Recipe Book Website

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Introduction

1. To contribute to open source Recipe book website taken from github which consists of different kinds of recipes which is just displayed as a list.
2. This website needs a login and registration page and Machine Learning to recommend related recipes.

Review of Literature

Sr. no	Title	Methodology	Gaps/ Future scope
1.	Recipe Recommendation System using Content-Based Filtering	In this system, The input given to the model is in the form of text. Content-based filtering is used to give recommendations based on user preferences based on the user profile and are based on item descriptions. It enables recommendation recipes to people based on the attributes (ingredients) the user provides.It then outputs the top-N most similar recipes, along with their ingredients for the user to choose from.	To use Image Processing to detect substances. Advanced machine learning algorithms to assist consumers in more intelligently discovering new recipes utilizing readily available ingredients.

Review of Literature

Sr. no	Title	Methodology	Gaps/ Future scope
2.	Recipe Recommendation Method by Considering the User's Preference and Ingredient Quantity of Target Recipe	Our method estimates a user's food preferences from his/her past actions,such as through their recipe browsing and cooking history.We have proposed a recipe recommendation method based on the user's food preferences, that breaks down into their ingredients and scores them on the basis of the frequency of use and specificity of the ingredients.	We will try to consider the aspects for calculating recipe score in our future work. It also lacks health related concerns regarding food ingredients.

Review of Literature

Sr. no	Title	Methodology	Gaps/ Future scope
3.	RECIPE RECOMMENDATION SYSTEM BASED ON FOOD INGREDIENTS	In this paper, input is taken from user and the BMI is calculated after taking inputs of height and weight. After that if you select food preferences then the recipes list will be generated.Knn (K nearest Neighbor) algorithm is used to design this approach.	Only takes height and weight as the input which is not sufficient. In the future, various medical inputs like diabetic or not can be taken and accordingly recipes can be recommended.

Problem Definition

To contribute to recipe book website in order to improve the current websites features like GUI, add login page , provide recommendation using Machine Learning.

Project Objectives

The objective of our project is to contribute towards an interactive website for recipe book.

We are using Ml Algorithm “KNN” to predict recipes using food items from the drop down menu.

Scope of Project

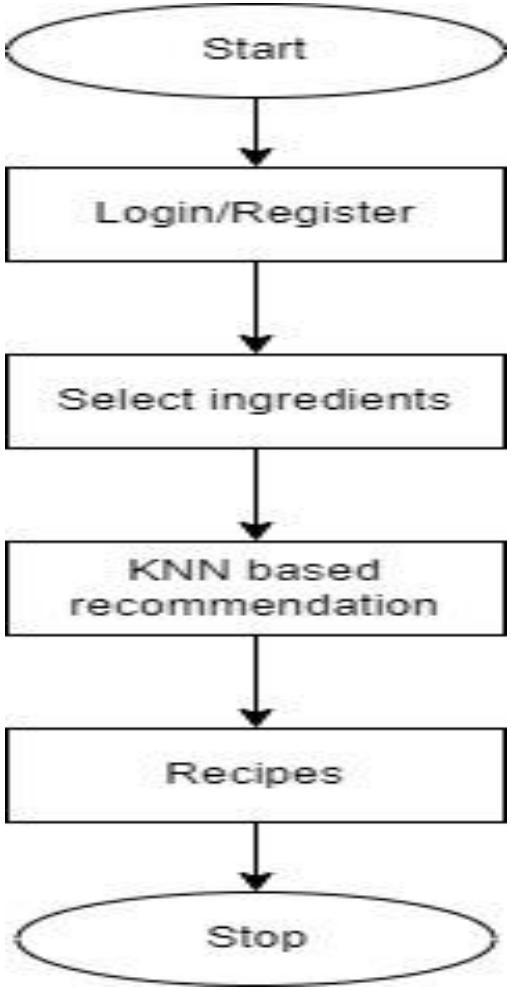
The scope of the project is to recommend recipe based on ingredients.

Based on the ingredients the user will be able cook recipe according to available food items in the drop down menu
of the website.

Proposed Solution

1. To add Bootstrap for better alignment of provided recipes.
2. To create login/sign up page to keep track on users.
3. To recommend recipes to user using Machine learning algorithm like “KNN” algorithm.

System Description



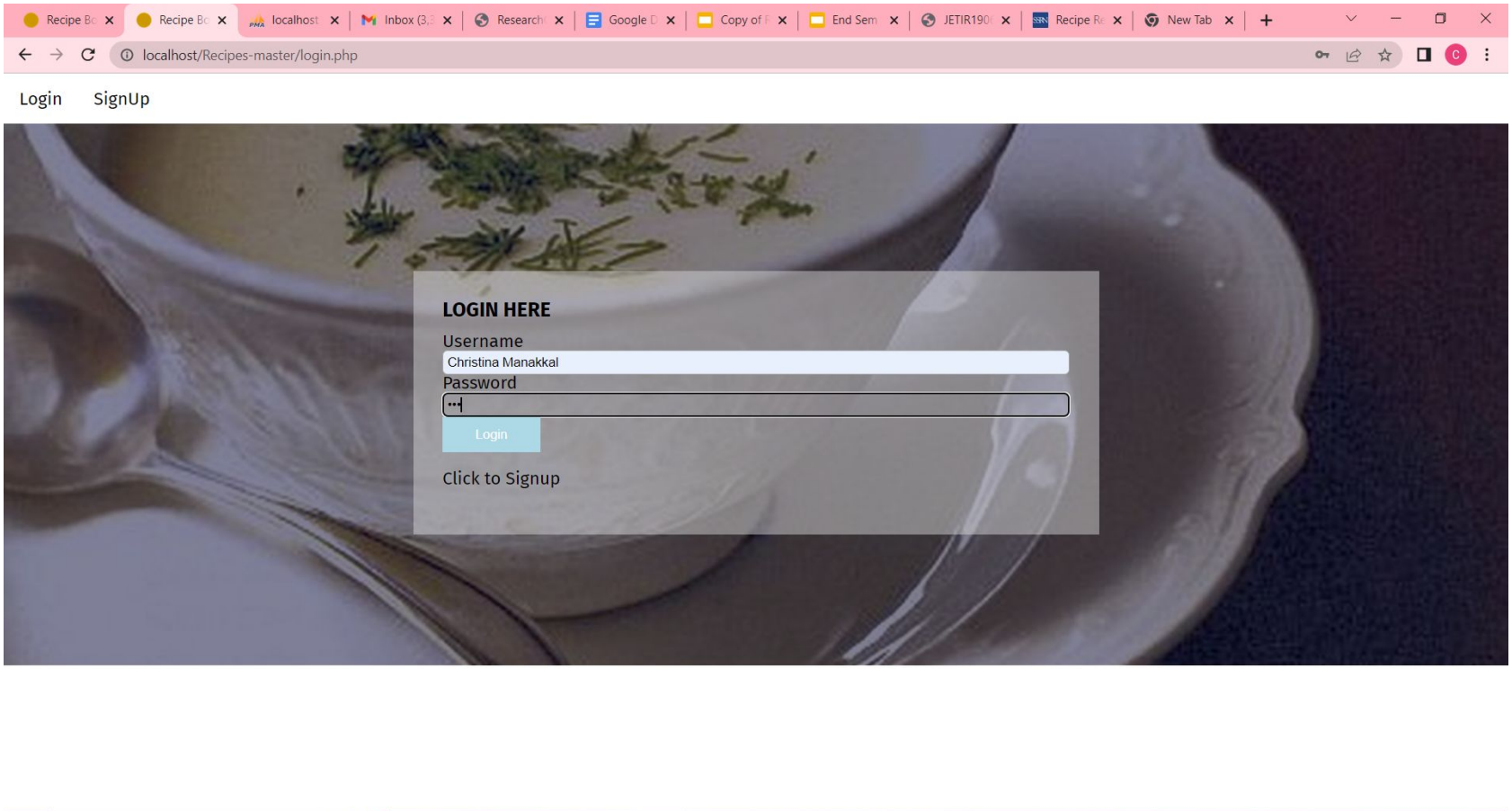
Hardware & Software Requirements

Hardware :-
64-bit PC/Laptop
2/4/8 GB RAM
i3/i5 processor

Software :-
Backend-
OS: Windows 7 or above
Browser: Chrome/Firefox/Edge/Brave
Application: VS code, MySQL Database
Frontend-
HTML
CSS
PHP
Bootstrap

Implementation

Login Page



Implementation

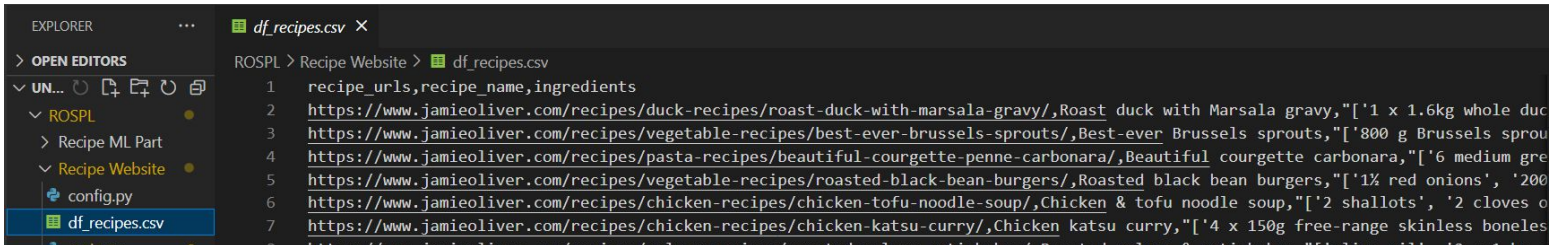
Using BeautifulSoup library from bs4 module to extract html data from original website.

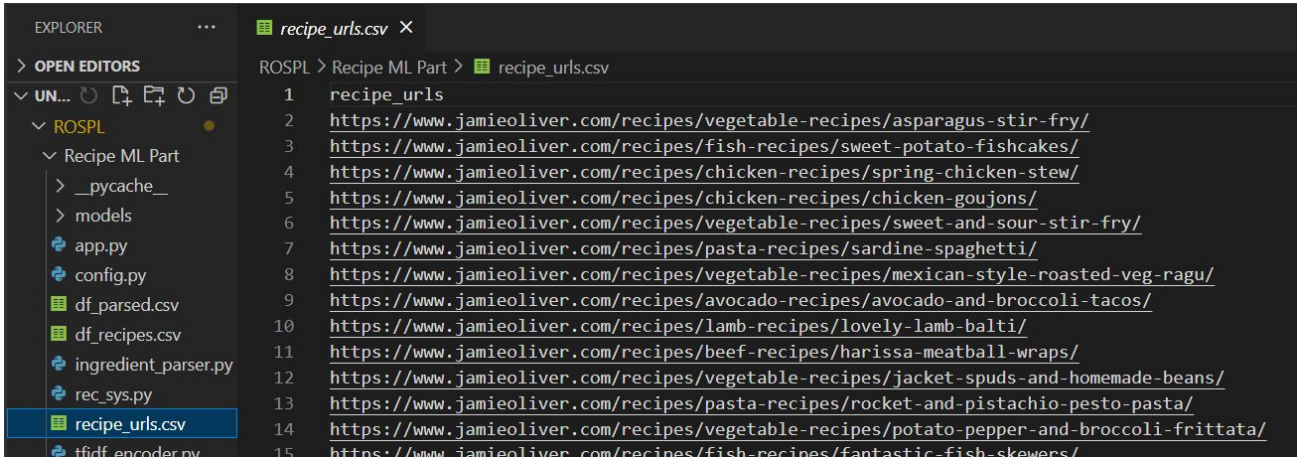
ROSPL > Recipe Website > main.py > ...

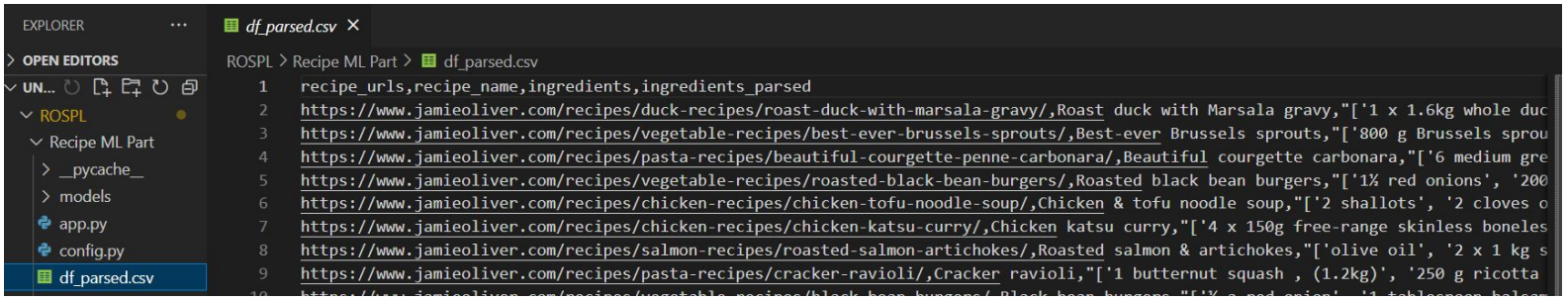
```python
# Import the required libraries
import pandas as pd
from bs4 import BeautifulSoup
import requests
import time

import numpy as np
import re

# Define the url in python
url = "http://jeffreythompson.org/recipes/"

# Fetching html from the website
page = requests.get(url)


# Initializing DataFrame to store the scraped URLs
recipe_url_df = pd.DataFrame()

# BeautifulSoup enables to find the elements/tags in a webpage
soup = BeautifulSoup(page.text, "html.parser")
#print(soup)

```


Implementation

Scraping and saving data from website into .csv files.







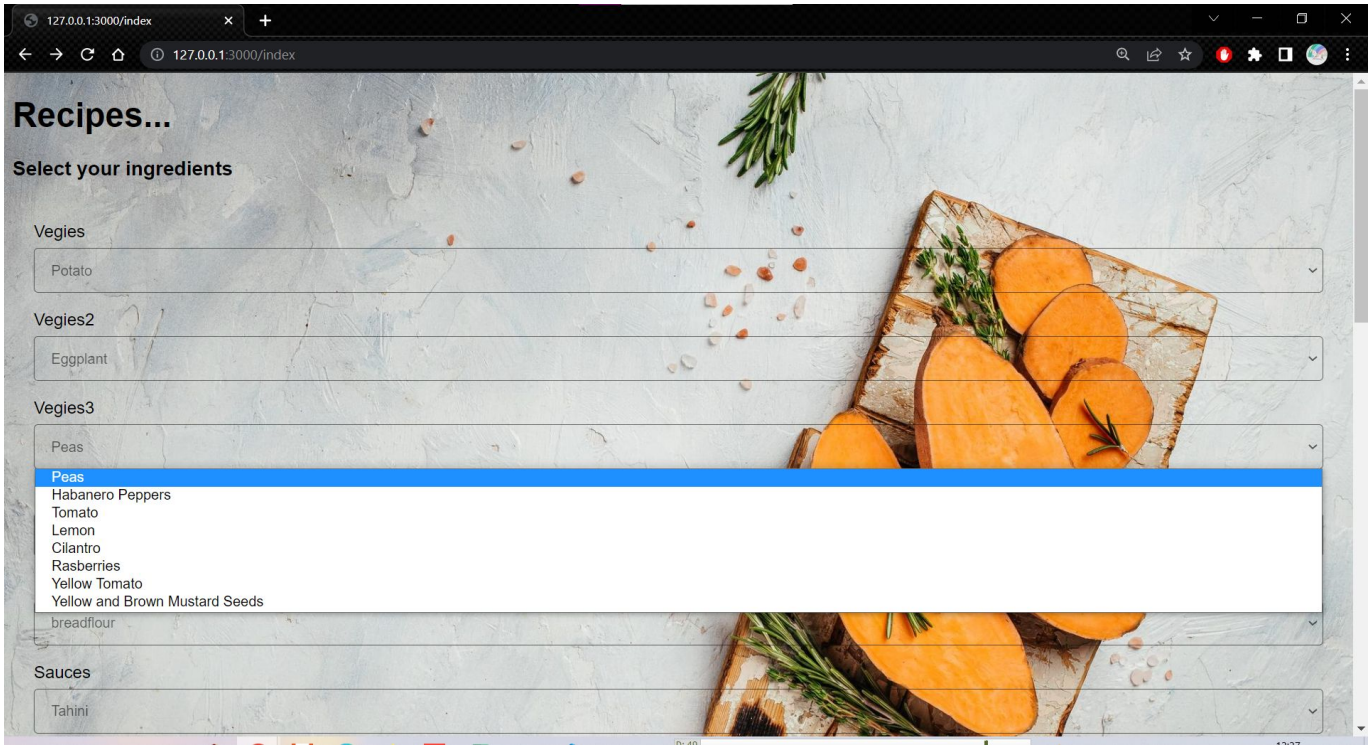
Implementation

- This application simply consists of text data and there is no kind of ratings available, so we can not use matrix decomposition methods, such as SVD and correlation coefficient-based methods.
- So we used ‘Cosine similarity’ to get a score.

$$\text{cosine similarity} = S_C(A,B) := \cos(\theta) = \frac{\mathbf{A}\cdot\mathbf{B}}{\|\mathbf{A}\|\|\mathbf{B}\|} = \frac{\sum_{i=1}^{n} A_i B_i}{\sqrt{\sum_{i=1}^{n} A_i^2}\sqrt{\sum_{i=1}^{n} B_i^2}},$$

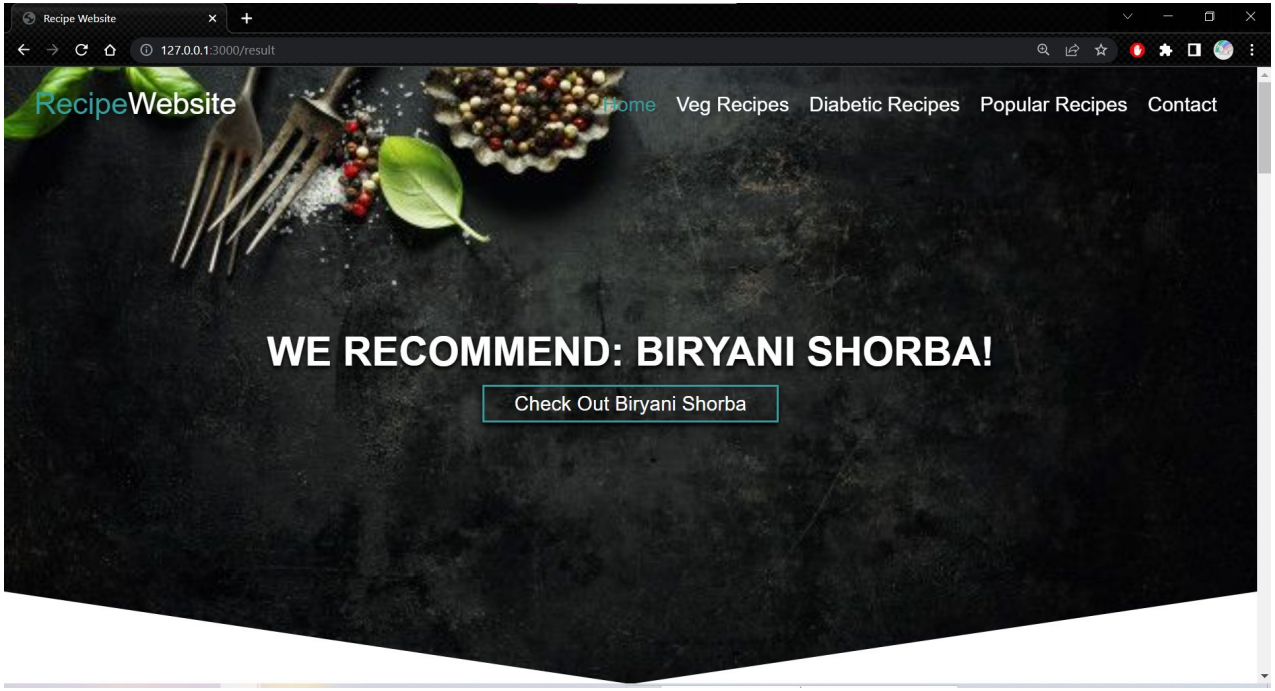
Implementation

Display data on webpage.
Users can enter the ingredients to get recommended recipes which contain those ingredients.



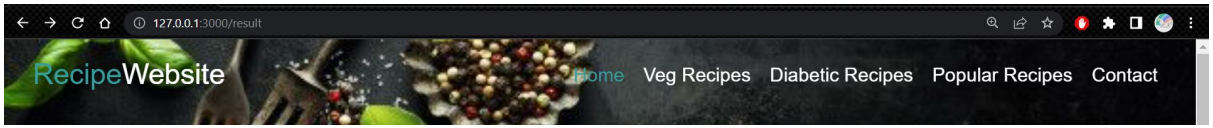
Implementation

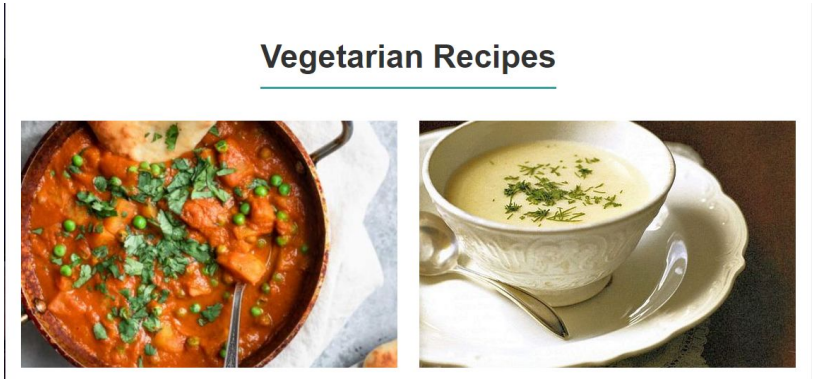
Process input given by user, apply KNN algorithm and display recommendations.

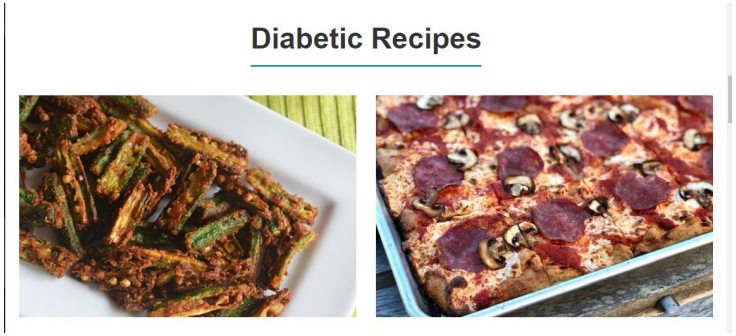


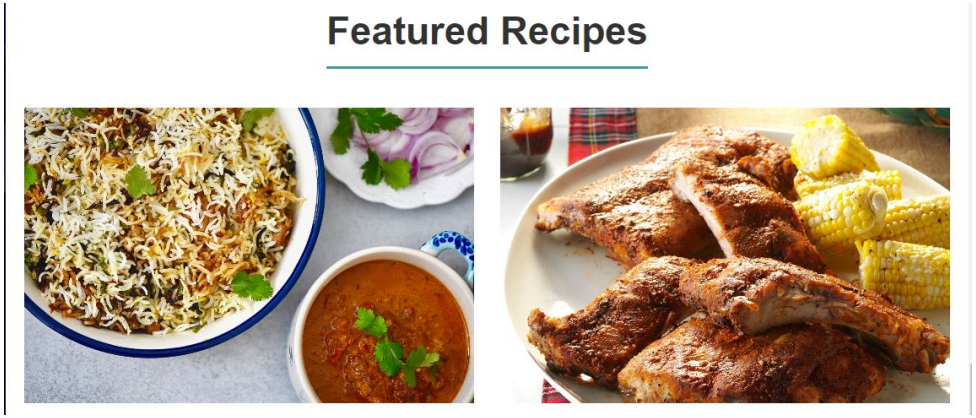
Implementation

Display various tabs









Conclusion

We contributed to a recipe book website from github by making it more efficient by adding HTML/CSS to the website, Login/sign up page and ML based recommendation system for recommending recipes using KNN algorithm.

References

1. RECIPE BOOK. Accessed on: 5 Aug,2022. Available: https://github.com/jeffThompson/Recipes
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Questions??

Thank You!