FeastFusion: A Recipe Recommendation System

Submitted in the partial fulfillment of the requirements

for the degree of B.Tech in Computer Engineering

by

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Department of Computer Engineering

Ramrao Adik Institute of Technology

Sector 7, Nerul, Navi Mumbai

(Under the ambit of D. Y. Patil Deemed to be University)

November 2023

Ramrao Adik Institute of Technology

(Under the ambit of D. Y. Patil Deemed to be University)

Dr. D. Y. Patil Vidyanagar, Sector 7, Nerul, Navi Mumbai 400 706

CERTIFICATE

This is to certify that, the Mini Project-III report entitled

FeastFusion: A Recipe Recommendation System

is a bonafide work done by

Mr. Khushal Bhalia (21CE1171))

Mr. Utkarsh Upase (21CE1196)

Mr. Amey Sawant (21CE1153)

Mr. Aditya Raj (21CE1156)

and is submitted in the partial fulfillment of the requirement for the degree of

B.Tech in Computer Engineering

to the

D. Y. Patil Deemed to be University

Supervisor	Project Co-ordinator
(Mr. Pramod H. Kachare)	**(Mrs. Sumithra T.V.)**
Head of Department	Principal
(Dr. Amarsinh V. Vidhate)	**(Dr. Mukesh D. Patil)**

Mini Project Report - III Approval

This is to certify that the Mini Project - III entitled ***"Feast Fusion: A Recipe Recommendation System"*** is a bonafide work done by ***Khushal Bhalia (21CE1171)***, ***Utkarsh Upase (21CE1196)*** , ***Amey Sawant (21CE1153)*** , and ***Aditya Raj (21CE1156)*** under the supervision of ***Mr. Pramod H. Kachare***. This Mini Project is approved in the partial fulfillment of the requirement for the degree of ***B.tech in Computer Engineering***

Internal Examiner :

1. .....

2. .....

External Examiners :

1. .....

2. .....

Date : .../.../.....

Place : .....

DECLARATION

I declare that this written submission represents my ideas and does not invovle plagiarism. I have adequately cited and referenced the original sources wherever others' ideas or words have been included. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action against me by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Date: _____

Mr. Khushal Bhalia (21CE1171))

Mr. Utkarsh Upase (21CE1196)

Mr. Amey Sawant (21CE1153)

Mr. Aditya Raj (21CE1156)

Abstract

”Feast Fusion” is an innovative platform that reimagines the cooking experience by offering personalized recipe recommendations to users based on their dietary preferences, available ingredients, and culinary skills.

With a strong emphasis on mitigating food waste and fostering culinary exploration, Feast Fusion utilizes advanced data science techniques, including the TF-IDF algorithm, to curate tailored meal ideas and streamline the meal planning process.

It works by providing a list of most used ingredients which people can choose from or they can enter an ingredient of their own. Then leveraging the technology of data science we show them the closest recipe they can make with the input ingredients.

Feast Fusion seeks to revolutionize the way people approach cooking, promoting mindful consumption and sustainable food practices on a global scale.

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Chapter 1

Introduction

1.1 Overview

”Feast Fusion” is a pioneering platform designed to revolutionize the cooking experience by providing personalized recipe recommendations. With a focus on minimizing food waste and fostering culinary exploration, Feast Fusion leverages cutting-edge technologies to offer tailored meal ideas based on users' dietary preferences, available ingredients, and cooking skills. By streamlining the meal planning process and encouraging healthier eating habits, Feast Fusion aims to make cooking an enjoyable and efficient endeavor for individuals with varying levels of culinary expertise.

Data science plays a pivotal role in the functioning of Feast Fusion, enabling the platform to curate customized recipe recommendations for users. By implementing the TF-IDF (Term Frequency-Inverse Document Frequency) algorithm, the platform can analyze user input, ingredient data, and recipe attributes to provide tailored suggestions. Data science also facilitates the effective management of the recipe dataset, allowing for the extraction of valuable insights regarding cooking times, nutrition information, and user preferences. Through the integration of data science methodologies, Feast Fusion strives to enhance the user experience and promote sustainable cooking practices.[1]

1.2 Motivation

The motivation behind the development of Feast Fusion stems from the need to empower individuals in their culinary pursuits while addressing the global challenge of food waste. By offering a user-friendly platform that caters to diverse dietary needs and culinary preferences, Feast Fusion seeks to foster a culture of mindful consumption and culinary exploration. With an emphasis on promoting healthier eating habits and reducing the environmental impact of food wastage, the project aims to inspire users to embrace cooking as a creative and sustainable practice.

1.3 Problem Statement and Objectives

In the fast-paced modern lifestyle, individuals often encounter difficulties in planning meals that align with their dietary preferences, available ingredients, and cooking proficiency. This results in increased food waste and contributes to the broader issue of global hunger. The lack of a comprehensive and user-friendly recipe recommendation system further compounds these challenges, making it challenging for individuals to make informed and sustainable cooking choices. Feast Fusion seeks to address these issues by providing a robust and personalized solution that simplifies the meal planning process and encourages users to explore diverse culinary options.

Objectives:

- Recommends recipes based on ingredients, dietary preferences, and cooking skills.
- Users can input and manage available ingredients for tailored recommendations.
- Aims to inspire culinary exploration and healthier eating habits.
- Offers search and filtering options by cuisine, dietary restrictions, and ingredients.
- Provides detailed recipe info, including ingredients, steps, prep time, and nutrition

Chapter 2

Literature Survey

2.1 Survey of Existing System

***Food Network:-**

Established 2017

Features:-

- It is one of the most trusted sources of culinary information
- Has a backing of experienced and talented gourmet experts
- Incorporates classic and modern food recipes

Figure 2.1: Food Network Logo

***Yummly:-**

Established 2013

Features:-

- Features outstanding video
- Fun and easy to use website
- Ability to create meal plans based on diet restriction and allergies
- User rated recipes

***Edamam :-**

Established:2020

Features:-

- Great filtering features
- Identify' s a recipe ingredients and its nutritional content
- Offers link to recipes for cooking instruction

Figure 2.2: Edaman Logo

2.2 Limitations of Existing System

***Food Network:-**

Limitations:-

- Tons of information on this website, making it challenging to sort through
- Some complain that the site doesn't update their content regularly
- Difficult recipes
- URL:https://www.foodnetwork.com/

***Yummly:-**

Limitations:-

- You need to sign up to share recipes
- Filters are only visible once you sign up
- More professional recipes
- URL:-https://www.yummly.com/

***Edamam :-**

Limitations:-

- You need a paid subscription to access premium features
- Not so user friendly
- Offers link of recipes rather than recipes itself
- Difficult recipes
- https://www.edamam.com

Chapter 3

Proposed System

3.1 Problem Statement

- In today's fast-paced world, people face meal planning challenges and the need to find recipes that match their dietary preferences, ingredients, and culinary skills.
- This calls for a user-friendly, personalized recipe recommendation system.
- Project Aim: Develop a robust recipe recommendation system using TF-IDF algorithm to empower users in overcoming culinary challenges.

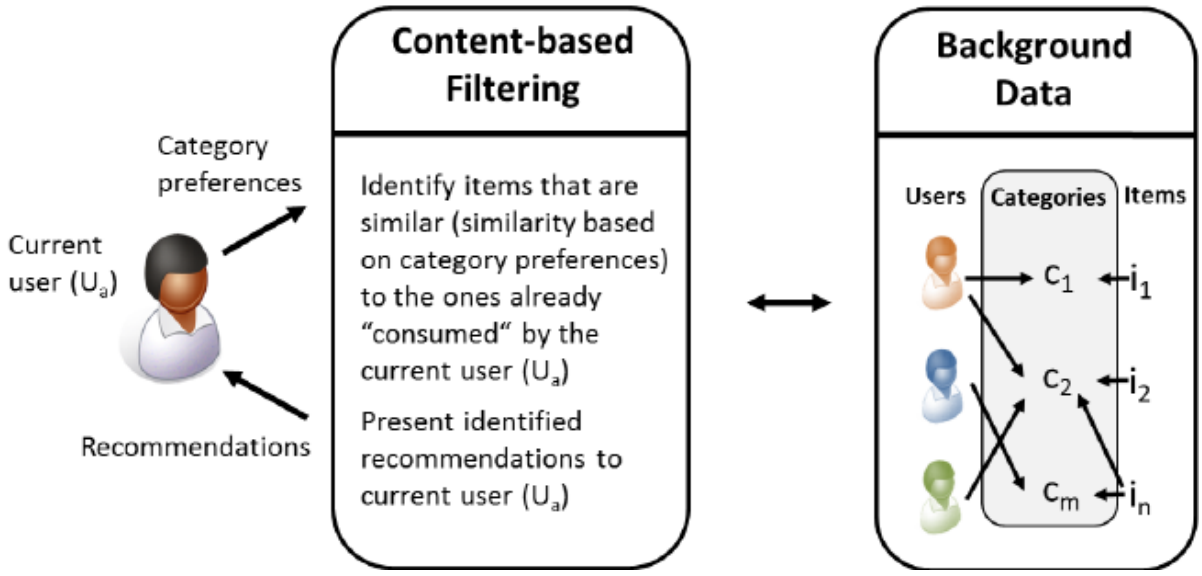


Figure 3.1: Content based recommendation

3.2 Proposed Methodology/Technology

- **HTML** is the standard markup language used to create web pages. It structures content on the web by using a system of elements and tags.
- **CSS** is a stylesheet language used for describing the presentation and formatting of web documents written in HTML.
- **PHP** is a server-side scripting language that is widely used for web development. It is especially well-suited for building dynamic and interactive web applications.
- **SQL** is a domain-specific language used for managing and manipulating relational databases.
- **XAMPP** is a popular open-source software package that simplifies the process of setting up a local development environment for web development.
- **Recipe Dataset:** This dataset is perfect for researchers who are interested in exploring recipe recommendations, nutrition data, and cooking times.
- **TF-IDF** is a numerical statistic used in natural language processing and information retrieval to evaluate the importance of a word or term within a document relative to a collection of documents (corpus). TF-IDF is a content and collaborative based filtering algorithm.
- **Flask** is a lightweight web framework for Python. It is designed to make getting started quick and easy, with the ability to scale up to complex applications. Flask is classified as a micro-framework because it does not require particular tools or libraries.

3.3 System Design

Feast Fusion operates through a user-friendly interface where users input their dietary preferences, available ingredients, and cooking skills. Leveraging the TF-IDF algorithm, the system analyzes user data and a comprehensive recipe dataset to provide tailored recipe recommendations. Users can explore search and filtering options based on cuisine, dietary restrictions, and ingredients. The platform offers detailed recipe information, including ingredients, steps, prep time, and nutrition facts, empowering users to make informed cooking decisions.[2]

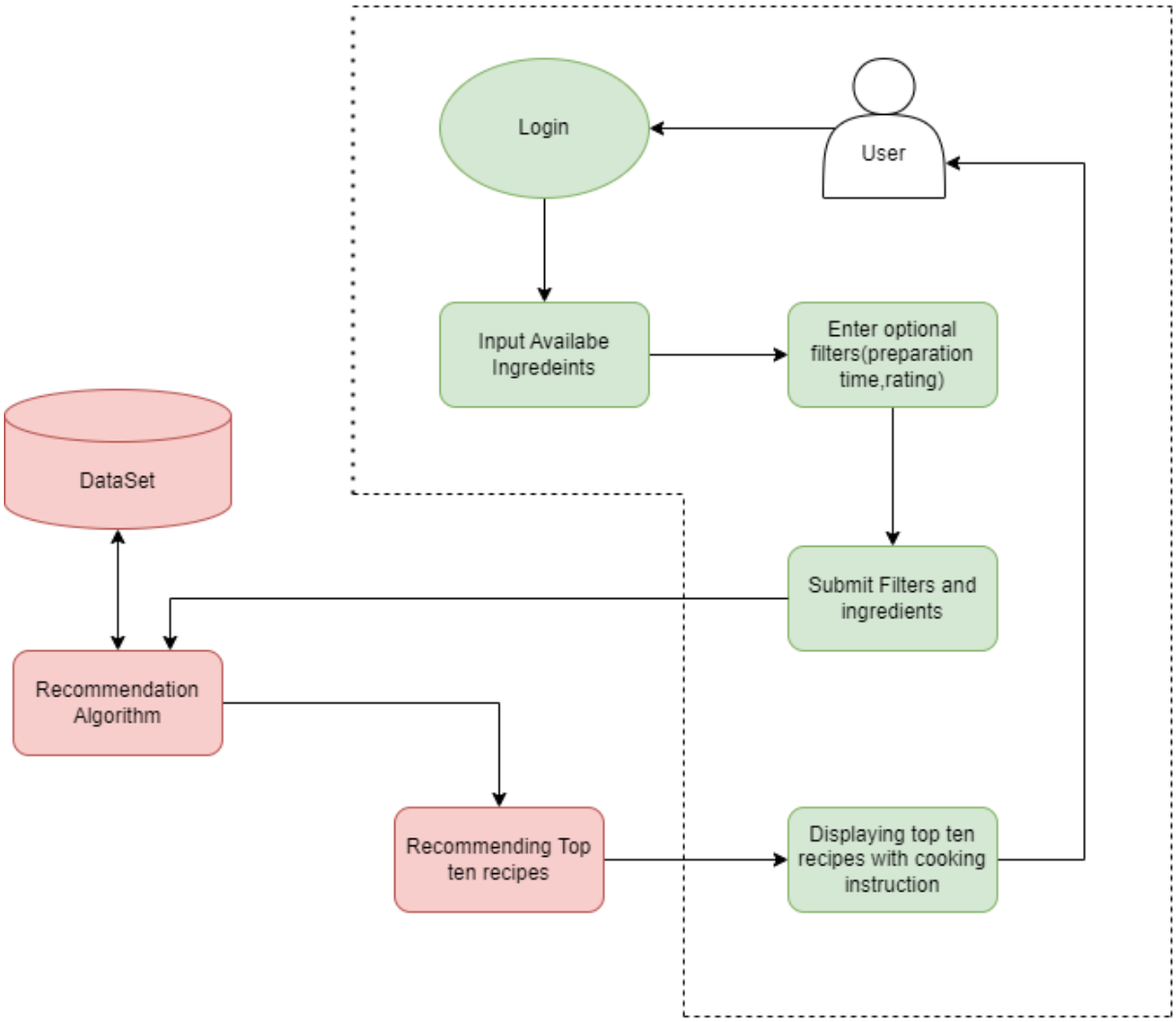


Figure 3.2: System Design

3.4 Details of Hardware/Software Requirement

- **Operating System:-**

  Most modern web browsers are compatible with various operating systems, including Windows, macOS, Linux, iOS, and Android. Users should ensure their operating system is up to date.

- **Web Browser:-**

  Users should use an up-to-date web browser that supports the latest web technologies, as your website may incorporate features that require modern browser support.

Chapter 4

Results and Discussion

4.1 Implementation Details

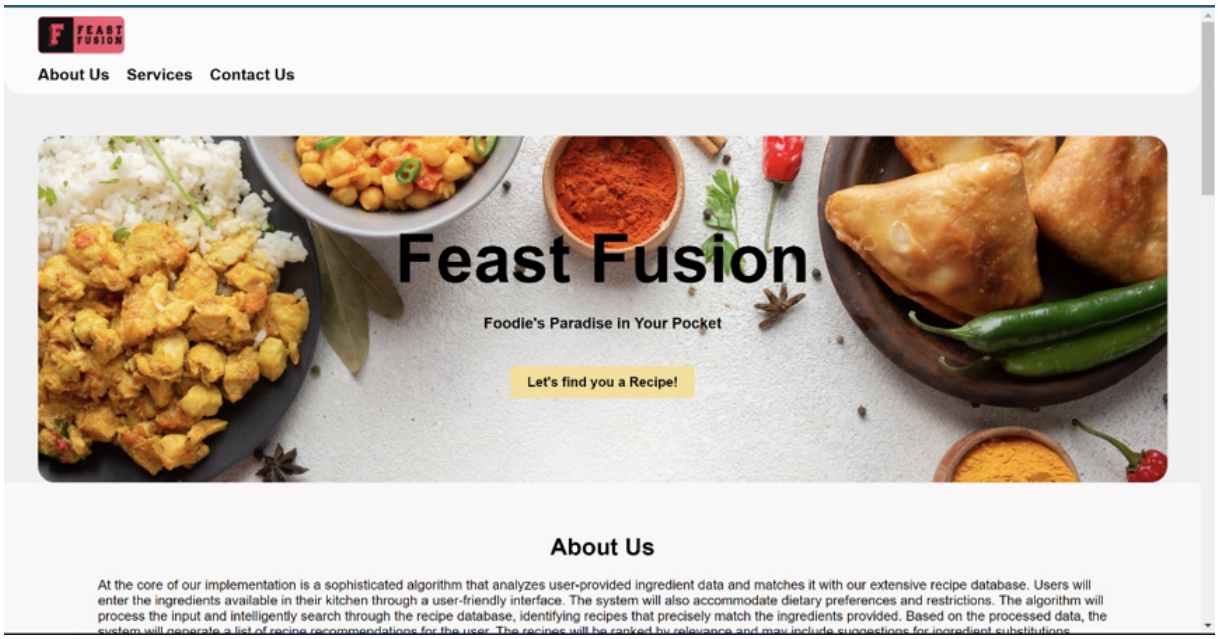


Figure 4.1: Home Screen

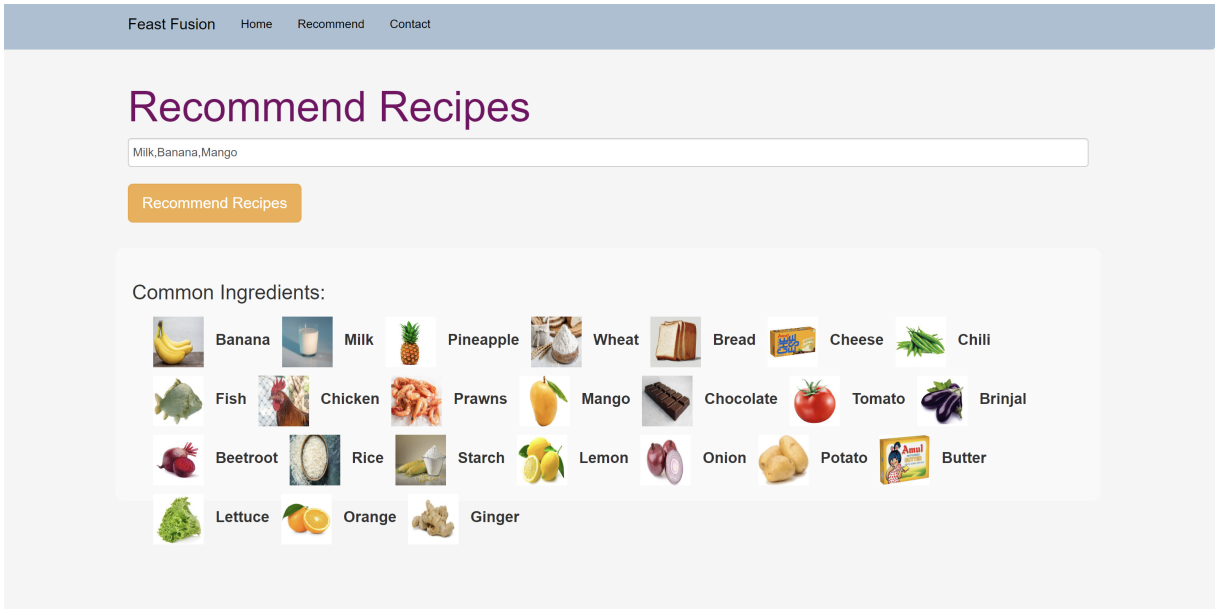


Figure 4.2: Select Ingredients page

Here the list of all the widely used ingredients in recipes is shown . The user choose from any of these ingredients which are available with him/her. Once the chooses the ingredients either by directly clicking on the image or by typing the ingredient by themselves if it is not present in the list, and clicks the submit button, then a list of ten recipes are displayed on the screen which matches the most with the ingredients chosen by the user. The recipes are displayed in the format such that the one which is closest, is shown first. The user can view any recipe by clicking on the view complete recipe option which redirects the web page to another website where the whole recipe is displayed.[3]

The dataset we have used contains the recipes and ingredients of around 1100 recipes with their ingredients, preparation time, cooking time, serving size, rating and image of the recipe. It also contains a link which shows in detail the complete steps to make the desired recipe.

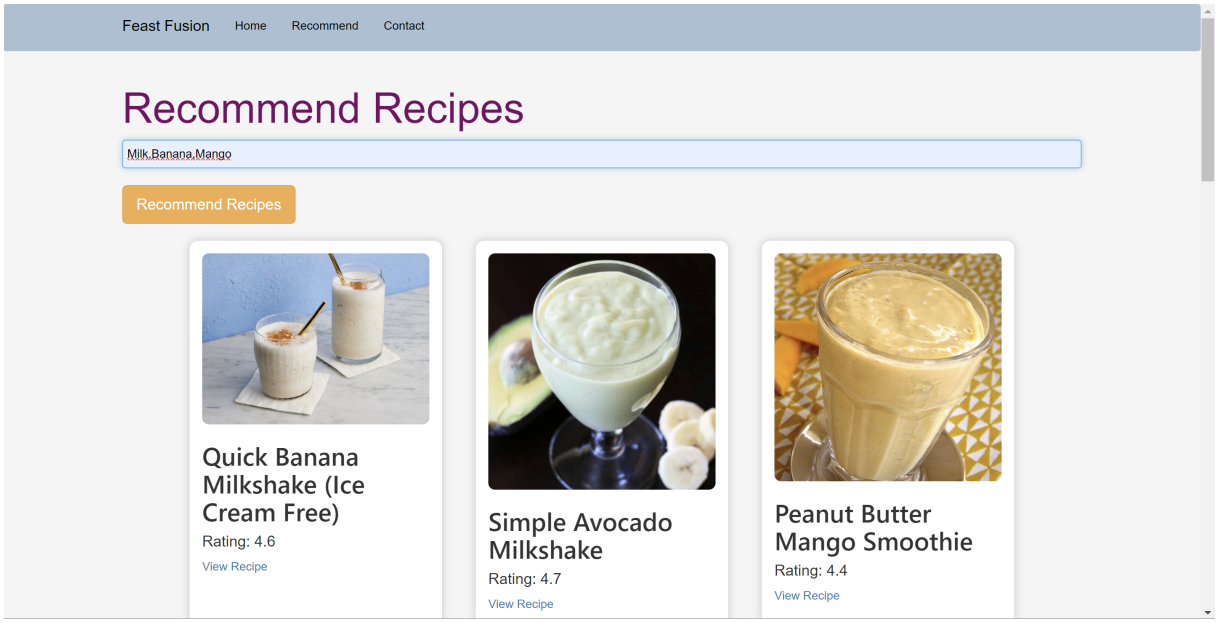
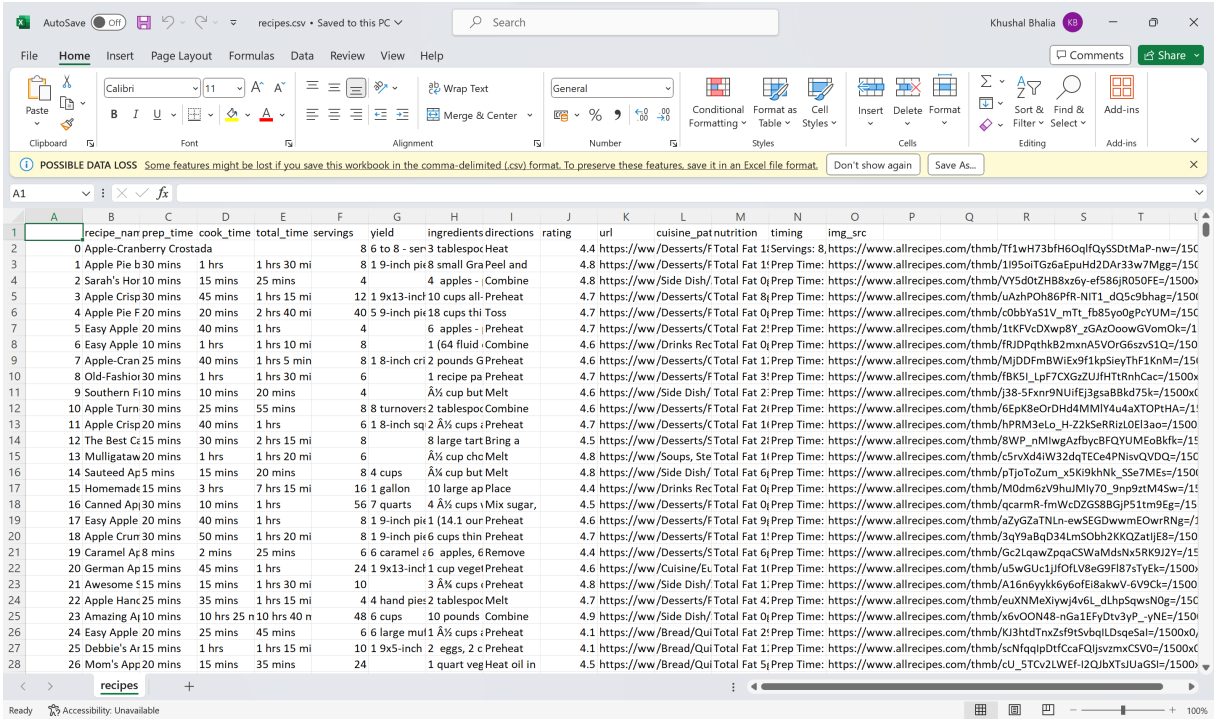


Figure 4.3: Recommended Recipes based on Ingredients

4.2 Result Analysis

Feast Fusion operates through a user-friendly interface where users input their dietary preferences, available ingredients, and cooking skills. Leveraging the TF-IDF algorithm, the system analyzes user data and a comprehensive recipe dataset to provide tailored recipe recommendations.

Users can explore search and filtering options based on cuisine, dietary restrictions, and ingredients. The platform offers detailed recipe information, including ingredients, steps, prep time, and nutrition facts, empowering users to make informed cooking decisions. Through its intuitive design and data-driven approach, Feast Fusion simplifies the meal planning process, fosters culinary exploration, and promotes sustainable cooking practices.



	recipe_nam	prep_time	cook_time	total_time	servings	yield	ingredients	directions	rating	url	cuisine_pat	nutrition	timing	img_src
0	Apple-Cranberry Crostada				8	6 to 8 - sen	3 tablespoo	Heat	4.4	https://ww	/Desserts/F	Total Fat 1	Servings: 8,	https://www.allrecipes.com/thmb/Tf1wH73bfH6OqlfQySSDtMaP-nw=/150
1	Apple Pie b	30 mins	1 hrs	1 hrs 30 mi	8	1 9-inch pie	8 small Gra	Peel and	4.8	https://ww	/Desserts/F	Total Fat 1	Prep Time:	https://www.allrecipes.com/thmb/1I95oiTGz6aEpuHd2DAr33w7Mgg=/150
2	Sarah's Hor	10 mins	15 mins	25 mins	4	4	apples - (	Combine	4.8	https://ww	/Side Dish/	Total Fat 0	Prep Time:	https://www.allrecipes.com/thmb/VY5d0tZHB8xz6y-ef586jR050FE=/1500x
3	Apple Crisp	30 mins	45 mins	1 hrs 15 mi	12	1 9x13-inch	10 cups all-	Preheat	4.7	https://ww	/Desserts/C	Total Fat 8	Prep Time:	https://www.allrecipes.com/thmb/uAzhPOh86PfR-NiT1_dQ5c9bhag=/150
4	Apple Pie F	20 mins	20 mins	2 hrs 40 mi	40	5 9-inch pie	18 cups thi	Toss	4.7	https://ww	/Desserts/F	Total Fat 0	Prep Time:	https://www.allrecipes.com/thmb/c0bbYaS1V_mTt_fb85yo0gPcYUM=/150
5	Easy Apple	20 mins	40 mins	1 hrs	4		6 apples - (	Preheat	4.7	https://ww	/Desserts/C	Total Fat 2	Prep Time:	https://www.allrecipes.com/thmb/1tKFVcDXwp8Y_zGAzOoowGVomOk=/1
6	Easy Apple	10 mins	1 hrs	1 hrs 10 mi	8		1 (64 fluid	Combine	4.6	https://ww	/Drinks Rec	Total Fat 0	Prep Time:	https://www.allrecipes.com/thmb/fRJDPqthkB2mxnA5VOrG6szvS1Q=/150
7	Apple-Cran	25 mins	40 mins	1 hrs 5 min	8	1 8-inch cri	2 pounds G	Preheat	4.6	https://ww	/Desserts/C	Total Fat 1	Prep Time:	https://www.allrecipes.com/thmb/MjDDFmBWiEx9f1kpSieyThF1KnM=/15
8	Old-Fashio	30 mins	1 hrs	1 hrs 30 mi	6		1 recipe pa	Preheat	4.7	https://ww	/Desserts/F	Total Fat 3	Prep Time:	https://www.allrecipes.com/thmb/fBK5I_LpF7CXGzZUJfHTtRnhCac=/1500x
9	Southern Fi	10 mins	10 mins	20 mins	4		Â½ cup but	Melt	4.6	https://ww	/Side Dish/	Total Fat 2	Prep Time:	https://www.allrecipes.com/thmb/j38-5Fxnr9NUifEj3gsaBBkd75k=/1500x
10	Apple Turn	30 mins	25 mins	55 mins	8	8 turnovers	2 tablespoo	Combine	4.6	https://ww	/Desserts/F	Total Fat 2	Prep Time:	https://www.allrecipes.com/thmb/6EpK8eOrDHd4MMlY4u4aXTOPtHA=/1
11	Apple Crisp	20 mins	40 mins	1 hrs	6	1 8-inch sq	2 Â½ cups	Preheat	4.7	https://ww	/Desserts/C	Total Fat 1	Prep Time:	https://www.allrecipes.com/thmb/hPRM3eLo_H-Z2kSeRRizL0El3ao=/1500
12	The Best Ca	15 mins	30 mins	2 hrs 15 mi	8		8 large tart	Bring a	4.5	https://ww	/Desserts/S	Total Fat 2	Prep Time:	https://www.allrecipes.com/thmb/8WP_nMlwgAzfbycBFQYUMEoBkfk=/15
13	Mulligataw	20 mins	1 hrs	1 hrs 20 mi	6		Â½ cup chc	Melt	4.8	https://ww	/Soups, Ste	Total Fat 1	Prep Time:	https://www.allrecipes.com/thmb/c5rvXd4iW32dqTECe4PNisvQVDQ=/150
14	Sauteed Ap	5 mins	15 mins	20 mins	8	4 cups	Â¾ cup but	Melt	4.8	https://ww	/Side Dish/	Total Fat 6	Prep Time:	https://www.allrecipes.com/thmb/pTjoToZum_x5Ki9khNk_SSe7MEs=/150
15	Homemade	15 mins	3 hrs	7 hrs 15 mi	16	1 gallon	10 large ap	Place	4.4	https://ww	/Drinks Rec	Total Fat 0	Prep Time:	https://www.allrecipes.com/thmb/M0dm6zV9huJMly70_9np9ztM4Sw=/15
16	Canned Ap	30 mins	10 mins	1 hrs	56	7 quarts	4 Â½ cups	Mix sugar,	4.5	https://ww	/Desserts/F	Total Fat 0	Prep Time:	https://www.allrecipes.com/thmb/qcarmR-fmWcDZGS8BGjP51tm9Eg=/15
17	Easy Apple	20 mins	40 mins	1 hrs	8	1 9-inch pie	1 (14.1 our	Preheat	4.6	https://ww	/Desserts/F	Total Fat 9	Prep Time:	https://www.allrecipes.com/thmb/aZyGZaTNLn-ewSEGDwwmEOwrRNg=/1
18	Apple Crun	30 mins	50 mins	1 hrs 20 mi	8	1 9-inch pie	6 cups thin	Preheat	4.7	https://ww	/Desserts/F	Total Fat 1	Prep Time:	https://www.allrecipes.com/thmb/3qY9aBqD34LmSObh2KKQZatljE8=/150
19	Caramel Ap	8 mins	2 mins	25 mins	6	6 caramel a	6 apples, 6	Remove	4.4	https://ww	/Desserts/S	Total Fat 6	Prep Time:	https://www.allrecipes.com/thmb/Gc2LqawZpqaCSWaMdsNx5RK9J2Y=/15
20	German Ap	15 mins	45 mins	1 hrs	24	1 9x13-inch	1 cup veget	Preheat	4.6	https://ww	/Cuisine/Eu	Total Fat 1	Prep Time:	https://www.allrecipes.com/thmb/u5wGUc1jJfOfLV8eG9Fl87sTyEk=/1500x
21	Awesome S	15 mins	15 mins	1 hrs 30 mi	10		3 Â¾ cups	Preheat	4.8	https://ww	/Side Dish/	Total Fat 1	Prep Time:	https://www.allrecipes.com/thmb/A16n6yykk6y6ofEi8akwV-6V9Ck=/1500
22	Apple Hanc	25 mins	35 mins	1 hrs 15 mi	4	4 hand pies	2 tablespoo	Melt	4.7	https://ww	/Desserts/F	Total Fat 4	Prep Time:	https://www.allrecipes.com/thmb/euXNMeXiywj4v6L_dLhpSqwsN0g=/150
23	Amazing Ap	10 mins	10 hrs 25 n	10 hrs 40 n	48	6 cups	10 pounds	Combine	4.9	https://ww	/Side Dish/	Total Fat 0	Prep Time:	https://www.allrecipes.com/thmb/x6vOON48-nGa1EFyDtv3yP_-yNE=/150
24	Easy Apple	20 mins	25 mins	45 mins	6	6 large mul	1 Â½ cups	Preheat	4.1	https://ww	/Bread/Qui	Total Fat 2	Prep Time:	https://www.allrecipes.com/thmb/KJ3htdTnxZsf9t5vbqlLDsqeSaI=/1500x0
25	Debbie's Ar	15 mins	1 hrs	1 hrs 15 mi	10	1 9x5-inch	2 eggs, 2 c	Preheat	4.1	https://ww	/Bread/Qui	Total Fat 1	Prep Time:	https://www.allrecipes.com/thmb/scNfqqlpDtfCcaFQIjsvzmxCSV0=/1500x0
26	Mom's App	20 mins	15 mins	35 mins	24		1 quart veg	Heat oil in	4.5	https://ww	/Bread/Qui	Total Fat 5	Prep Time:	https://www.allrecipes.com/thmb/cU_5TCv2LWEf-I2QJbXTsJUaGSI=/1500x

Figure 4.4: Recipe Dataset

Chapter 5

Conclusion and Future Work

In conclusion, the development and implementation of the Feast Fusion platform have marked a significant step forward in revolutionizing the cooking experience for individuals worldwide. By leveraging data science methodologies, advanced algorithms, and a user-centric approach, Feast Fusion has successfully addressed the challenges associated with personalized recipe recommendations, food waste reduction, and culinary exploration. The platform's user-friendly interface, comprehensive recipe database, and effective recommendation system have empowered users to make informed and sustainable cooking choices, fostering a culture of mindful consumption and culinary creativity.

Future efforts will focus on:

- **Enhancing Algorithm Accuracy:** Continuously refining and optimizing the recommendation algorithms to further improve the accuracy and relevance of recipe suggestions.
- **Introducing Advanced Dietary Analysis:** Implementing more sophisticated dietary analysis tools to accommodate a broader range of dietary preferences and restrictions.
- **Expanding Recipe Database:** Continuously updating and expanding the platform's recipe database to include a more extensive variety of cuisines and cooking styles, catering to diverse user preferences.[4]
- **Integrating Community Engagement Features:** Incorporating interactive community features to facilitate user collaboration, recipe sharing, and culinary knowledge exchange.
- **Implementing Mobile Application Support:** Developing a mobile application version of Feast Fusion to enhance accessibility and user convenience.

References

[1] S. Chhipa, V. Berwal, T. Hirapure, and S. Banerjee, "Recipe recommendation system using tf-idf," in *ITM Web of Conferences*, vol. 44, p. 02006, EDP Sciences, 2022.

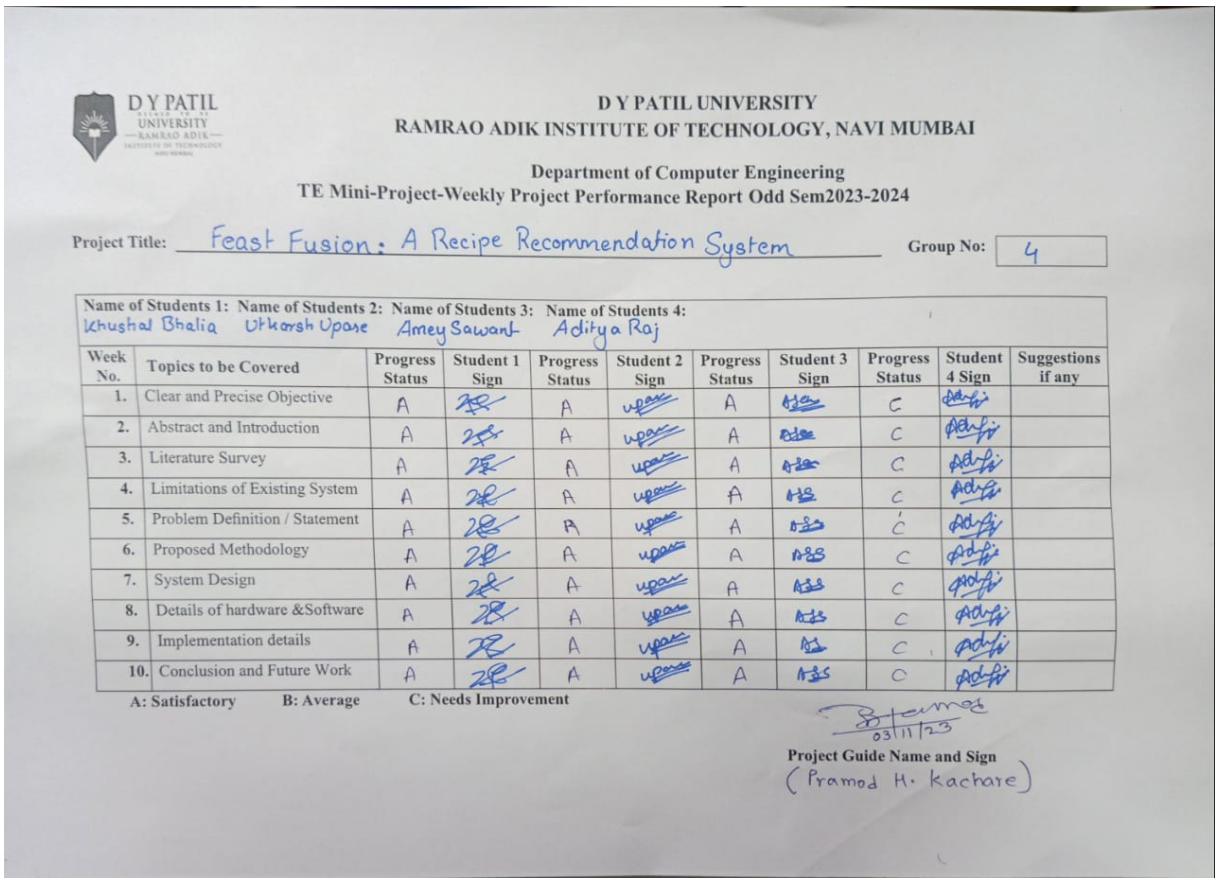
[2] M. Ueda, S. Asanuma, Y. Miyawaki, and S. Nakajima, "Recipe recommendation method by considering the users preference and ingredient quantity of target recipe," in *Proceedings of the international multiconference of engineers and computer scientists*, vol. 1, pp. 12–14, 2014.

[3] J. Basilico and T. Hofmann, "Unifying collaborative and content-based filtering," in *Proceedings of the twenty-first international conference on Machine learning*, p. 9, 2004.

[4] N. Shino, R. Yamanishi, and J. Fukumoto, "Recommendation system for alternative-ingredients based on co-occurrence relation on recipe database and the ingredient category," in *2016 5th IIAI international congress on advanced applied informatics (IIAI-AAI)*, pp. 173–178, IEEE, 2016.

Appendix A

Weekly Progress Report



D Y PATIL UNIVERSITY
RAMRAO ADIK INSTITUTE OF TECHNOLOGY, NAVI MUMBAI

Department of Computer Engineering
TE Mini-Project-Weekly Project Performance Report Odd Sem2023-2024

Project Title: Feast Fusion: A Recipe Recommendation System Group No: 4

Name of Students 1:	Name of Students 2:	Name of Students 3:	Name of Students 4:
Khushal Bhalia	Utkarsh Upase	Amey Sawant	Aditya Raj

Week No.	Topics to be Covered	Progress Status	Student 1 Sign	Progress Status	Student 2 Sign	Progress Status	Student 3 Sign	Progress Status	Student 4 Sign	Suggestions if any
1.	Clear and Precise Objective	A		A		A		C		
2.	Abstract and Introduction	A		A		A		C		
3.	Literature Survey	A		A		A		C		
4.	Limitations of Existing System	A		A		A		C		
5.	Problem Definition / Statement	A		A		A		C		
6.	Proposed Methodology	A		A		A		C		
7.	System Design	A		A		A		C		
8.	Details of hardware &Software	A		A		A		C		
9.	Implementation details	A		A		A		C		
10.	Conclusion and Future Work	A		A		A		C		

A: Satisfactory B: Average C: Needs Improvement

03/11/23

Project Guide Name and Sign
(Pramod H. Kachare)

Figure A.1: Weekly Progress Report

Appendix B

Plagiarism Report

Report

ORIGINALITY REPORT

26%
SIMILARITY INDEX

PRIMARY SOURCES

1	rapidapi.com Internet	111 words — 6%
2	www.coursehero.com Internet	110 words — 6%
3	mafiadoc.com Internet	76 words — 4%
4	dev.to Internet	38 words — 2%
5	pdfcoffee.com Internet	35 words — 2%
6	www.stuvia.com Internet	19 words — 1%
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8	acmindia-studentchapters.in Internet	16 words — 1%
9	core.ac.uk Internet	16 words — 1%
10	repository.iiitd.edu.in Internet	

Figure B.1: Plagiarism Report

		16 words — 1%
11	royallib.com Internet	15 words — 1%
12	www.wps.com Internet	13 words — 1%
13	www.hanovernh.org Internet	12 words — 1%
14	escholarship.org Internet	11 words — 1%
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16	dspace.daffodilvarsity.edu.bd:8080 Internet	9 words — < 1%

EXCLUDE QUOTES	OFF	EXCLUDE SOURCES	< 9 WORDS
EXCLUDE BIBLIOGRAPHY	ON	EXCLUDE MATCHES	OFF

Figure B.2: Plagiarism Report

Appendix C

Project Competitions

D Y PATIL UNIVERSITY
RAMRAO ADIK INSTITUTE OF TECHNOLOGY NAVI MUMBAI

SMART INDIA HACKATHON 2023

CERTIFICATE
OF PARTICIPATION

INTERNAL HACKATHON

THIS CERTIFICATE IS AWARDED TO

Khushal Bhalia

OF TEAM Green Origins

FOR PARTICIPATING IN INTERNAL HACKATHON HELD ON
MONDAY, 25TH SEPTEMBER 2023
AT RAMRAO ADIK INSTITUTE OF TECHNOLOGY, NERUL, NAVI MUMBAI - 400706.

Dr. Chandrakant J. Gaikwad
SPOC SIH & HoD
Ramrao Adik Institute of Technology
Nerul, Navi Mumbai - 400706.

Dr. Mukesh D. Patil
Principal
Ramrao Adik Institute of Technology
Nerul, Navi Mumbai - 400706.

Figure C.1: Khushal Bhalia- Smart India Hackathon

D Y PATIL UNIVERSITY
RAMRAO ADIK INSTITUTE OF TECHNOLOGY NAVI MUMBAI

SMART INDIA HACKATHON 2023

CERTIFICATE
OF PARTICIPATION

INTERNAL HACKATHON

THIS CERTIFICATE IS AWARDED TO

Utkarsh Upase

OF TEAM Ascendants

FOR PARTICIPATING IN INTERNAL HACKATHON HELD ON
MONDAY, 25TH SEPTEMBER 2023
AT RAMRAO ADIK INSTITUTE OF TECHNOLOGY, NERUL, NAVI MUMBAI - 400706.

Dr. Chandrakant J. Gaikwad
SPOC SIH & HoD
Ramrao Adik Institute of Technology
Nerul, Navi Mumbai - 400706.

Dr. Mukesh D. Patil
Principal
Ramrao Adik Institute of Technology
Nerul, Navi Mumbai - 400706.

Figure C.2: Utkarsh Upase- Smart India Hackathon

Figure C.3: Amey Sawant- Smart India Hackathon

Figure C.4: Aditya Raj- Smart India Hackathon

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