

Safari Travel Advisor

Destination Predictor

Group 10

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Github link

The team

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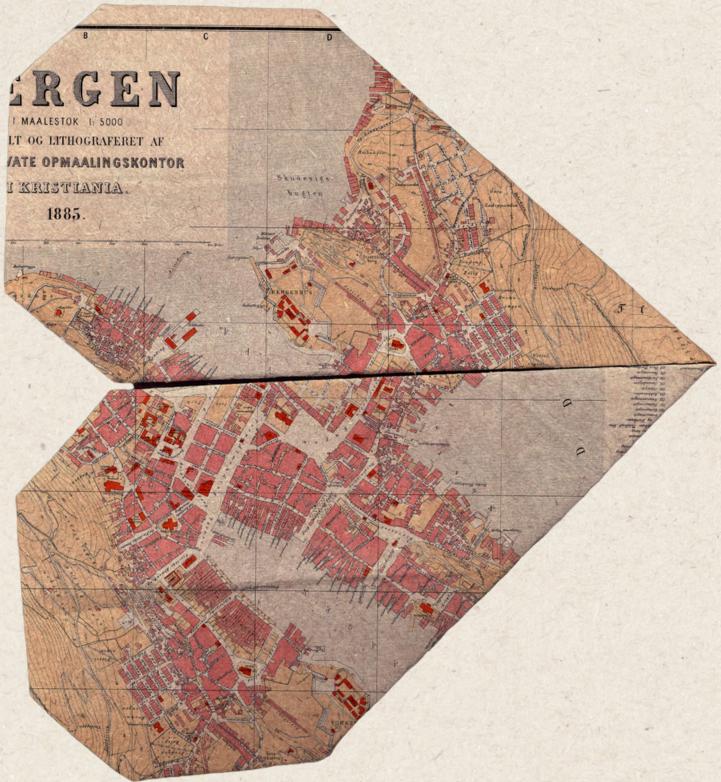
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Introduction:

The Challenge of Finding the Perfect Destination

- Tourism and hospitality are on a journey of disruption.
 - Traveling is a cherished global activity, but finding the perfect destination can be overwhelming due to the abundance of options and information online.
 - The Safari Travel Advisor leverages machine learning to predict and suggest travel destinations based on user interests, saving time and enhancing the travel experience.
- \$8.6 trillion spending in traveler outlays in 2024
 - roughly 9 percent of this year's global GDP



Tufft C. et al The state of tourism and hospitality 2024;
Travel, Logistics & Infrastructure Practice. May 2024

Problem Statement

The Challenge of Finding the Perfect Destination

- Travel Planning Overload: Travelers face an overwhelming array of online information, reviews, and suggestions when selecting destinations.
- Misalignment with Personal Interests: Many struggle to align their unique preferences with destination offerings, making travel planning inefficient.

Key Stakeholders:

Engaging the Travel Ecosystem for Better Travel Experiences

- Travelers: Personalized suggestions tailored to interests like hiking, cultural tours, or beach activities.
- Travel Platforms: Enhanced user experience and engagement through personalized recommendations.
- Destination Marketers: Data-driven insights to promote underrepresented destinations effectively.



Business Understanding:

Bridging the Gap Between Choices and Satisfaction



Complex travel decisions:

Real World Problem:

Travelers encounter a deluge of options, often finding it challenging to connect their unique interests with suitable destinations

A disconnect exists between the wide variety of global destinations and the capacity to suggest/predict those that truly match travelers' preferences

Value Proposition:

For travelers: Personalized suggestions
For travel businesses: higher engagement and revenue
For marketers: Precision-targeted campaigns

Project Objectives

Unveiling Insights Through Machine Learning

- Develop a machine learning model to predict travel destinations based on user inputs.
- Understand travel patterns and marketing gaps by analyzing global travel data.
- Highlight overlooked destinations and improve their visibility.

Dataset Overview:

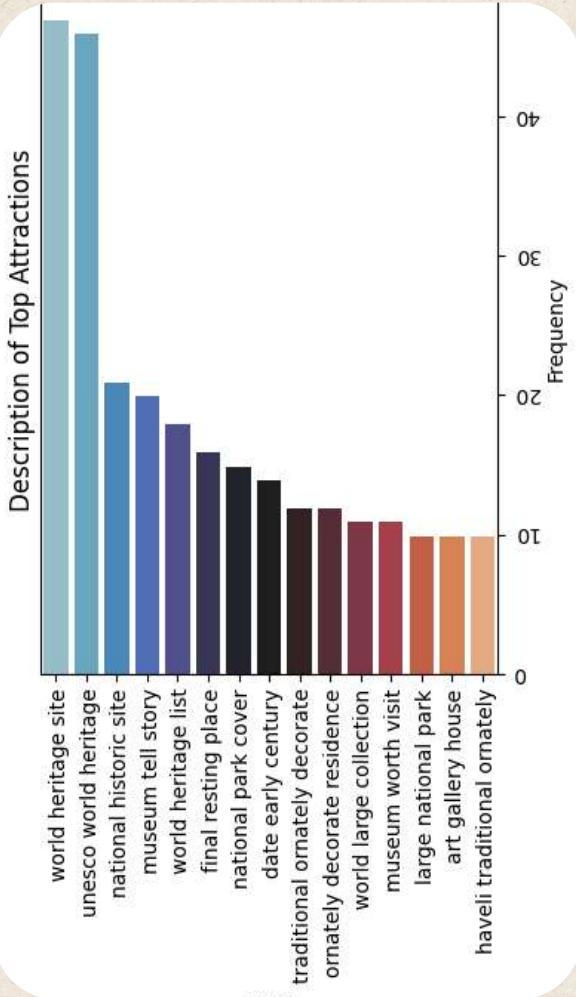
- **Data Source:** Data was scrapped from the Lonely Planet website (e.g., for [U.S. top attractions](#))
 - Here is the procedure that was followed to do the scraping.
- **Dataset:** 18,040 rows of attraction descriptions from 25 countries, enabling effective model generalization.
- **Key Features:** Attraction descriptions (input) and associated countries (output).
- **Business Alignment:** Enables personalized travel recommendations by matching descriptions to user preferences.

=Patterns and Findings=



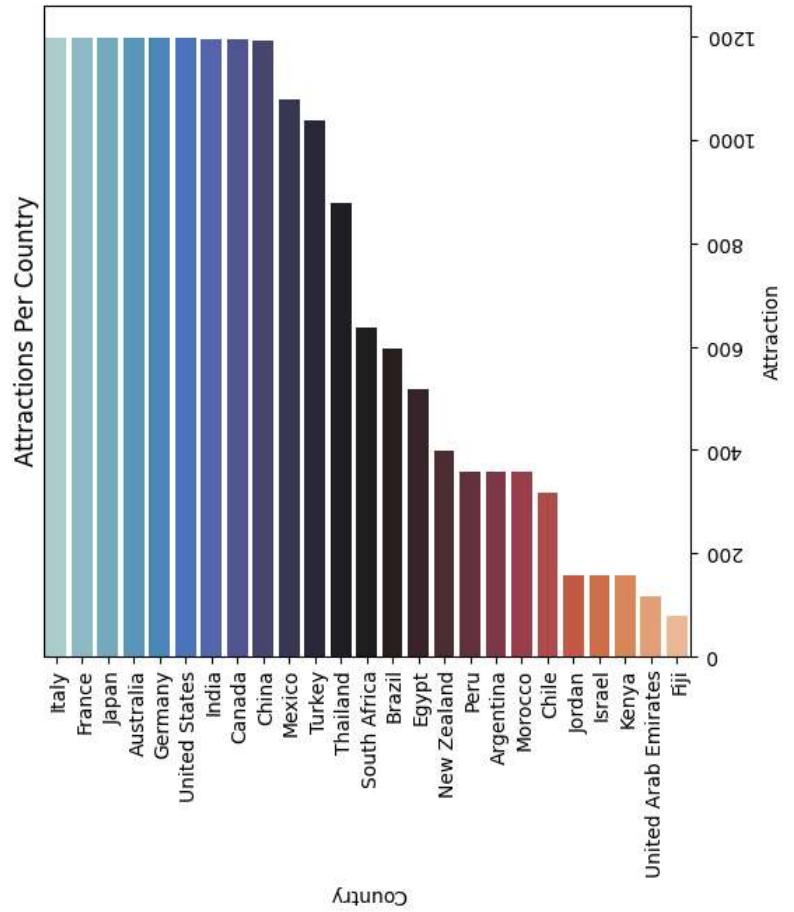
Analyze Attraction Predictors:

Examine descriptions of top attractions on travel websites



The top attractions overall are UNESCO World Heritage Sites, National historic sites, Museums, National parks, and Art galleries.

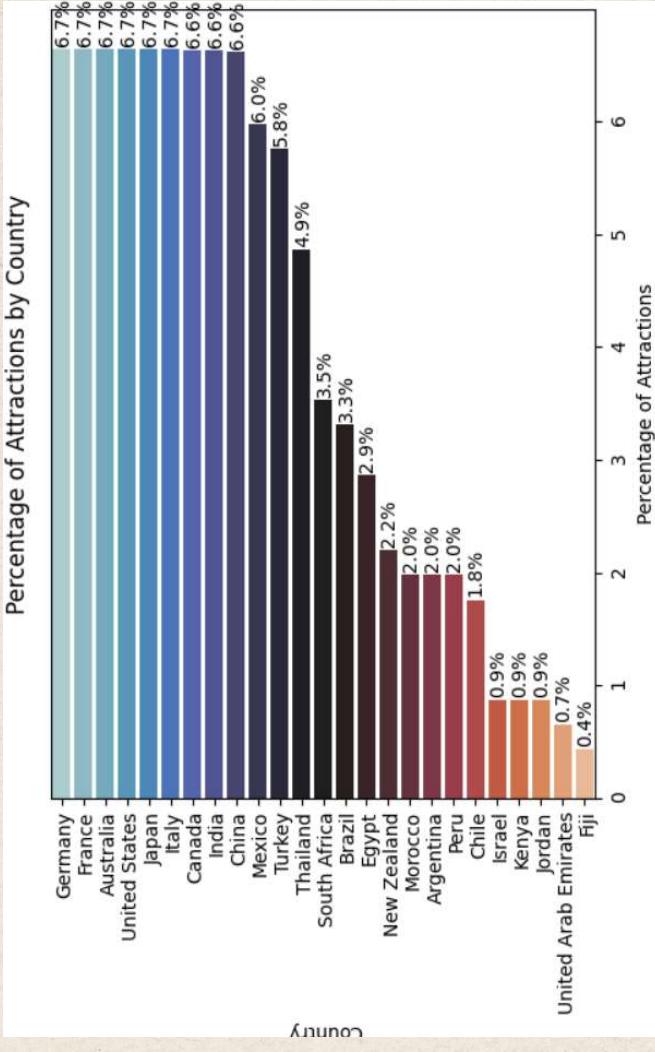
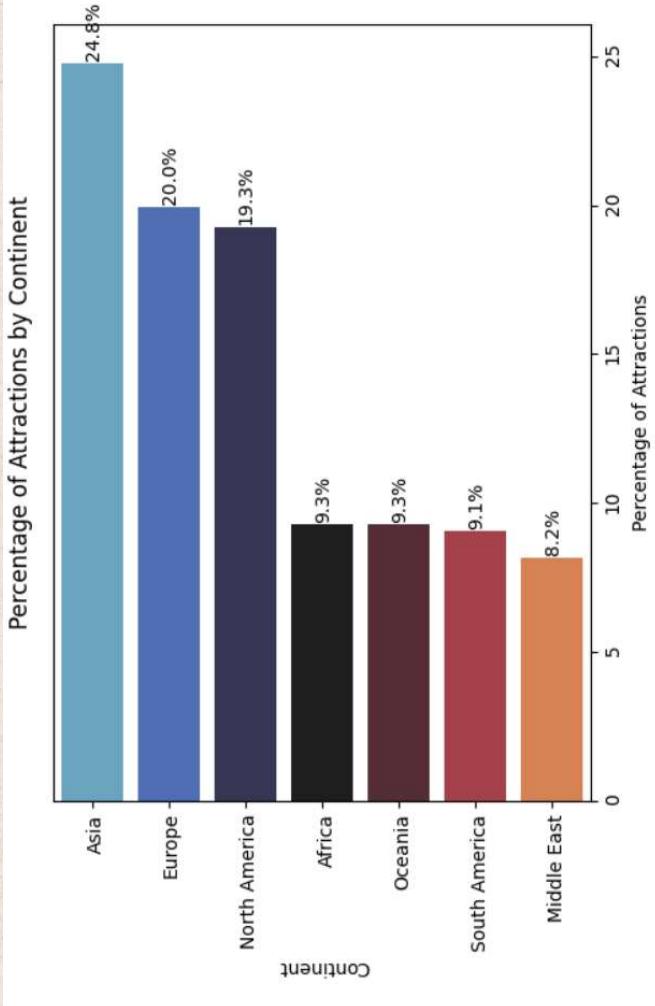
Compare Attraction Distribution: Countries that Are Overrepresented on Travel Destinations



- Popular countries like the USA, Canada, and Italy dominate listings.
- Jordan, Israel, Kenya, UAE, and Fiji have the least attractions.

Compare Attraction Distribution:

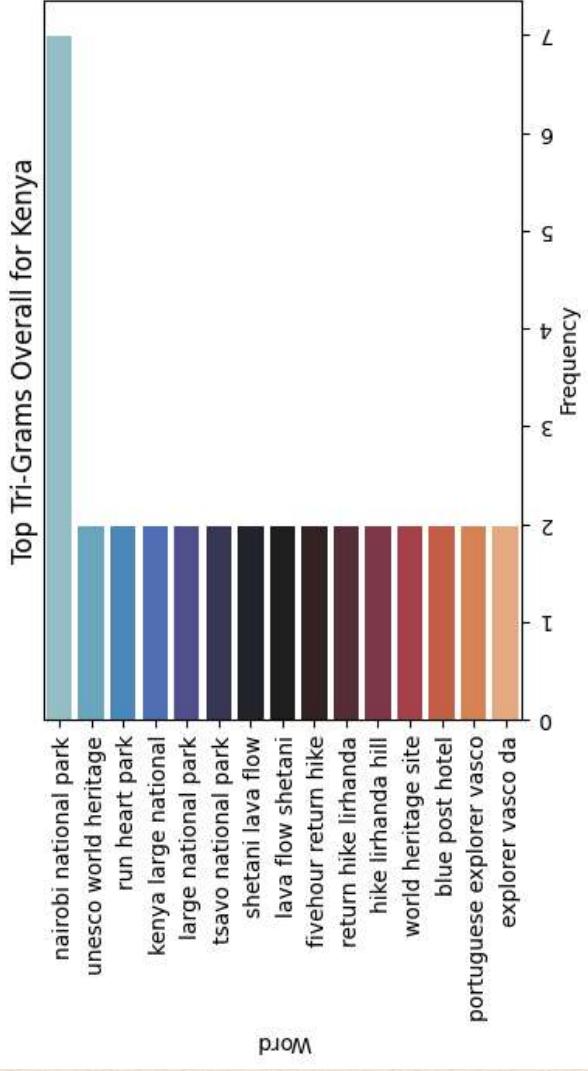
Percentage by Continent and Country



Imbalances in the dataset indicate potential biases in destination marketing.

Kenyan Attraction Destination Marketing

International travel websites' marketing of Kenyan attractions and description of their features



- Kenya is underrepresented despite its rich tourist attractions.

- Kenya is widely known for its wildlife attractions.

Modeling



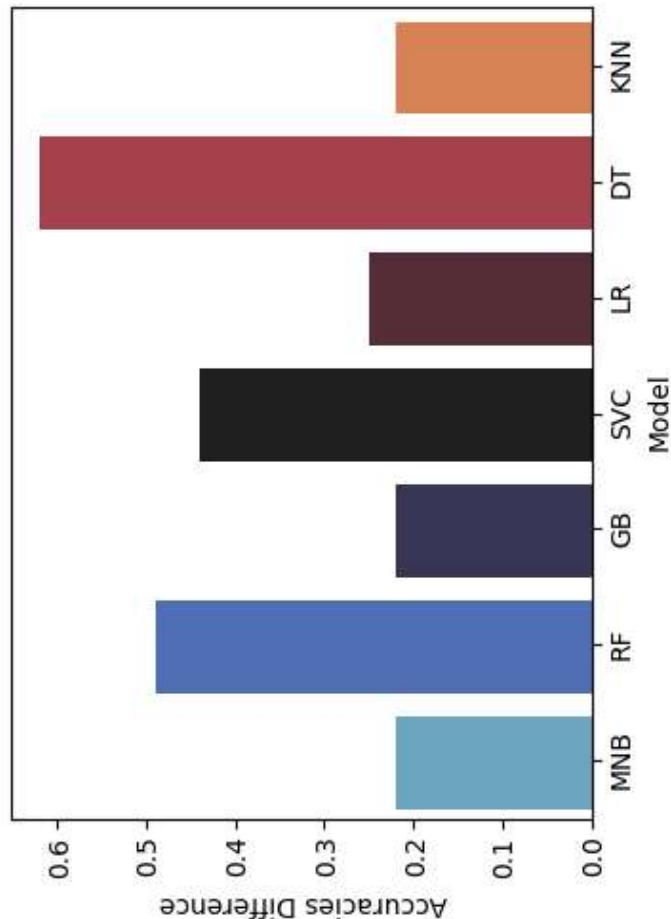
Process:

- Processed text data: removed stop words and punctuation.
- Fine-tuned models:
 - Addressed class imbalance
 - Explored vectorization methods
 - Used bi-grams for feature engineering
 - Added country names to stop words
 - Hyperparameter tuning via Randomized Search CV

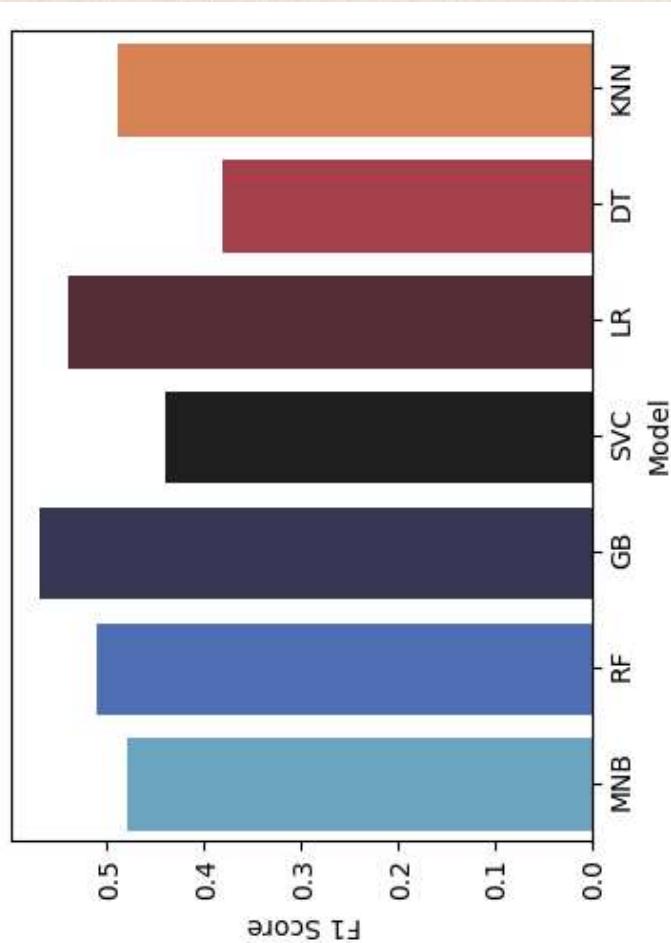


Final Model

Train and Test Accuracies Differences



Model F1 Scores

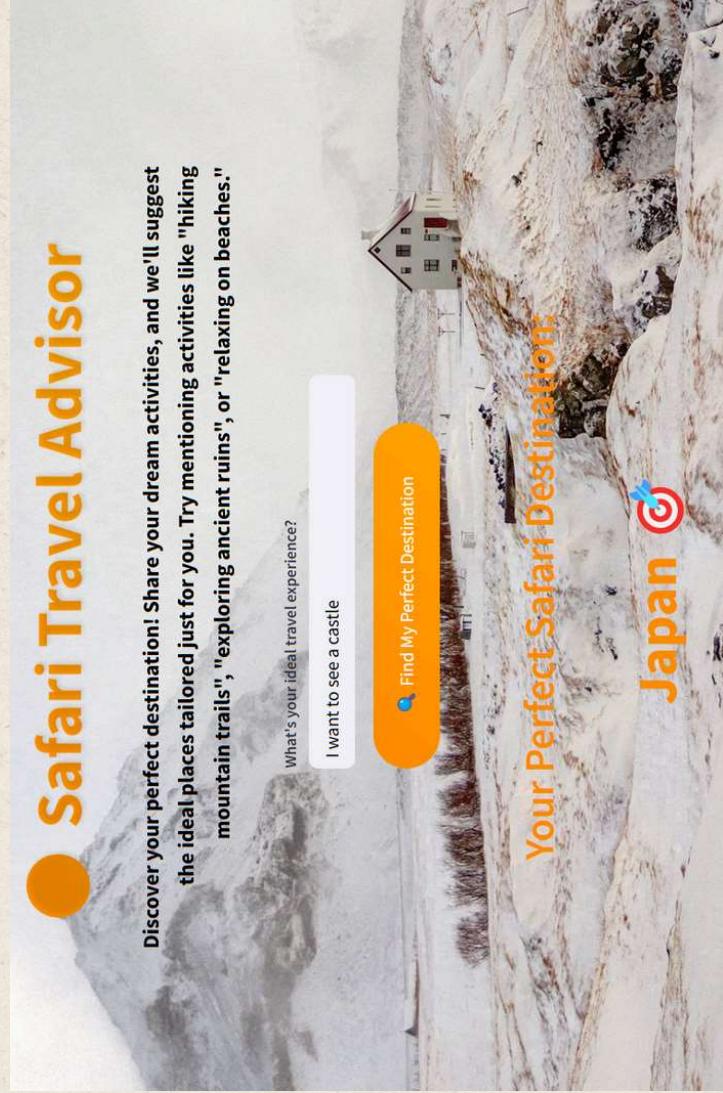


- Gradient Boost Classifier with 54% accuracy and a 57% F1 score.

- Chosen for its balance between accuracy and generalization.

Deployment

Product Demo: An interactive dashboard where users can test the predictions.



Implementation: Hosted as a web app

Recommendations:

- Travel Enthusiasts:

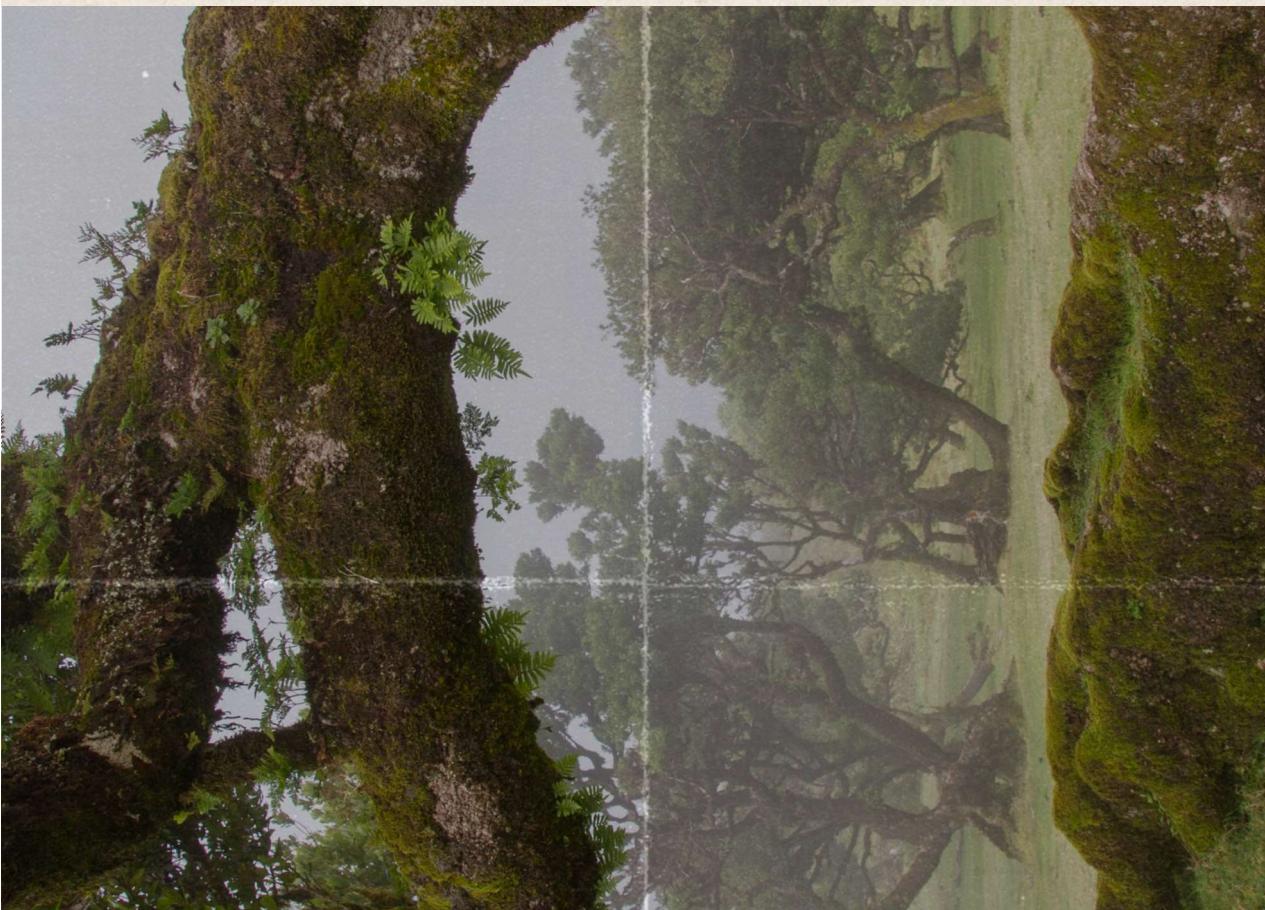
- Explore new destinations tailored to personal interests.
- Use the interactive tool for efficient travel planning.

- Travel platforms:

- Integrate this tool to enhance user experience.
- Expand content to include lesser-known destinations.

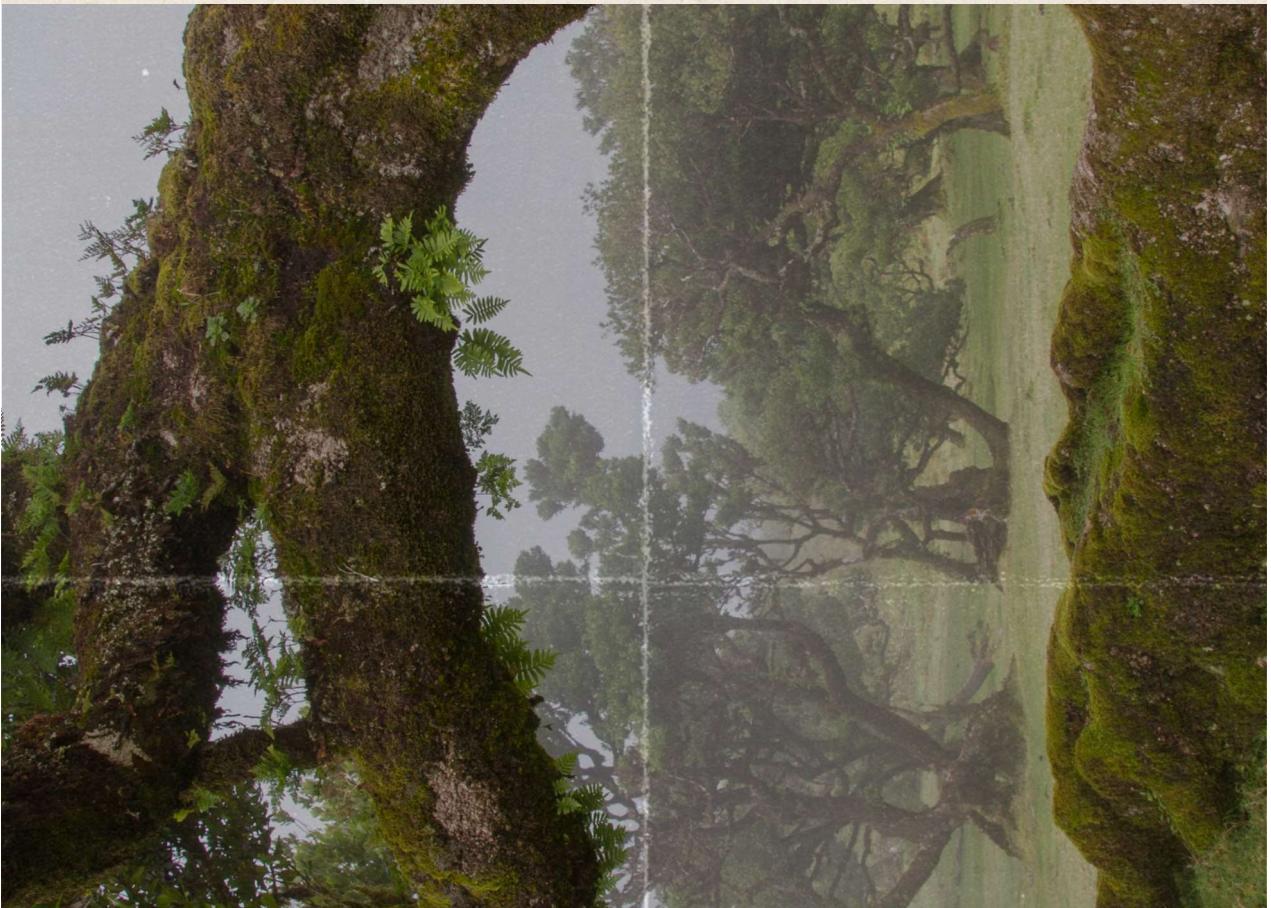
- Destination Marketers:

- Highlight underrepresented attractions and use diverse language to describe them.
- Promote multi-faceted aspects of destinations like Kenya's beaches and urban culture.



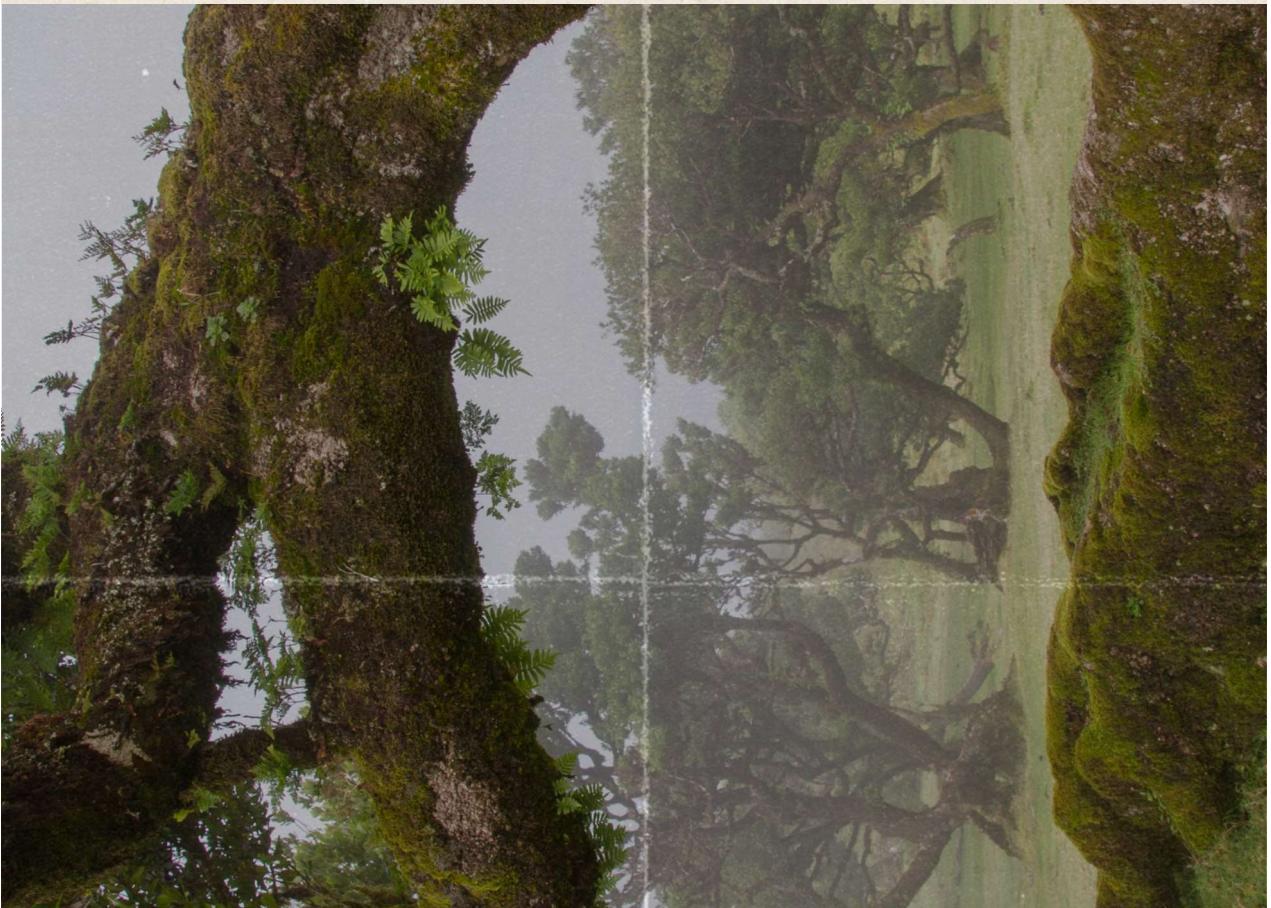
Future Implementation:

- Enhanced Model:
 - Include more countries and data sources.
 - Refine predictions with advanced AI techniques.
- Personalization:
 - Create user profiles based on past preferences.
- Mobile App:
 - Develop a travel recommendation app for real-time suggestions.
- Integration:
 - Collaborate with travel platforms to offer dynamic recommendations.



Conclusion:

- The Safari Travel Advisor simplifies travel planning with data-driven, personalized recommendations, bridging the gap between traveler interests and destination offerings.
- It opens new opportunities for travel platforms and marketers to enhance user engagement and promote global tourism effectively.



Thank you very much!!

