B.Tech.
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Project Title: Culinary Curator- An AI Powered Recipe Assistant

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Roadmap

- ❑ Introduction to the domain area/project
- ❑ Problem Statement
- ❑ Motivation and Impact (Societal /Environmental/Research)
- ❑ Purpose of the project
- ❑ Project Scope and Objectives
- ❑ Plan of action to complete the project
- ❑ References

Introduction to the domain

- Within the field of Artificial Intelligence and Natural Language Processing applied to the culinary domain or food-related applications.
- The project's focus lies at the intersection of AI-NLP and culinary arts, as it aims to leverage advanced technologies to provide personalized and relevant recipe recommendations to users.
- By understanding user input, analysing recipe data, and employing recommendation algorithms, the project falls under the domain of AI-powered recipe generation and recommendation systems.

Problem Statement

- Design and develop an AI-powered recipe recommendation system that generates personalized and diverse recipe suggestions based on user input of available ingredients.
- The system should leverage NLP techniques to process user input, analyse a comprehensive dataset of Indian recipes, and employ advanced recommendation algorithms to offer users a curated list of recipes that suit their dietary preferences and the ingredients they have on hand.
- The project aims to simplify recipe discovery, inspire culinary creativity, and promote efficient meal planning for users to reduce food waste and user expenses.

Motivation

- **Simplifying Meal Planning:** The project can simplify the meal planning process by suggesting recipes that align with the ingredients users already have at home, reducing the need for additional grocery shopping.
- **Personalized Cooking Experience:** The project can provide users with personalized recipe recommendations based on their dietary preferences, taste preferences, and cooking skill level, making the cooking experience more enjoyable and tailored to their needs.
- **Reducing Food Waste:** Food waste is a global concern, and a recipe recommendation system that suggests recipes based on available ingredients can help users make efficient use of their pantry items, reducing food waste and contributing to sustainable cooking practices.

Scope of the project

The project's scope encompasses the development of an AI-powered Indian recipe recommendation system that delivers personalized and diverse recipe suggestions based on users' dietary preferences and available ingredients. To achieve this, the system will utilize Natural Language Processing (NLP) techniques to process and analyze recipe descriptions, ingredients and cooking instructions. Recommendation algorithms will be implemented to suggest relevant and tailored recipes to users. The system will allow users to input their dietary restrictions and preferences, enabling personalized recipe suggestions that cater to individual needs. Additionally, the project will focus on matching user-provided ingredients with suitable recipes, encouraging efficient meal planning and reducing food waste. To enhance the user experience, nutritional information will be provided for each recipe.

Plan of Action

Month	Week	Task
August	Week 0-2	Setting up the programming environment, Recipe Data Collection, Cleaning & Preprocessing.
	Week 2-4	Implement NLP techniques for text processing and analysis of recipe descriptions. Begin building the recommendation system using suitable algorithms.
September	Week 0-2	Develop the user interface for inputting user preferences and available ingredients. Integrate user preferences and ingredients input with the recommendation systems.
	Week 2-4	Test basic version and implement advanced recommendation algorithms and filtering methods to improve the accuracy.
October	Week 0-2	Explore options for incorporating images from which ingredients can be identified using Computer Vision. Explore nutritional data integration to provide nutritional information
	Week 2-4	Test the system thoroughly with a large set of users for performance evaluation. Address any issues, bugs, or user feedback and make necessary refinements.

References

1. Yoshiyuki Kawano, Takanori Sato, Takuma Maruyama and Keiji Yanai ,"Mirurecipe:A Mobile Cooking Recipe Recommendation System With Food Ingredient Recognition" Department of Informatics, The University of ElectroCommunications, Tokyo 1-5-1 Chofugaoka, Chofu-shi, Tokyo, 182-8585 Japan.

2. Mayumi Ueda, Syungo Asanuma, Yusuke Miyawaki, and Shinsuke Nakajima ,"Recipe Recommendation Method by Considering the User's Preference and Ingredient Quantity of Target Recipe" , Proceedings of the International MultiConference of Engineers and Computer Scientists 2014 Vol I, IMECS 2014, March 12 - 14, 2014, Hong Kong.

3. Yu-Wen Lo, Qiangfu Zhao, Yu-Hsien Ting, and Rung-Ching Chen ," Automatic Generation and Recommendation of Recipes Based on Outlier Analysis", Graduate School of The University of Aizu Fukushima, Japan, Chaoyang University of Technology Taichung, Taiwan.

4. Jingjing Chen and Chong-Wah Ngo, "Deep-based Ingredient Recognition for Cooking Recipe Retrieval", City University of HongKong Kowloon, HongKong.

5. Tossawat Mokdara, Priyakorn Pusawiro & Jaturon Harnsomburana, "Personalized Food Recommendation Using Deep Neural Network", King Mongkut's University of Technology Thonburi, 2018 Seventh ICT International Student Project Conference (ICT-ISPC).

6. Madhu Kumari & Tajinder Singh,"Food Image To Cooking Instructions Conversion Through Compressed Embeddings Using Deep Learning", National Institute of Technology Hamirpur,H.P.,Chandigarh University ,INDIA Punjab,INDIA, 2019 IEEE 35th International Conference on Data Engineering Workshops(ICDEW).

7. Asami Yajima & Ichiro Kobayashi ," Easy Cooking Recipe Recommendation Considering User's Conditions", Proceedings of the 2009 IEEE/WIC/ACM International Conference on Web Intelligence and International Conference on Intelligent Agent Technology – Workshops, Milan, Italy, 15-18 September 2009.

8. Asbat El Khairi ,"MYRecipeBook APP",School Of Science & Engineering -Al Akhawayn University,2017.