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NUTRITION ASSISTANT APPLICATION

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1. INTRODUCTION

The objective of this study is to identify dietary self-monitoring implementation strategies on a mobile application. Nutritional knowledge is essential for promoting good eating habits since it ensures that necessary nutrient requirements are metto avoid malnutrition.

Wellness and healthy lifestyles have become mainstream. Interest in fitness applications and revenue from them grow as fast as the number of people striving tobe fit.

2. **PROJECT OVERVIEW**

This project aims at building a web App that automatically estimates food attributes such as ingredients and nutritional value by classifying the input image of food. Our method employs **Clarifai's AI- DrivenFood Detection Model for** accurate food identification and Food API's to give the nutritional value of the identified food.

3. PURPOSE

You can automatically calculate the nutritional information for any recipe, analyze recipe costs, visualize ingredient lists, find recipes for what's in your fridge, find recipes based on special diets, nutritional requirements, or favorite ingredients, classify recipes into typesand cuisines, convert ingredient amounts, or even compute an entire meal plan.

LITERATURE SURVEY

Study on manufacture inventories:

It is the most comprehensive study on manufacturers' inventories. They used the CMI data and the consolidated balance sheet data of public limited companies published by the RBI, in order to analyses each of the major components, like the raw materials, goods-in-process and finished goods, for 21 industries over the period ranging from 1946-62. The study was a time series one although there were some inter-industry cross-section analyses that were carried out in the analysis. The Accelerator represented by change in sales, bank finance and short-term interest rate was found to be an important determinant. The utilization of productive capacity and price anticipations was also found to be relevant in the study

Flask: https://www.youtube.com/embed/uxZuFm5tmhM

Send-Grid: https://sendgrid.com/

Rapid API: https://rapidapi.com/hub

Docker: https://www.youtube.com/embed/pTFZFxd4hOI

Kubernetes: https://www.youtube.com/embed/d6WC5n9G_sM

1) Problem Statement Definition

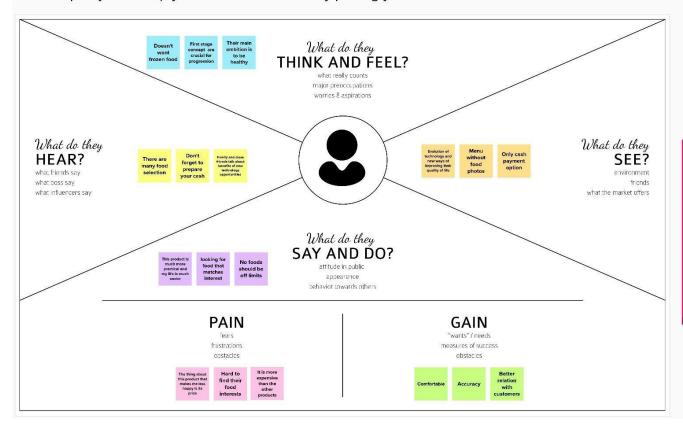
App-based nutrient dashboard systems which can analyze real-time images of a meal and analyze it for nutritional content which can be very handy and improves the dietary habits, and therefore, helps in maintaining a healthy lifestyle.

Empathy Map Canvas

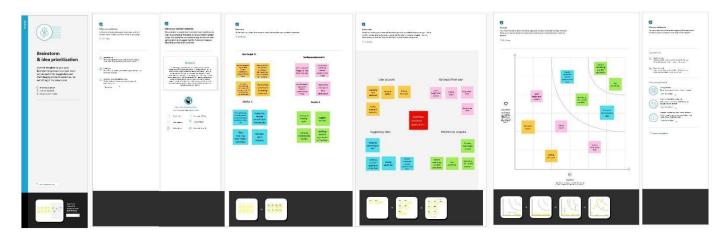
Gain insight and understanding on solving customer problems.

1

Build empathy and keep your focus on the user by putting yourself in their shoes.



2) Ideation & Brainstorming

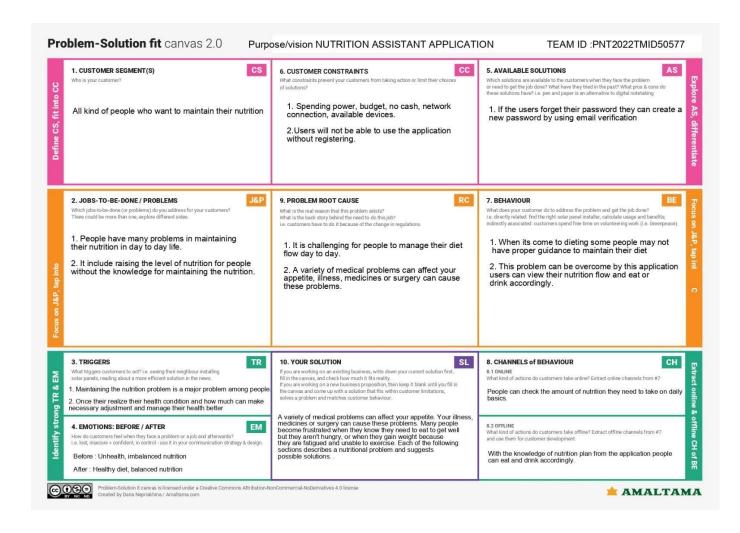


3) Proposed Solution

SI. No.	Parameter	Description			
1.	Problem Statement (Problem to besolved)	 Now a days peoples are not eating healthyfoods with respect to their health condition. If it happens continuously means, it will lead to obesity and any otherhealth problems. To avoid that the system will detect andrecognize the food and evaluating the nutrient values present in the food. 			
2.	Idea / Solution description	 To store the food and details of thenutrients present in it. Then scan the real time food and retrievethe corresponding food's nutrient values. 			
3.	Novelty / Uniqueness	 Clustering the peoples based on their BMIvalue. 			
4.	Social Impact / Customer Satisfaction	The application which gives awareness among the people about the obesity andvarious health problems.			
5.	Business Model (Revenue Model)	 In market, this application gives a benefitacross the people by health wise and economical wise. 			

6.	Scalability of the Solution	 Providing regular updates Efficient goal tracking assistance The additional features such that sleep tracking, mensuration tracking can be done.
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4) Problem Solution fit



REQUIREMENT ANALYSIS

1) Functional requirement

- > User Registration
- > User login
- > User Request
- > Server Response
- > User activity
- > User ->ServerServer ->User

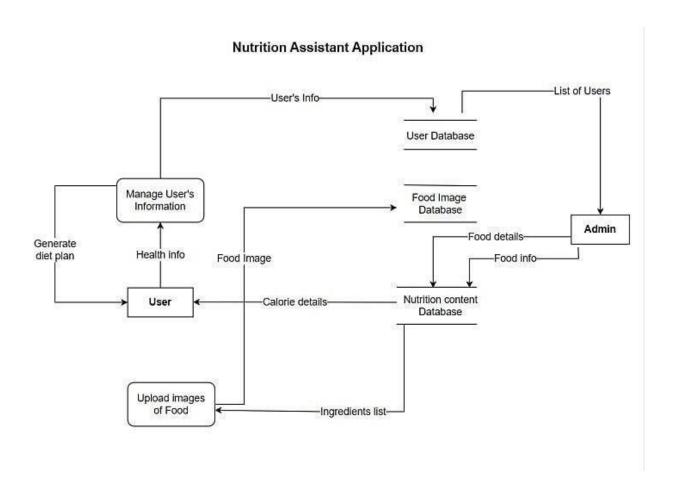
(User interaction with the application)

2) Non-Functional requirements

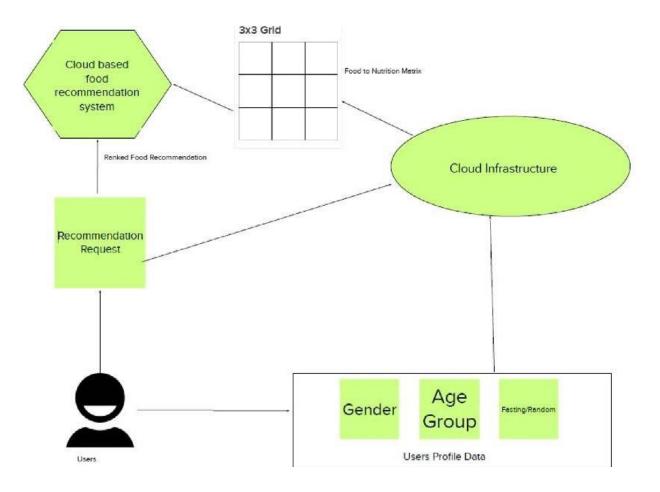
- > Usability
- > Security
- > Reliability
- > Performance
- > Availability
- > Scalability

PROJECT DESIGN

1) Data Flow Diagrams



2) Solution & Technical Architecture



3) User Stories

- > As a user, I can register for the application by entering my email, password, andConfirming my password
- > As a user, I will receive confirmation email once I have registered for theapplication
- > As a user, I can log into the application by entering email & password
- > As a user, I can fill the details.
- > As a user,I will search the food items.
- > As a user, I can scan the food an get the nutrition details and recipe for relatedscanned food.

PROJECT PLANNING & SCHEDULING

1) Product Backlog, Sprint Schedule, and Estimation

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	SIVA RANJANI R SANTHANAMARI AMMAL A SINDHU C SUSEELA S
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	SIVA RANJANI R SANTHANAMARI AMMAL A SINDHU C SUSEELA S
Sprint-1	Login	USN-3	As a user, I can log into the application by entering email & password	1	High	SIVA RANJANI R SANTHANAMARI AMMAL A SINDHU C SUSEELA S

Sprint-2	User details	USN-4	As a user, I can fill the Details.	2	High	SIVA RANJANI R
Sprint-2	Osci detalis	0311-4	As a user, I can fin the Details.		Iligii	SANTHANAMARI
						AMMAL A
						SINDHU C
						SUSEELA S
Sprint-3	Push notification	USN-5	As a user, I will search the food items.	2	Medium	SIVA RANJANI R
•						SANTHANAMARI
						AMMAL A
						SINDHU C
19070 94 97 9410						SUSEELA S
Sprint-4	Shown the	USN-6	As a user, I can scan the food an get	1	High	SIVA RANJANI R
	nutrition details		the nutrition details and recipe for			SANTHANAMARI
	and Recipe for		related scanned			AMMAL A SINDHU C
	1					SUSEELA S
Sprint	Functional	User Story	User Story / Task	Story	Priority	Team Members
Sprine			esci story / rask	•	Triority	Team Members
	Requirement	Number		Points		
	(Epic)					
	scanned food		food.			SIVA RANJANI R
						SANTHANAMARI
						AMMAL A
						SINDHU C
		I			1	SUSEELA S

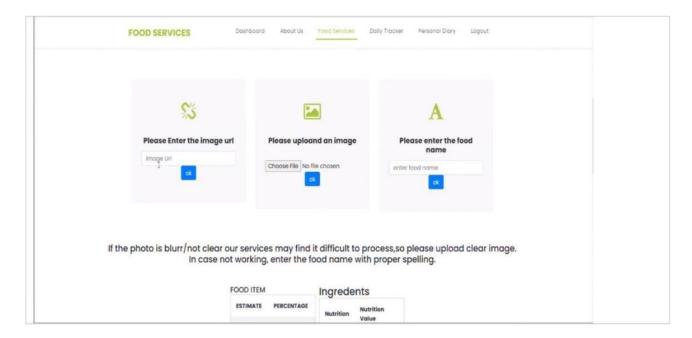
2) Project Tracker, Velocity & Burndown Chart:

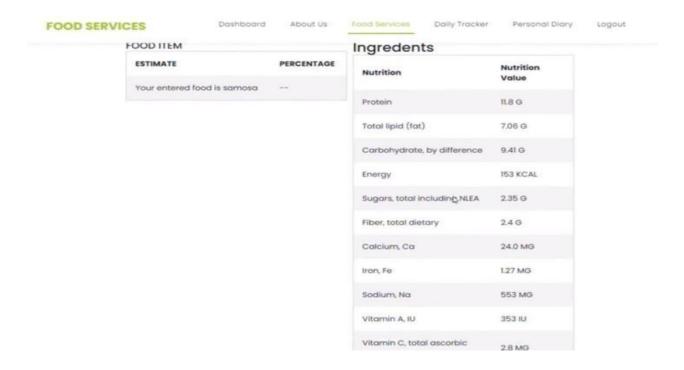
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

CODING & SOLUTIONING

1) Feature 1

The user can upload any food image Nutrients present in the uploaded image will be displayed





2) Feature 2

```
rom flask import Flask,render_template,request,redirect,url_for ,session
 port ibm_db
import math
import random
import smtplib
app=Flask(__name__,template_folder='templates',static_folder='static')
app.secret_key='a
conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=ea286ace-86c7-4d5b-8580-3fbfa46b1c66.bs2io90l08kqb1od8lcg.databases.appdomain.cloud;PORT=3
print("successfully connected")
@app.route('/')
def home():
    return render_template('index.html')
@app.route('/login',methods=['GET','POST'])
def login():
     msg='
     if request.method=='POST':
         username=request.form.get('username',False)
password=request.form.get('password',False)
         stmt=ibm_db.prepare(conn,sql)
         ibm_db.bind_param(stmt,1,username)
         ibm_db.bind_param(stmt,2,password)
         ibm_db.execute(stmt)
         account=ibm_db.fetch_assoc(stmt)
         print(account)
          if account:
              session['Logged in']=True
session['id']=account['USERNAME']
              userid=account['USERNAME']
session['username']=account['USERNAME']
```

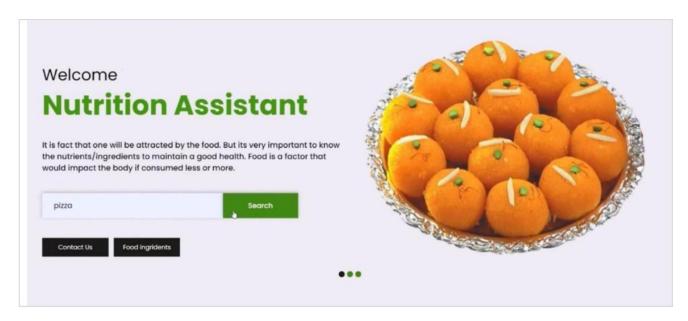
TESTING

1) Test Cases

- i. Our code was tested on various food to check whether it gives the correctoutput
- ii. To satisfy the customer's expectations we tested it fully.

2) User Acceptance Testing

Our project was tested by an end user to verify that it's working correctly.

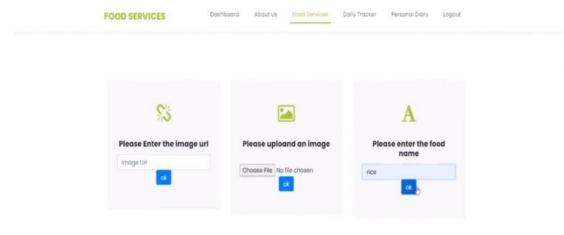




RESULTS

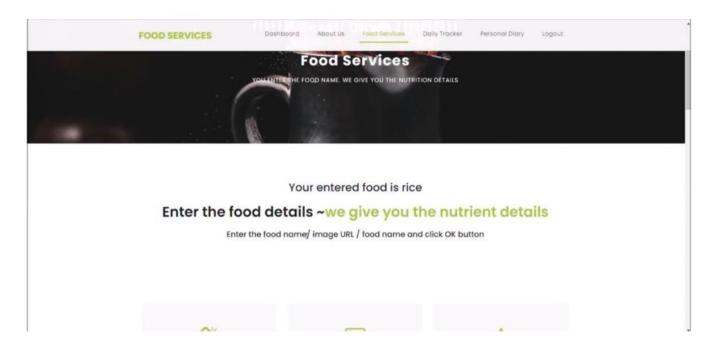
Performance Metrics

The proposed procedure was implemented and tested set of images. The training database consists of various images of food items. Once a food is recognized the equivalent **Nutrition** in shown on the screen



If the photo is blurr/not clear our services may find it difficult to process,so please upload clear image.

In case not working, enter the food name with proper spelling.





ADVANTAGES

- > It provides a maintained strategy of healthy eating habits.
- > It delivers information on the nutritional value of foods and howbalanced and healthy eating habits are important for us.
- > It limits the amount of unnecessary food such as fat that peopleconsumea lot.

CONCLUSION

In conclusion, many people have become aware of their health. Moreover, they are also informed how to live a healthy lifestyle. Most of the research related to these themes aims to identify changes in healthy lifestyle behavior with web applications that are considered effective in dietary self-monitoring.

FUTURE SCOPE

Nutrition assistants help dietitians with providing proper nutrition at healthcare facilities. They determine patients' nutritional needs, assess risk factors, and plan meals and menus. They also ensure proper sterilization of plates and utensils.

APPENDIX

1) Source Code

```
from flask import Flask,render_template,request,redirect,url_for ,session
import os
import math
import random
import smtplib
import requests
app=Flask(__name__,template_folder='templates',static_folder='static')
app.secret_key='a
conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=ea286ace-86c7-4d5b-8580-3fbfa46b1c66.bs2io90l08kqb1od8lcg.databases.appdomain.cloud;PORT=3
print("successfully connected")
@app.route('/')
def home():
    return render_template('index.html')
@app.route('/login',methods=['GET','POST'])
def login():
global userid
    msg=
    if request.method=='POST':
        username=request.form.get('username',False)
        password=request.form.get('password',False)
        stmt=ibm_db.prepare(conn,sql)
        ibm_db.bind_param(stmt,1,username)
        ibm_db.bind_param(stmt,2,password)
        ibm_db.execute(stmt)
        account=ibm_db.fetch_assoc(stmt)
        print(account)
        if account:
            session['Logged in']=True
session['id']=account['USERNAME']
            userid=account['USERNAME']
session['username']=account['USERNAME']
```

```
msg="You have successfully registered"
return render_template('verify.html',msg=msg)
     elif request.method=="POST":
    msg="Please fill out the form"
     return render_template('register.html',msg=msg)
@app.route('/welcome')
def welcome():
    return render template('welcome.html')
@app.route('/verify')
def verify():
          email=request.args.get('email', None)
server=smtplib.SMTP('smtp.gmail.com',587)
           server.starttls()
password="nsgeuedwbzptosyp"
server.login(email,password)
          ottp=''.join([str(random.randint(0,9))for i in range(4)])
msg=' YOUR OTP IS'+str(otp)
server.sendmail(email,email,msg)
           server.quit()
           if request.method=='POST':
                verify=request.method['code']
                 if verify==otp:
                      return render_template('login.html')
           return render_template('verify.html')
@app.route('/frgpwd', methods=['GET','POST'])
def frgpwd():
     msg =
     print(request.form)
     username1=request.form.get("uname", False)
oldpassword=request.form.get("oldpassword", False)
     newpassword=request.form.get("newpassword", False)
     stmt=ibm_db.prepare(conn,sql)
     ibm_db.bind_param(stmt,1,username1)
```

```
return render_template('dash.html')
             msg='Incorrect username/password'
     return render_template('login.html',msg=msg)
@app.route('/register',methods=['GET','POST'])
def register():
     msg='
     if request.method == 'POST':
          username=request.form['username']
           email=request.form['email']
           password=request.form['password']
           Firstname=request.form['firstname
lastname=request.form['lastname']
           #phoneno=request.form['phoneno']
sql='SELECT * FROM USER WHERE username=?'
           stmt=ibm_db.prepare(conn,sql)
           ibm_db.bind_param(stmt,1,username)
           ibm_db.execute(stmt)
           account=ibm_db.fetch_assoc(stmt)
           print(account)
               msg="Account already exist!"
          msg= Account arready exist:

lift not re.match(r'[^@]+@[^@]+\.[^@]+',email):

msg="Invalid email address"

elif not re.match(r'[A-Za-z0-9]+',username):

msg="name must contain character and numbers"
                insert_sql='INSERT INTO USER values(?,?,?,?,?)'
                prep_stmt=ibm_db.prepare(conn, insert_sql)
                ibm_db.bind_param(prep_stmt,1,username)
ibm_db.bind_param(prep_stmt,2,email)
ibm_db.bind_param(prep_stmt,3,password)
                ibm_db.bind_param(prep_stmt,4,Firstname)
                ibm_db.bind_param(prep_stmt,5,lastname)
```

```
chgpwd_sql='UPDATE USER SET password = ? WHERE username = ?'
         prep_stmt=ibm_db.prepare(conn, chgpwd_sql)
         ibm_db.bind_param(prep_stmt,1,newpassword)
         ibm_db.bind_param(prep_stmt,2,username1)
         ibm_db.execute(prep_stmt)
        msg="You have successfully changed password"
return render_template('forgot password.html',msg=msg)
    return render_template('forgot password.html',msg=msg)
headers = {
  "x-rapidapi-key": "ad933ea36amsh6b0a83e514b1a58p14bc9ejsne745a5851a1b",
"x-rapidapi-host": "low-carb-recipes.p.rapidapi.com"
searchForRecipes = "/search"
getRecipe="/recipes/"
getImage="/images/2807982c-986a-4def-9e3a-153a3066af7a.jpeg"
getRandomRecipe="/random"
@app.route('/login/dash')
def dashboard():
    return render_template('dash.html')
@app.route('/login/dash/viewprofile')
def viewprofile():
    username=session['id']
sql='SELECT * FROM USER WHERE username=?'
    stmt=ibm_db.prepare(conn,sql)
    ibm_db.bind_param(stmt,1,username)
    ibm_db.execute(stmt)
    account=ibm_db.fetch_assoc(stmt)
    print(account)
    if account:
        return render_template('viewprofile.html')
```

```
@app.route('/login/dash/viewprofile/personinfo',methods=['GET','POST'])
def per info():
    msg=
    if request.method =='POST':
        Name=request.form['Name']
        gender=request.form['gender']
        tar_weight=request.form['Target Weight']
        Age=request.form['Age']
        Height=request.form['Height']
Weight=request.form['Weight']
        email=request.form['email']
        location=request.form['location']
        phoneno=request.form['phoneno']
        sql='SELECT * FROM USER WHERE username=?'
        stmt=ibm_db.prepare(conn,sql)
        ibm_db.bind_param(stmt,1,Name)
        ibm_db.execute(stmt)
        account=ibm db.fetch assoc(stmt)
        print(account)
         if account:
            insert_sql='INSERT INTO USER values(?,?,?,?,?,?,?)'
            prep_stmt=ibm_db.prepare(conn, insert_sql)
             ibm_db.bind_param(prep_stmt,1,Name)
             ibm db.bind param(prep stmt,2,gender)
            ibm_db.bind_param(prep_stmt,3,Age)
ibm_db.bind_param(prep_stmt,4,Height)
             ibm_db.bind_param(prep_stmt,5,Weight)
             ibm db.bind param(prep stmt,7,location)
            ibm_db.execute(prep_stmt)
            msg="Your details are successfully stored"
return render_template('viewprofile.html',msg=msg)
    elif request.method=="POST":
        msg="Please fill out the form"
    return render_template('personal info.html',msg=msg)
             insert_sql='INSERT INTO USER values(?,?,?)'
             prep stmt=ibm db.prepare(conn, insert sql)
             ibm_db.bind_param(prep_stmt,1,Name)
             ibm_db.bind_param(prep_stmt,2,email)
             ibm_db.bind_param(prep_stmt,3,Feedback)
             ibm_db.execute(prep_stmt)
             msg="Your Feedback has been stored"
            return render template('ratings.html',msg=msg)
     elif request.method=="POST":
         msg="Please fill out the form"
     return render_template('ratings.html',msg=msg)
 @app.route('/dash/view recipe')
 def search_page():
   return render_template('search.html')
 @app.route('/recipes')
 def get_recipes():
   #food=session['item']
   if (str(request.args['ingridients']).strip() != ""):
      print(request.args['ingridients'])
       querystring = {"name":request.args['ingridients'],"tags":request.args['tag'],"includeIngredients":request.args['included'],"exclude
       response = requests.request("GET", url + searchForRecipes, headers=headers, params=querystring)
      data=response.json()
      return render_template('recipes.html', recipes=data)
       response = requests.request("GET", url+ getRandomRecipe , headers=headers)
       data=response.json()
       return render_template('recipes.html', recipes=data)
 @app.route('/recipe')
 def get_recipe():
   recipe_id = request.args['id']
   recipe_info_endpoint = "/recipes/{0}".format(recipe_id)
```

```
data=response.json()
      return render_template('recipes.html', recipes=data)
@app.route('/recipe')
def get recipe():
 recipe_id = request.args['id']
 recipe_info_endpoint = "/recipes/{0}".format(recipe_id)
 print(recipe_info_endpoint)
 recipe_info = requests.request("GET", url + recipe_info_endpoint, headers=headers)
 data=recipe_info.json()
 return render_template('recipe.html', recipe=data)
@app.route('/logout')
def logout():
    session.pop('loggedin',None)
    session.pop('id',None)
    session('username',None)
   return render_template("index.html")
if __name__ == "__main__":
    app.run(debug=True ,host='0.0.0.0',use_reloader=False)
```

2) GitHub

https://github.com/IBM-EPBL/IBM-Project-47955-1660803563