Introducing PalatePioneer

Do you struggle with deciding what to cook? PalatePioneer uses advanced machine learning and artificial intelligence to recommend mouthwatering recipes based on the ingredients you have on hand and helps you focus your time and mind on the things that matter more.

How it Works

1

Data Collection

We gather extensive information about recipes and ingredients from various sources, including cookbooks, websites, and professional chefs using web scraping and various open source datasets.

2

Algorithm Development

We have developed a sophisticated model that analyzes the available ingredients and recommends recipes that match your preferences and dietary restrictions.

3

Machine Learning and AI Techniques

We use cutting-edge machine learning and AI techniques, such as NLP and pattern recognition, to improve the accuracy of our recipe recommendations over time.

Here's how it

```
[ ]  import numpy as np
     import pandas as pd
```

```
     rp = pd.read_csv('/content/Cleaned_Indian_Food_Dataset.csv')
     rp.head()
```

```
[ ]  rp['Cleaned-Ingredients'] = rp['Cleaned-Ingredients'].str.replace('(', ',')
     rp['Cleaned-Ingredients'] = rp['Cleaned-Ingredients'].str.replace(')', '')
     rp.head()
```

```
[ ]  rp['Cleaned-Ingredients'] = rp['Cleaned-Ingredients'].apply(lambda x:x.lower())
     rp.head()
```

```
[ ]  from sklearn.feature_extraction.text import TfidfVectorizer
     from sklearn.feature_extraction.text import CountVectorizer
     from sklearn.metrics.pairwise import cosine_similarity
```

The program imports the libraries numpy and pandas to import and handle data. We import a cleaned dataset involving several recipes and their ingredients. We replace any brackets with commas in ingredients to ensure that different names for same ingredients don't cause false negatives. We also convert all ingredients to lowercase. We then import different functions from different libraries to find similarities in dataset and draw vectors.

```
tfidf_vectorizer = TfidfVectorizer()
tfidf_matrix = tfidf_vectorizer.fit_transform(rp['Cleaned-Ingredients'])
user_input = input("Enter your preferred ingredients (separated by commas): ")
user_input = user_input.split(',')
user_input_vector = tfidf_vectorizer.transform([' '.join(user_input)])
similarities = cosine_similarity(user_input_vector, tfidf_matrix)
top_n = 10
top_indices = similarities.argsort()[0, ::-1][:top_n]
print("Recommended Recipes:")
for idx in top_indices:
    print(rp['TranslatedRecipeName'].iloc[idx])
```

```
cv = CountVectorizer(max_features = 500)
```

```
[ ] vectors = cv.fit_transform(rp['Cleaned-Ingredients']).toarray()
```

```
[ ] vectors
```

```
[ ] vectors[0]
```

```
[ ]
    similarity = cosine_similarity(vectors)
```

We use vectorization function to draw similarities between dishes based on ingredients used. The matching recipes are stored in an array. Out of this array we pick and display 10 dishes on random and display it's details in English including it's ingredients, recipe source, etc.

```
[ ]  def recommend(recepe):
         index = rp[rp['TranslatedRecipeName'] == recepe].index[0]
         distances = sorted(list(enumerate(similarity[index])),reverse=True,key = lambda x: x[1])
         for i in distances[1:11]:
             print(rp.iloc[i[0]].TranslatedRecipeName)
```

We then define a function which uses vectorization to identify ten closest dishes to the ones chosen and recommend them to users as well. This helps users find dishes similar to the ones they might find interesting or appetizing.

Benefits of the Website

1 **Time-saving**

Save time by finding recipes that utilize ingredients you already have, eliminating the need for last-minute grocery shopping.

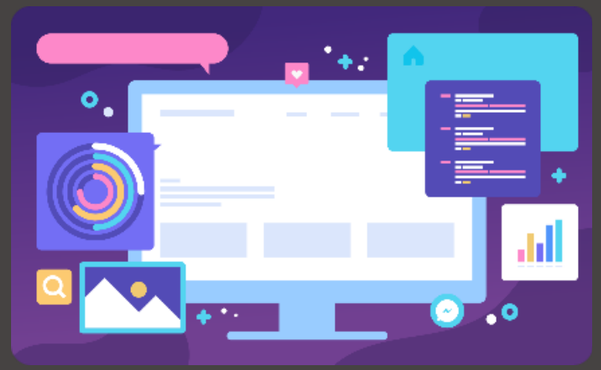
2 **Reduced Food Waste**

Minimize food waste by making the most of the ingredients already available in your kitchen.

3 **Discover New Recipes**

Expand your culinary repertoire by exploring exciting recipe options with the ingredients you already have.

User Experience



Intuitive Interface Design

Navigate our user-friendly website easily and effortlessly, ensuring a seamless user experience for all.

Searching and Filtering

Effortlessly input or select your available ingredients as well as dietary restrictions to ensure you receive the best possible recipes.

Recipe Recommendations

Discover enticing recipes that match your available ingredients, presented to you in a visually appealing and organized manner.

Future Developments and Challenges

Improving Accuracy and Efficiency

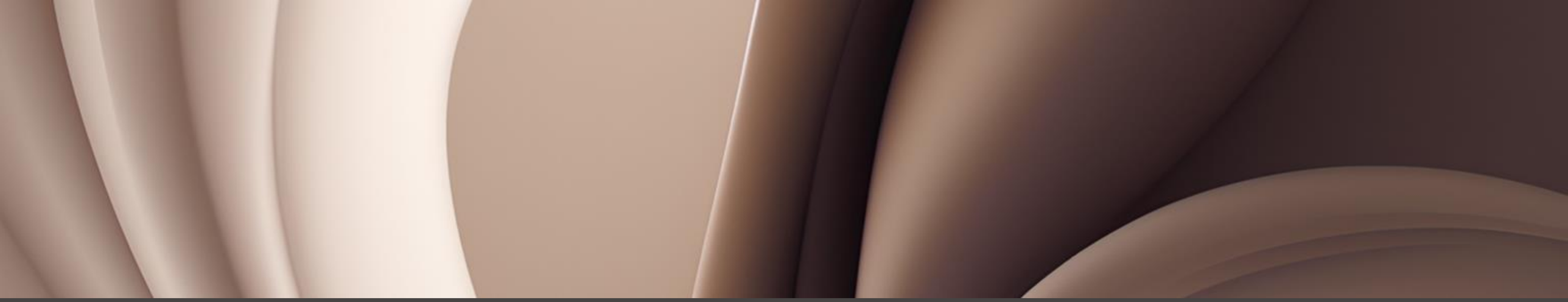
We will continue iterating on our algorithm and dataset to ensure greater accuracy and efficiency and provide our users with a stellar experience.

Expanding Ingredient Database

We plan to regularly add new recipes from different cuisines and different cultures to help our userbase experience different flavour avenues.

Overcoming Technical Limitations

Innovate and adapt to overcome technical challenges as we scale our website to accommodate a growing user base.



Conclusion

Using PalatePioneers, you can, not only, save on time and energy but also avoid waste and expand your food horizons. We help you connect with different cultures through cuisine and lead you on delectable journey like never before.