"Advanced Proposal of Indian Cuisine Recipe Based On Ingredients"

Prof. Rahul Bholel[1], *Mrunal Gaikwad[2]*, Hema Hadvale [3],

Tejaswini Mudholkar [4], Kavita Raskar [5]

[1]*Assistant Professor, Department of Information Technology,*

ZEAL College of Engineering and Research Narhe, Pune, Maharashtra, India

2345Student, Department of Information Technology,

ZEAL College of Engineering and Research Narhe, Pune, Maharashtra, India.

[1]*Assistant Professor, Department of Information Technology,*

ABSTRACT:

The Recipe Suggestion framework for Indian Delicacies is a framework that extracts from past tastes of a person's signature dishes to suggest real, untried dishes. The suggestion is mainly based on the content or ingredients that client already enjoyed it in the recipes. Indian Traditional food has traditionally been refreshing for its outstanding herbal and flavor use. Indian food is renowned for its wide range of dishes. The style of baking vary city to city and district and is usually divided into various region. Our country is highly renowned for its numerous quad foods that are available in countless resorts and inns that are reminiscent of harmony in a variety of ways. Throughout India, the staple nourishment involves various grains, the most important in chana which is also called as Bengal Gram. The Indian taste in food has seen a great deal of change over recent occasions. We set out the method which recommend Indian Delicacies recipes based on component/ingredients used and the taste for the Indian Delicacies.

KEYWORDS: Menu, Nutrition, Recipe Retrieval, Recipe Generation, Meal Graph.

INTRODUCTION:

There are many variants of Indian delicacies available with the same components. Modern delicacies in India consists of a large Variety of commonly available sauces, herbs, green vegetables. We set out a method which suggests Indian delicacies recipes based on the components used and the taste of the delicacies. To proposed this, we performed web crawling to create a compilation of the variations of the recipe ideas and then apply the content-based approach of machine learning algorithm to suggest the dishes. This framework is based on the advice of Indian Delicacies.

The problem listed above, like the cold start, needs to be dealt. One of the ways we can do this is to connect each person to their social media accounts and suggest meals that their friends want. Phenotypic differences can be tackled by developing better, more inclusive creepers. In the future, therefore, it will be possible to enhance the food recommendation by using hybrid approach [12] and web crawling methods where the extracted meta-data is more important. [13] Potential changes could include making suggestions on the basis of the geographical location where the delights originated, or on the basis of a chef whose dishes the client likes. The software could also use the client's location to recommend specialty dishes available in the nearby restaurants.

LITERATURE SURVEY:

Thakkar, Priyank introduced Various ways to merge UbCF and IbCF forecasts with a view to reducing overall prediction error. Author suggested an approach for combining UbCF and IbCF predictions by multiple linear regression (MLR) and vector regression support (SVR). [1]

Qian, Yongfeng, et al. "EARS: Authors proposed an emotion-aware recommender system based on hybrid information fusion in which three representative types of information are fused to comprehensively analyze the user's features [2]

Pereira, Nymphia The suggested cooperative filtering methods, i.e. user-user and item-item similarity with statistical filtering, were combined. [3]

Wang proposes a dichotomy model of shareholder-stock relationship based on the Spark GraphX distributed graph computing system and transforms the investment behavior of users (shareholders) into the ratings and trust of the invested stock using a certain financial theory. [4]

Zhao says we are proposing a new document representation system called fuzzy Bag-of-Words. (FBoW) [5]
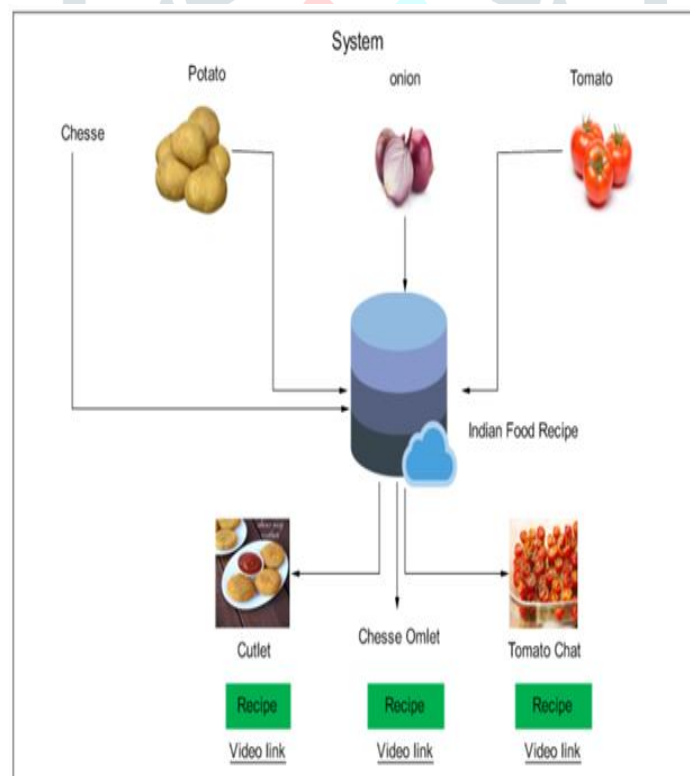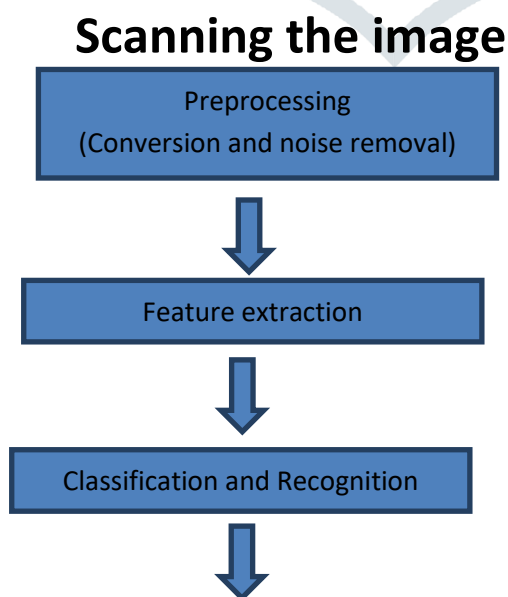
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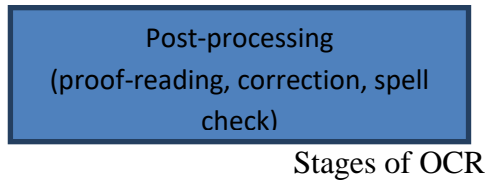

Fig 1:Architecture Diagram

The proposed method includes the process of proposing new kitchens to the customer .A comprehensive data collection of Indian dishes collected from the Internet, with comprehensive information on the ingredients and steps of each preparation, has been given to the system .For each customer, the framework stores dish he / she likes and tries to fit their ingredients with those in his / her list, and finally the framework suggest the best results

for the customer .It is a mixture of more than one recommendation technique to predict an object for users, of which the recommendation technique used is collaborative and content-based. Essentially, this overcomes the drawback of the limited user-item rating problem in collaborative filtering techniques and the issue of a cold start in content-based techniques. Foodie should require minimal feedback from the user, while still providing substantial information on the desired output. A server will be used to keep track of all food belonging to you. From this list, the ingredients will be checked when the user determines what kind of dish they want to make. The app will feature direct interaction with user feedback ingredients, so you'll know what ingredients you've got so you can prepare great meals. The system will show all kinds of vegetarian and non-vegetarian food. Recipe information will include details about a recipe, instructions on how to prepare a dish, ingredients, preparation time along with pictures of great food guides.

Algorithm

OCR: OCR consists of a number of steps, such as Image Scanning, Preprocessing, Segmentation, Feature Extraction, Detection and Recognition, Post Processing. The pre-processing job is to eliminate noise and image variance [3]. The image is taken in the scanning step. The accuracy of the image is very much dependent on the scanner being used. Scanned images are not suitable for practical applications .There may be some noise due to any unnecessary data in the image that may cause a disruption in the recognition of the characters in the image .Pre-processing requires the elimination of noise (applying filters such as Gaussian filter, Gabor filter, etc.) and the correct transformation of the image as a colored image can be transformed into a grayscale or a binary image for further processing of the picture .Feature extraction requires the identification of the necessary features. The stage of identification and recognition is the step of processing of the system. Upon completion of the OCR process, a variety of post-processing steps are needed depending on the request, e.g. labeling of meta-data documents (author, year, etc.) or proofreading of OCR errors and spelling errors [4].The OCR is still in study and a great deal of progress needs to be made in this field of engineering. The potential reach of this is OCR in mobile devices, recognition of handwriting, recognition of languages other than English (such as Arabic, Devanagari, Telugu text), extraction and storage of video files, processing and preservation of old documents, and many more.

Scanning the image

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┌─────────────────────────────┐
│        Preprocessing        │
│ (Conversion and noise removal)│
└─────────────────────────────┘
              ↓
┌─────────────────────────────┐
│      Feature extraction     │
└─────────────────────────────┘
              ↓
┌─────────────────────────────┐
│ Classification and Recognition│
└─────────────────────────────┘
              ↓
```

> Post-processing
> (proof-reading, correction, spell check)

Stages of OCR

Collaborative Filtering:

Collaborative filtering is used to customize suggestions based on the behavior of people of similar interest. Collaborative Item-based filtering is used as it works best for large data sets. The algorithm is the following:

List all the items with the given ratings to them by different users.

Calculate similarity between the items using Pearson correlation coefficient:

Where,

$$r(X,Y) = \frac{\sum_k (X_k - \overline{X})(Y_k - \overline{Y})}{\sqrt{\sum_k (X_k - \overline{X})^2 \sum_k (Y_k - \overline{Y})^2}}$$

X_k : Rating of person X for item k

$\overline{X}$: Mean Value of person X ratings

Y_k : Rating of person Y for item k

$\overline{Y}$: Mean Value of person Y ratings

Content-Based Filtering:

➢ Content-based Suggestion technology basically consist of matching up the characteristics of the user profile object, ultimately recommending the objects with the best match.
➢ The correct keyword or phrase is considered to be an attribute and its weights contribute to the importance of the relationship between the keywords and the text.
➢ There are different terms weighting schemes such as Word Frequency-Inverse Report Frequency Measurement.
➢ TF: It measures the frequency of a term in the document. Since the size of a document may vary, it will be futile to use simple count. Hence this count is normalized.
➢ TF(w) = (Number of times term w appears in a document) / (Total number of terms in the document).

Conclusion:

The Recommendation system helps users to make choices when looking for the most appropriate recipe using ingredients that they already have. The system makes it easier for the user to search for appropriate recipes according to their interest. Provides a diet map based on the individual's physical condition. The software saves time and has trouble looking for a product with minimum requirements. At the end of the day, it gives users personalized experience and is beneficial to everyone.

Future Scope:

The system then lets you either find a recipe by naming it or by entering the ingredients in the search box to make a custom search. If the text is selected as input, you will need to enter as many of the ingredients as you want in the query box. It cranks out a list of potential recipes that you can create using just what you've got or adding another product. Similarly, if a voice is selected as an input user, it is easy to search for recipes simply by saying ingredients by voice and finding great dishes. Finally, when the image is chosen, the user can click on the picture of the ingredients and post it in the search box. Results will be provided accordingly. The app also allows you to save your favorite recipes for further referral.

Reference

[1] A Hybrid Approach with Collaborative Filtering for Recommender Systems　Gilbert Badaro1, Hazem Hajj1, Wassim El-Hajj2, Lama Nachman3 1Electrical

[2] DISCOVERING THE IMPACT OF KNOWLEDGE IN RECOMMENDER SYSTEMS: A COMPARATIVE STUDY Bahram Amini1, Roliana Ibrahim2, MohdShahizan Othman3 1,2,3 Faculty of Computer Science and Information Systems, UniversitiTeknologi Malaysia (UTM), 81310 Malaysia.

[3] Role of Web Usage Mining Technique for Website Structure Redesign Sadik Khan*1, Dr. Yashpal Singh2, Dr. Kalpana Sharma3.

[4] A Framework for a Recommendation System Based On Collaborative Filtering and Demographics

[5] Data Engineered Content Extraction Studies for Indian Web Pages, Bhanu Prakash Kolla and Arun Raja Raman.