SafariHub

Recommender System

Tours, Hotels and Destinations Hub

PRESENTATION

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INTRODUCTION

Business Overview

Tourism is a thriving industry in Kenya, and travelers often face the challenge of choosing the right destinations for their trips.

This project aims to address this problem by creating a recommendation system that assists users in discovering personalized tourist destinations in the country.

Problem Statement

Travelers often struggle to choose the most suitable tourist destinations for their trips. Our project aims to address this challenge by creating a recommendation system that suggests relevant destinations in Kenya based on user preferences and historical interactions.

Objectives

- Build a collaborative filtering model to recommend destinations.
- Reduce cold-start problem by incorporating content-based features.
- Use NLP to recommend items based on sentiment analysis of reviews.
- Generate insights from user interaction data to understand trends, preferences and popular destinations.
- Suggest a wide range of destinations, including both popular and less-known locations to cater to different travel preferences.
- Promote local hotels, destinations and tour agents through our web application.

ABOUT DATA

Data Understanding

Data Source

The dataset was scraped using the APIFY TripAdvisor Scraper.

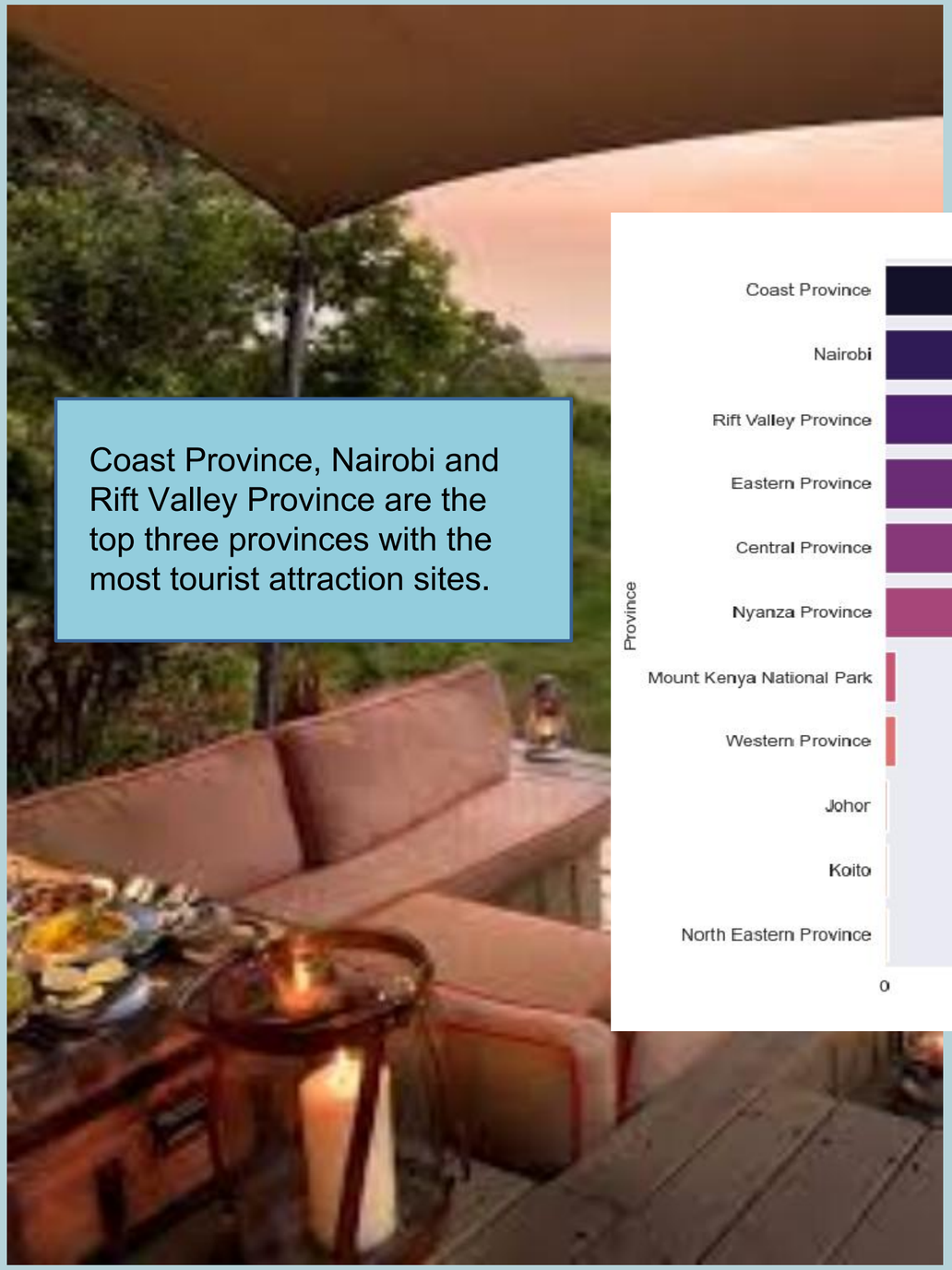
Dataset Overview

5544 entries
10 columns
Missing Values: ratings, images and price information.

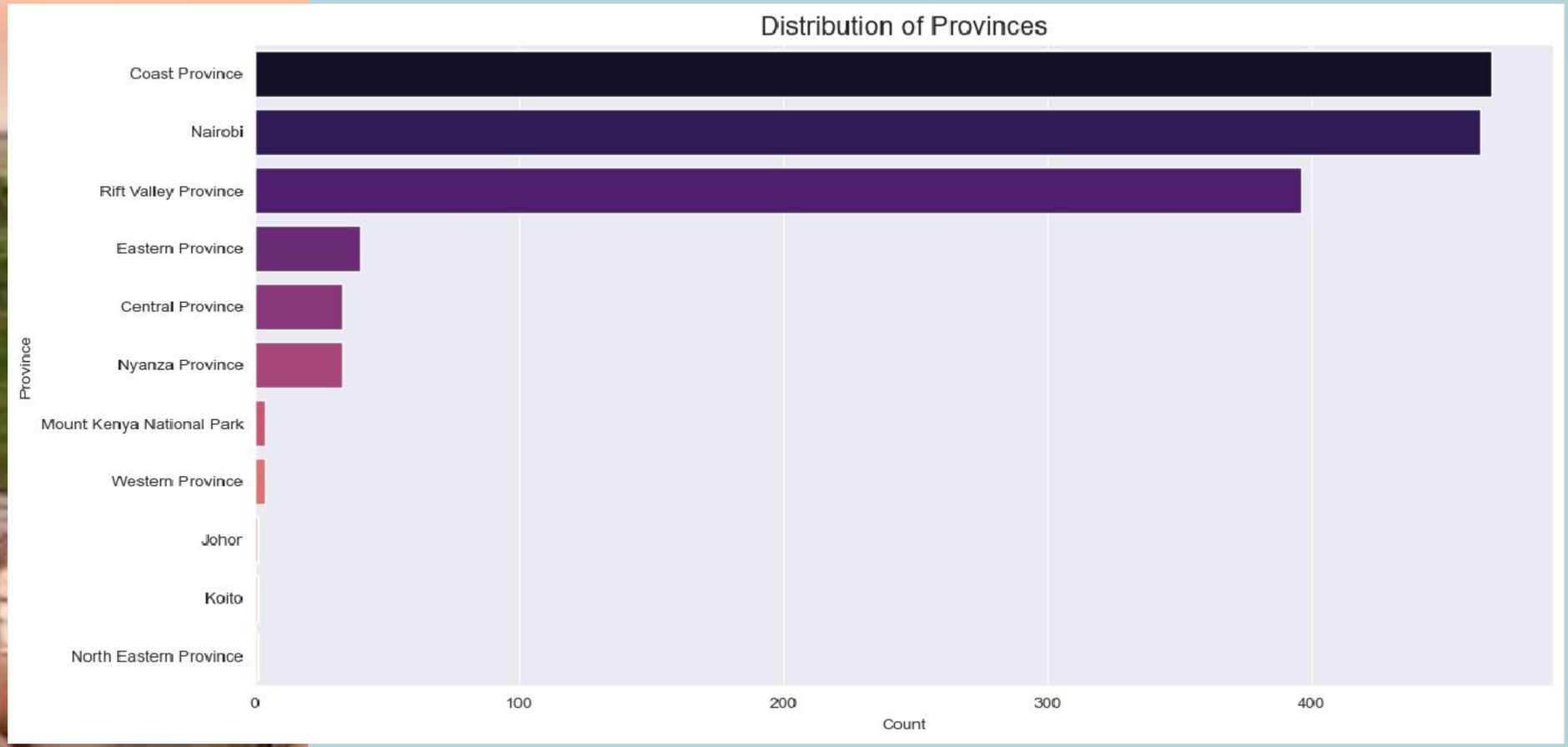
Data Limitations

Limited Price Data: Only 2713 entries have price-related details.

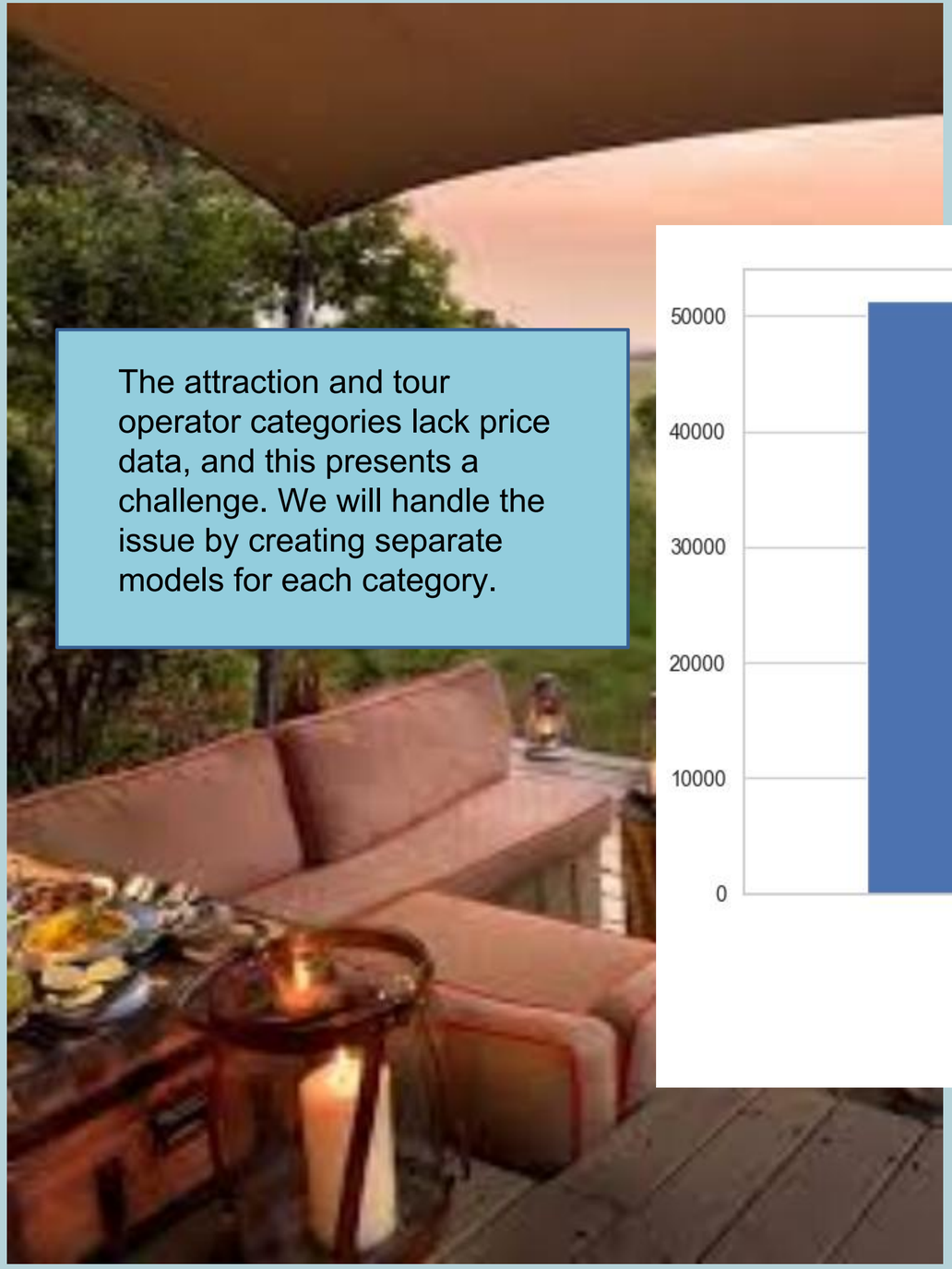
Tourist Attraction



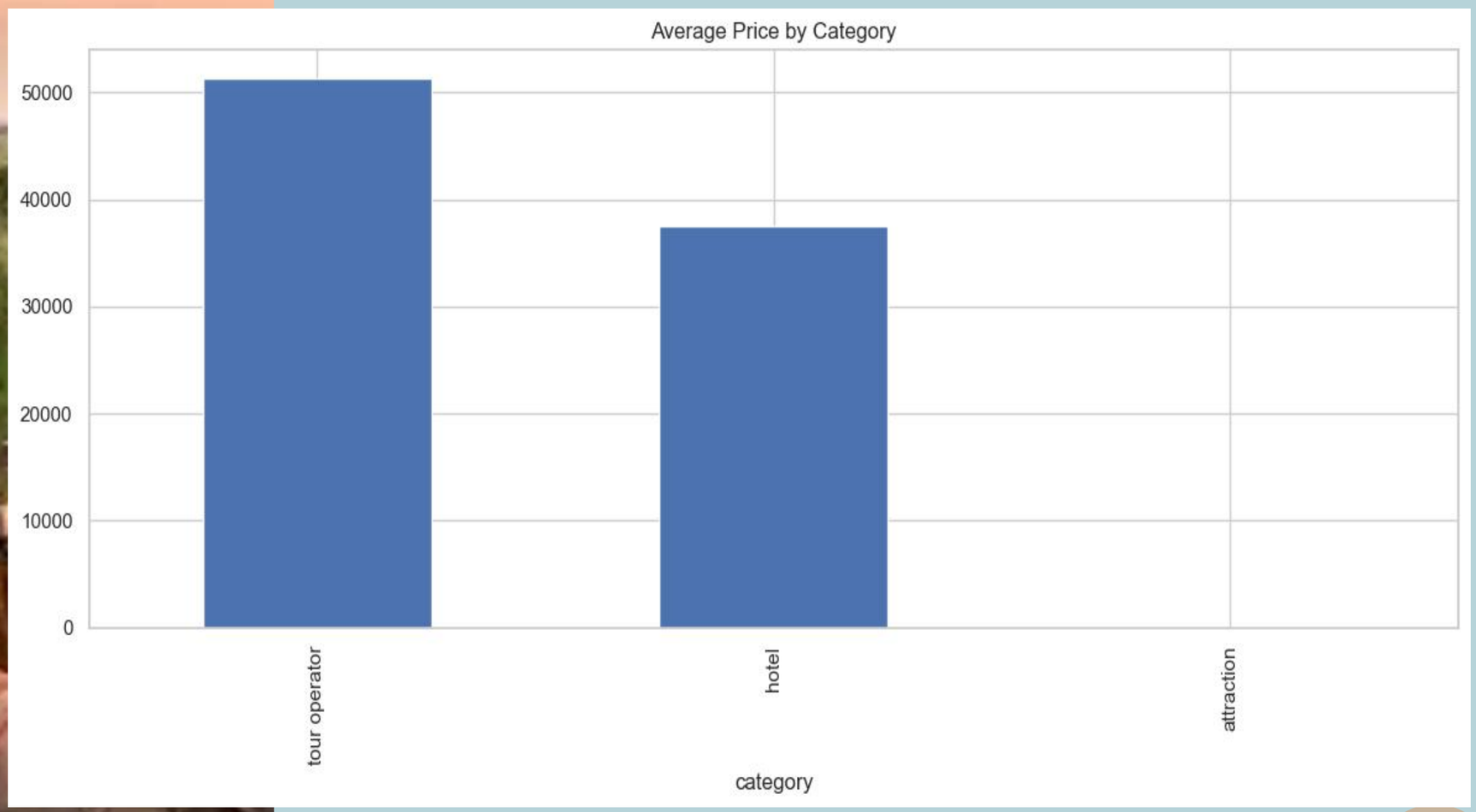
Coast Province, Nairobi and Rift Valley Province are the top three provinces with the most tourist attraction sites.



Tourist Attraction



The attraction and tour operator categories lack price data, and this presents a challenge. We will handle the issue by creating separate models for each category.



Modeling

Best Model: Tuned KNN Hotel Recommender

A hybrid recommendation system that combines NLP and content-based approaches to generate similar items.

```
Distance Metrics:

Average Mean Squared Error (MSE): 0.3309639568619343

Average Root Mean Squared Error (RMSE): 0.5752946695928395

Average Mean Absolute Error (MAE): 0.41681208879029213

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Classification Report:

              precision    recall  f1-score   support

 Not Similar       0.93      0.94      0.93       182
     Similar       0.62      0.58      0.60        31

    accuracy                           0.89       213
   macro avg       0.78      0.76      0.77       213
weighted avg       0.88      0.89      0.89       213
```

Conclusion

Our hotel recommendation system efficiently matches you with options that fit your budget and are close to your preferred location

Our model is designed to give you the best recommendations by finding options that are closely related to what you're looking for. It looks at past examples and picks out the ones that are most similar to your preferences

Recommendations

1. Model Tuning: Continue fine-tuning the KNN model to further reduce errors and improve classification metrics, particularly for the "Similar" class. This could involve adjusting the number of neighbors or using weighted distances.

2. Hybrid Model Approach: Consider combining the strengths of both KNN and Cosine Similarity models in a hybrid approach, where one model is used for initial filtering and the other for fine-tuning recommendations.

3. Provide real-time updates on local events, weather conditions, and special offers relevant to the traveler’s current or upcoming location.

4. Consider expanding the recommendation system to include data and insights from other countries.

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Thank You