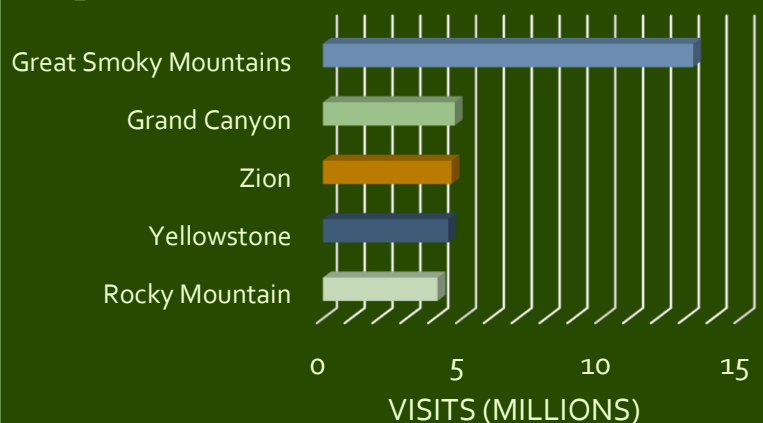
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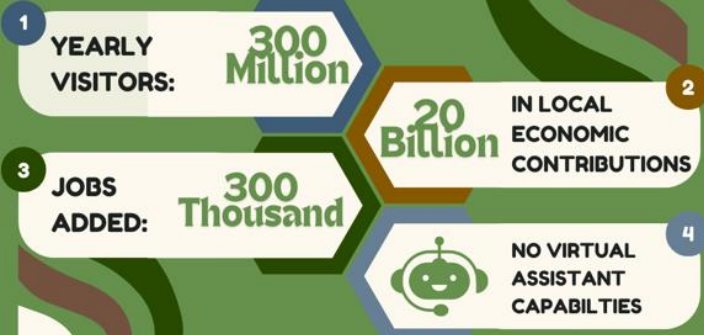
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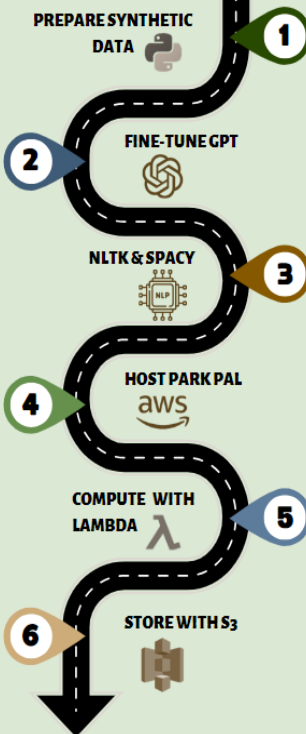
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## Why Park Pal?



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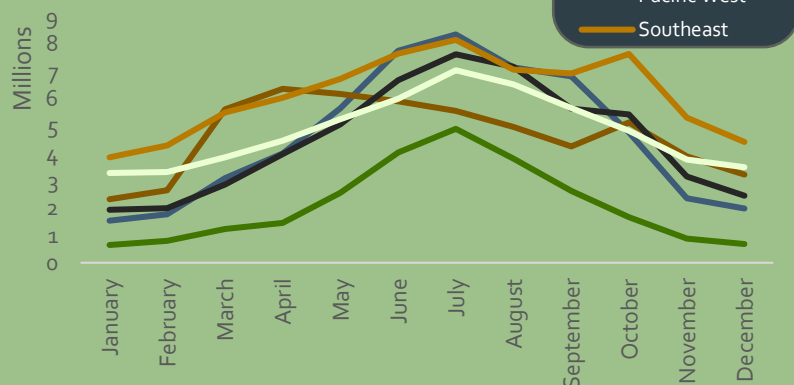
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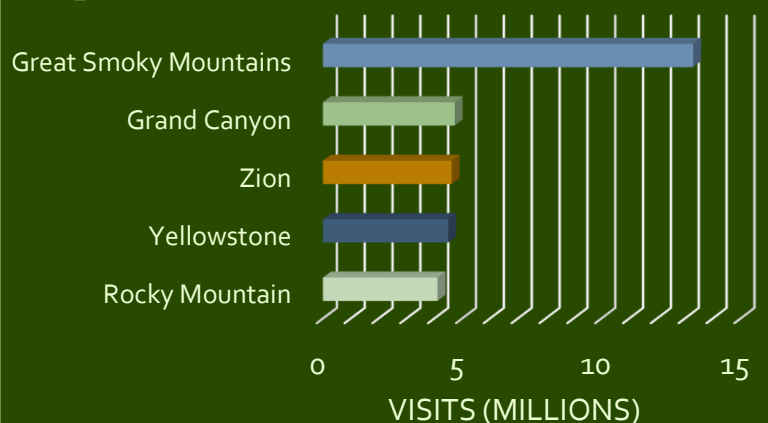
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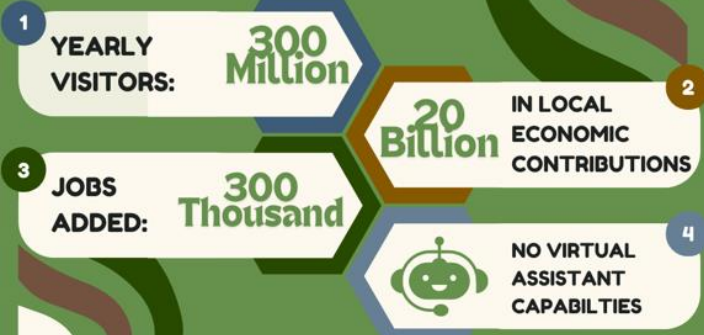
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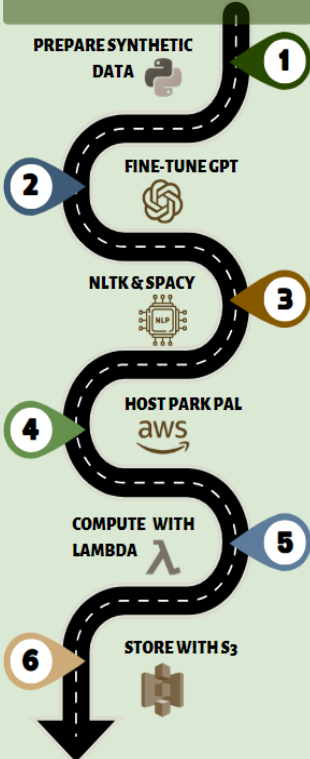
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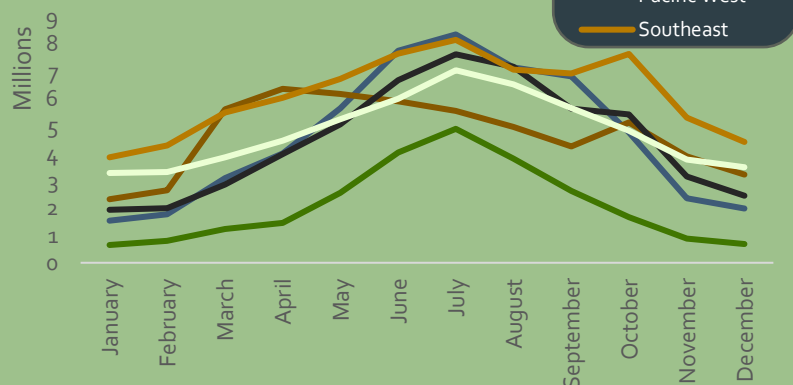
### GitHub:

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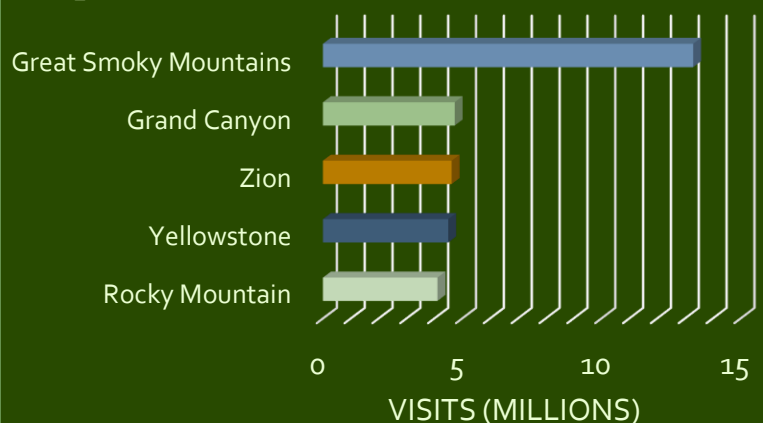
Chat with Park Pal Today!



### Recreational Visits 2023



### Top 5 National Parks 2023



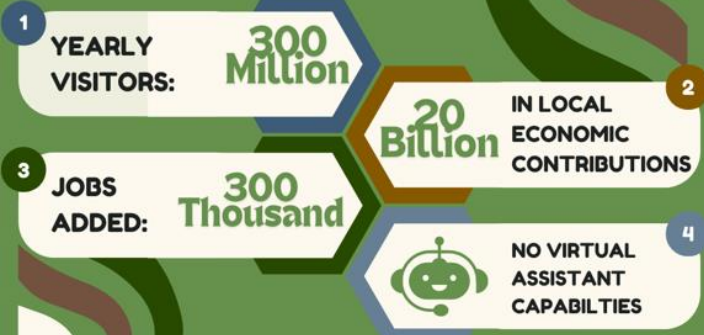


# Park Pal

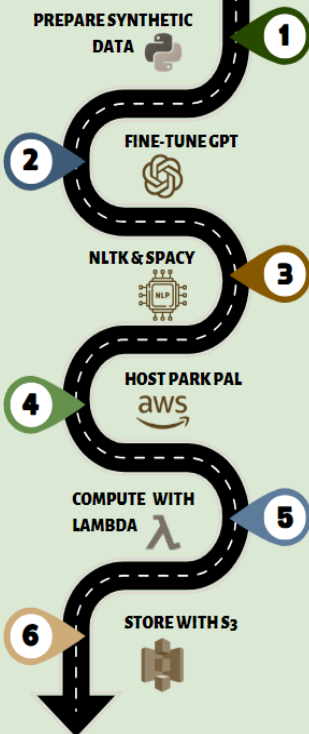
## National Parks Service

**Collaborators:**  
Nicole Blakkan-Esser  
Lauralyn Curry-Leech  
Courtney Gibson

### Why Park Pal?



### PROJECT ROADMAP



### Synthetic Data

Synthetic queries were developed to represent questions that users may ask in association with five NPS API endpoint. The team used an 80/20 split to create test & validation data. Separate queries were developed for evaluating the models to prevent data leakage.

82k Queries

### Fine Tuned GPT

The NPS API documentation and URL structure did not lend itself to easy interpretation by typical chatbot models. The team explored fine-tuning GPT models to create the parameters for NPS API calls based on a user query.

“ **OPENAI**  
Fine-tuning improves on few-shot learning by training on many more examples than can fit in the prompt, letting you achieve better results on a wide number of tasks. ”

### Model Evaluation

Evaluation methodology

### SpaCy & NLTK

**2012**  
**Studying at ABC**  
Choose Change Graphic from the options.

### National Park Service: Park Pal

You can ask questions about parks, amenities, events, fees, and more. Type 'exit' to end the chat.

🐻 : How can I help you?

Where can I find Zion National Park?

🐻 : Zion National Park is located at Zion National Park 1 Zion Park Blvd. in Springdale, Utah 84767

What is the description of the Grand Canyon?

🐻 : Here is the description of Grand Canyon National Park: Entirely within Northern Arizona, the park encompasses 278 miles (447 km) of the Colorado River and adjacent uplands. Located on ancestral homeland of 11 present day Tribal Communities, Grand Canyon is one of the most spectacular examples of erosion anywhere in the world—a mile deep canyon unmatched in the incomparable vistas it offers visitors from the north and south rims.

Type your message here

Send

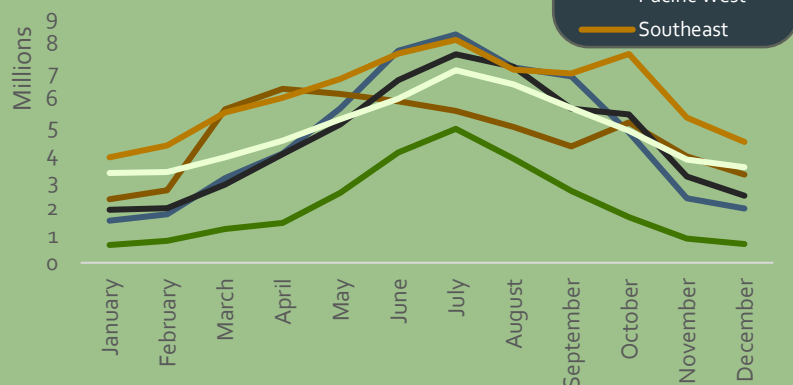
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### Top 5 National Parks 2023

