

TEAM ID	PNT2022TMID31308
PROJECT NAME	NUTRITION ASSISTANT APPLICATION
TEAM LEADER	CHANDRAKANTH.G
TEAM MEMBERS	BHARANI.V JEEVANRAJ.S KISHOR.S

CHAPTER-1 INTRODUCTION

Chronic diseases such as diabetes, obesity, and cardiovascular diseases are becoming the dominant sources of mortality and morbidity worldwide and are recently an epidemic in many Asia Pacific countries. An unhealthy diet is one of the key common modifiable risk factors in preventing and managing chronic diseases. Personalized dietary intake intervention significantly influenced people's choices and promoted their health. The feedback on nutrition intake is substantial a behavioral change when patients track their dietary intake for a considerable length of time. However, the burden of logging food makes compliance a challenge. Clinical studies rely on patients to recall dietary intake, which is time-consuming and prone to underestimation.

CHAPTER-1.1 PROJECT OVERVIEW

Good health can be achieved by maintaining good behaviors such as a night-sight sleep, enough exercise, and good nutrition. However, the competitive environment nowadays prevents such good behaviors. Thus, this work aims to develop an application on mobile devices that (1) records the daily sleeping, exercise, and, nutrition information, (2) analyses the collected information to provide a notification or an alarm, and (3) presents the analyzed results in a simple and easy to understand format. The proposed application can collect data from the applications on the users. A set of simple data analysis methods is performed on the collected data to provide a piece of personal advice based on user-defined preferences.

CHAPTER -1.2

PURPOSE

i. Nutrition assistants **help dieticians 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.

ii. Preventive nutrition services for this population, which include early identification and treatment can help **alleviate malnutrition, growth retardation, frequent infections, dehydration, and other medical consequences**

iii. **To provide adequate knowledge and skills necessary for critical thinking regarding diet and health so the individual can make healthy food choices from an increasingly complex food supply.** To assist the individual to identify resources for continuing access to sound food and nutrition information.

CHAPTER -2

LITERATURE SURVEY

Paper 1: APPLICATION OF ARTIFICIAL INTELLIGENCE ON NUTRITION ASSESSMENT AND MANAGEMENT

Published year: May 2021

Author: Dr. Kavita Sudersanadas Journal

Name: EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

Summary: There is a huge potential for using AI to provide hospitalized patients with meal services. The several methods that AI may be used for nutrition evaluation are described in depth in this paper. Even though commercial AI-based nutritional evaluation. There are several systems, most of which do not assess nutrient consumption, and the information I accessible through They were never verified. A commercially accessible AI-based meal and a nutrient called Fat Secret. System of evaluation that can determine how many calories are in the meal. Moreover, the biggest obstacle faced. These technologies make locally relevant data sets available. Thus, more Standin this industry, validation is crucial. The importance of an AI-based nutritional intake assessment system use gathers gather and evaluates formation on food consumption in isolation wards.

The methodology used: Artificial Intelligence

Paper 2: Virtual Nutritionist using AI

Publication year: June 2019

Author: Siddarthan Chitra Suseendran, Nanda Kishore B, Josephus Andrew, M.S. Rajya Shree

Journal Name: International Journal of Engineering and Advanced Technology(IJEAT).

Summary: In this sense, the need for complete assistance in providing kids with wholesome nutrition is a crucial goal to pursue. In this essay, we provide a design for a framework for a nutritionist that aims to teach its customers the skill of nutrition. It produces filling feasts for individuals of different ages as determined

by a variety of factors, such as their developmental stages their welfare e a, e, and sexual orientation. A few contextual information is added to applicate on investigations are linked to demonstrate how the suggested model may be used to make decisions with artificial intelligence, one's food (Machine and deep learning).

The methodology used: Artificial Intelligence

Paper 3: Personalized dietary assistant — An intelligent space application

Published year:2017

Author: Ballaz's Tusor, Gabriella Simon-Nagy, J.T. Tóth, A. R. Várkonyi-Kóczy

Journal Name: IEEE 21st International Conference on Intelligent Engineering Systems (INES)

Summary: There are many different diets available today that promise to increase people's quality of life, health, and lifespan. However, because these diets often include a rigid schedule, it can be difficult to adjust to or stick with the type of modification. The basis for an intelligent space application presented in this study Suggested thatintroducinsubtle, gradual changes to its customers' diets to assist them to reach a healthy diet over time slowly altering their consuming patterns. Program intake user put employs data mining to discover their specific preferences, and educates them corning odourising diet is affecting their health. The knowledge base is then analyzed with enough methodology Data Analytics

Paper 4: Development of Cloud-Based Solution For Effective Nutrition Intervention in the management of lifestyle diseases

Published date: February 2018

Author: Manju P. George*, Kalpana C.A

Journal Name: Trans Asian Research Journal

Summary: To prescribe therapeutic nutrition in clinical settings, a web-based application is being developed. The cloud-based solution would be able to determine the nutritional needs and direct patients' and clients' first-line nutritional treatment automatically. It also functions as a personalized nutritional record. The approach to nutrition consultation may be designed around the client's hectic schedule. For each to technique forwarded the client can speak with his or

her nutritionist practical environment, additional people would be invited to request utilized nutrition support rather than relying on pre-established menus like the therapy internet techniques. The consultant dietitian's credibility would also

The methodology used: Cloud Computing

Paper 5: A DIET CONTROL AND FITNESS ASSISTANT APPLICATION USING DEEP LEARNING-BASED IMAGE CLASSIFICATION

Published date:2019

Author: Tianren Dong¹, Yu Sun, and Fangyan Zhang

Journal Name: CSCP

Summary: People are starting to care about healthy food alternatives developed by nutrition experts as their attention is focused more and more on their health. But it may take a while to see the results of eating a nutritious diet. Due to this, people find it extremely challenging to maintain a healthy stringent diet. The majority of currently available programs do not include user-friendly input methods applications. Then it becomes challenging to monitor the precise health state. This essay offers an Android application that can be trained to identify various types of food and make them the information utilizing learning techniques through the phone camera. Consequently, dietary information may be provided in the application.

The methodology used: Machine learning, Image recognition

PROBLEM STATEMENT

CUSTOMER PROBLEM STATEMENT TEMPLATE:

Problem statement	I am (Customer)	I am trying to	But	Because	Which makes me feel
PS-1	Fitness freak	Finding a perfect pre-workout plan for	I can't choose a correct plan	It is confusing	A perfect daily pre-workout plan suggestion

		maintaining fitness			
PS-2	Student	Find a balanced nutrition diet to lose weight	There is no balanced diet available without workout	I have no time to do a workout	The best nutritional-based diet plan with less workout
PS-3	Body Builder	Choose the best plan for the whole body	It is hard to select the best workout plan	A wrong workout plan will lead to a change in the shape of my body	Perfect diet and workout plan for bodybuilding

Obesity rates are rising alarmingly quickly as a result of people's lack of knowledge about appropriate eating practices, which reflects the hazards to their health. The simplest way to prevent obesity is for people to limit their daily calorie consumption by eating healthier meals. It's still not very convenient for people to use app-based nutrient dashboard systems, even though food packaging includes nutrition (and calorie) labels. These systems can analyze real-time images of a meal and analyze it for nutritional content, which can be very handy and improve dietary habits and subsequently help with maintaining a healthy lifestyle. The main goal of this project is to create a web application that automatically predicts food features like components and nutritional value by identifying the given food image.

NUTRITION ASSISTANT APPLICATION

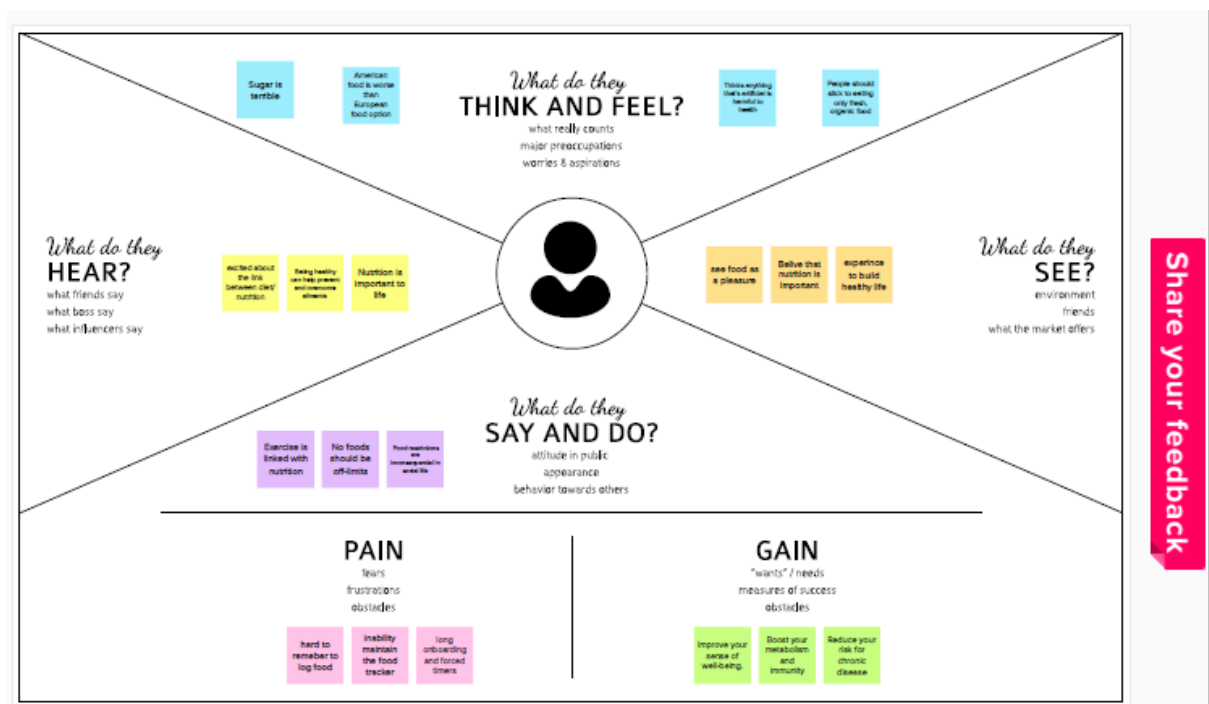
CURRENT PROBLEM STATEMENT

PS-4	Athlete	Choose the best nutrition plan and workout technique to increase my sprinting speed	Confused with many techniques.	I want to increase my sprinting speed Very much before than ever	Perfect suggestion
PS-5	Pregnant woman	Choose a yoga and healthy nutrition diet for the normal pregnancy delivery	I am not familiar with yoga and exercise	I don't have any idea about yoga and exercise	User-friendly application to choose the beginner-based type of yoga, exercise, and nutrition-based diet plan

CHAPTER 3

IDEATION & PROPOSED SOLUTION

BRAINSTORMING & IDEATION



PROPOSED SOLUTION FIT

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) Who is your customer? <i>i.e. working parents of 0-5 y.o. kids</i>	4. CUSTOMER What constraints prevent your customers from taking action or limit their choices of solutions? <i>i.e. spending power, budget, no cash, network condition, available devices</i>	7. AVAILABLE SOLUTIONS Which solutions are available to the customers <i>or need to get the job done? What have they tried in the past?</i>	Explore AS, differentiate
	People who want to lose weight, and those who want to gain weight healthily. Everyone who feels to stay fit and healthy by consuming nutritious food and following calorie conscious diet.	1. Shortage of time due to work pressure 2. Not able to control cravings and end up eating unhealthy and high-calorie foods.	1. Personal diet tracking app which helps to maintain a diet, high rich nutrition is predicted and delivering unrelated data. 2. Personal nutritionist or trainer to suggest the correct schedule according to customer requirements.	

Focus on JAP, tap into BE, understand RC	2. JOBS-TO-BE-DONE / PROBLEMS	5. PROBLEM ROOT CAUSE What is the real reason that this	8. BEHAVIOUR <i>i.e. directly related: find the right solar panel installer.</i>	Focus on JAP, tap into BE, understand RC
	1. To calculate calories and nutrients present. 2. Monitor customer's calorie consumption too and maintain a diet	1. Due to a shortage of time, the preparation of healthy home food is replaced by consuming unhealthy fast food. 2. Teenagers are addicted to fast food which leads to obesity 3. Many apps fail to display the accurate nutrition content in food	1. Eating healthy and low-calorie foods. 2. Following a diet plan and consuming nutritious foods. 3. Working out or taking up any sport involves physical activity	

3. TRIGGERS	6. YOUR SOLUTION If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem, matches customer behavior	9. CHANNELS of BEHAVIOUR
1. When people around us bully. 2. Peer pressure beauty standards, society's point of view, etc., 3. When obesity and consumption of unhealthy foods lead to health issues	To develop an end-to-end web application that helps the user maintain the nutrition present in their body. And help the user to eat nutrition-rich food. Also, allow for maintaining the diet. At the same time, the user details are maintained.	8.1 ONLINE What kind of actions do customers take online? <ul style="list-style-type: none"> • Upload a photo of the Food • Nutrition content is predicted • Maintain the nutrition present in it
		8.2 OFFLINE What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development. <ul style="list-style-type: none"> • See the history of the foods taken • See the nutrition table • See the health of their body

PROPOSED SOLUTION

Proposed Solution: S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	<ul style="list-style-type: none">• Obesity rates are increasing, this is reflective of the risks to people's health they need to control daily calorie intake with healthier foods
2	Idea / Solution description	<ul style="list-style-type: none">• People need to control their daily calorie intake by eating healthier foods, which is the most basic method to avoid obesity.• It is done by providing a proper consultant for each of the customers about their health and also a proper diet plan or meal plan through a web application that provides a user-friendly interface.• Building a web App that automatically estimates food attributes such as ingredients and nutritional value by classifying the input image of food

CHAPTER-4 PROJECT DESIGN

TECHNOLOGY STACK

Table-1: Components & Technologies

S.NO	Component	Description	Technology
1.	User Interface	Web UI	HTML, CSS, JavaScript
2.	To get the food nutrition and calorie value	The user will upload the food picture. Then the user will see the food nutrition value the process will compute	Python, Flask (web Framework), HTML, CSS, JavaScript.
3.	Database	Get the user's name, and mail, and store the food calorie value. Data types: integer, string, Float Number, etc.,	MySQL or PostgreSQL
4.	Cloud Deployment	Through is the application Will compose to the internet	Kubernetes, Docker
5.	External API-1	To predict the image that the user will upload in the uploaded image page	Clarifai's AI-driven Food detection Model API
6.	External API-2	Food APIs for the nutritional value for the identified food	Food API
7.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration:	Local, Cloud Foundry, Kubernetes, etc. Docker.

Table 2: Application Characteristics

S.NO	Characteristics	Description	Technology
1.	Open-Source Frameworks	We are using both front and back end here to run the web application.	Flask (Microweb framework) Vue.js
2.	Security Implementations	List all the security/access controls implemented, use of firewalls, etc.	e.g., SHA-256, Encryptions, IAM Controls, OWASP, etc.
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Presentation tier- HTML/ CSS/ JavaScript Application tier- Python (API) Data tier- MySQL, PostgreSQL
4.	Availability	Justify the availability of applications (e.g., use of load balancers, distributed servers, etc.)	IBM Cloud
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDNs), etc.	IBM Cloud

SOLUTION REQUIREMENTS

Functional Requirements:

. FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Gmail And set a strong password

FR-2	User Confirmation	Confirmation via Email
FR-3	User Login	Users can log in to the Application only when they completed their Registration
FR-4	User Profile Completion	Get personal Details like Height, Weight
FR-5	Uploading image	From the Folder Food Image is obtained for detection
FR-6	Identification of Image	Obtain the ingredients of the detected food image
FR-7	Display the nutritional value	Integrate Clarifai API to get nutritional value /calorie information
FR-8	Save Data	View the nutritional value of the food detected in the past as History

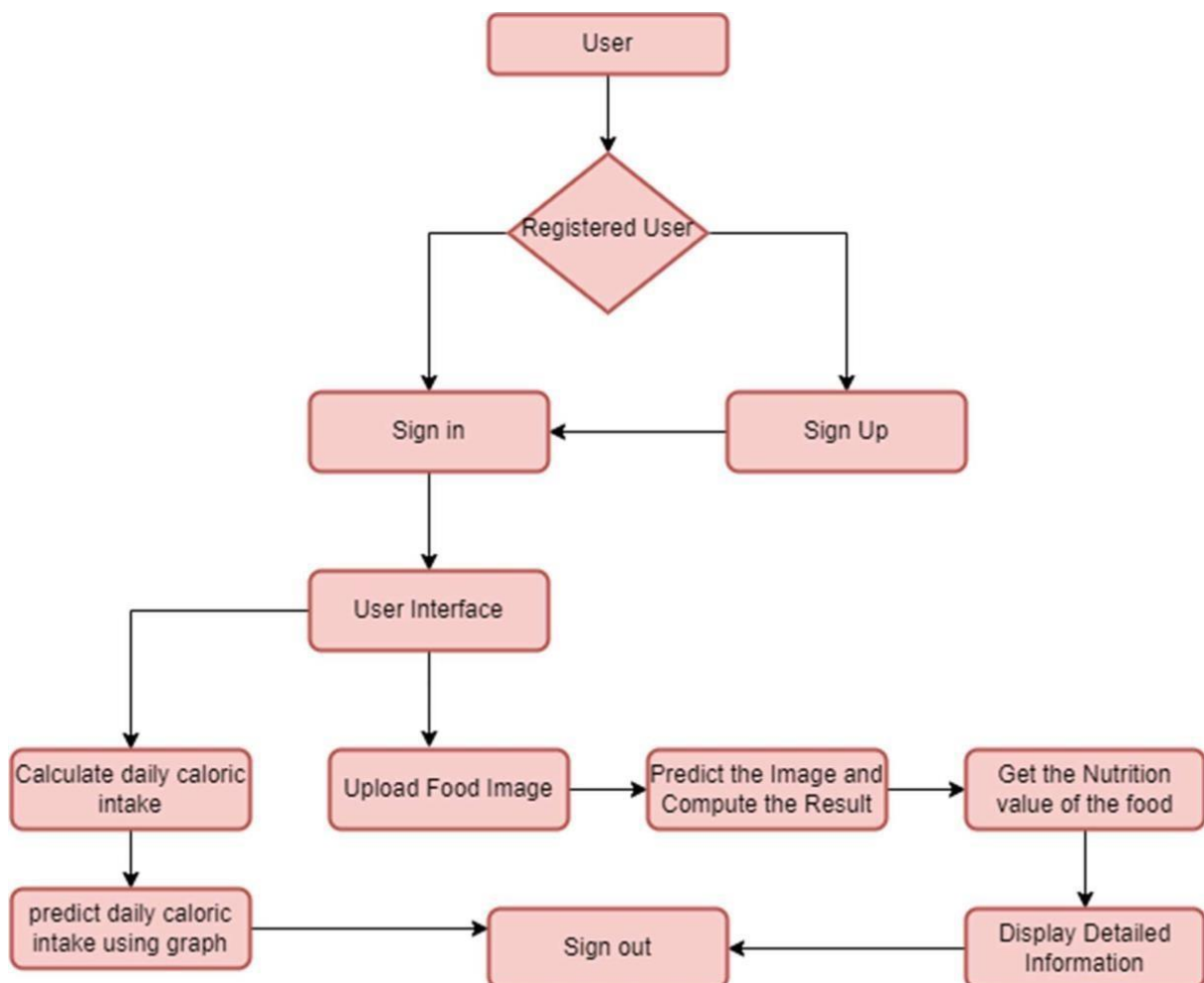
Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR.NO	Non-Functional Requirement	Description
NFR-1	Usability	Provide User-Friendly UI in which Only Registered user is allowed to use the Application
NFR-2	Security	Protecting user information from the parties arty. Authentication is done for security purposes
NFR-3	Reliability	Provide immediate response to the Food image Detected. The user gets the Standard Nutritional value of the given detected food

NFR-4	Performance	The performance of the application depends upon the network and internet level
NFR-5	Availability	It's available to every people who have a smartphone, laptop, op, and tablet with good internet service. It nor has any premium plans so it is available for every registered user.
NFR-6	Scalability	This Application can handle quite a large number of users and can withstand high traffic.

DATA FLOW DIAGRAM



Customer Journey

NUTRITION ASSISTANT APPLICATION

TIP
As you add steps to the experience, move each step "True" to the left or right depending on the experience you are documenting.

SCENARIOS Searching food, Finding nutritional values, Eating right foods.	Entice How does someone initially become aware of this process?	Enter What do people experience as they begin the process?	Engage In the core moments in the process, what happens?	Exit What do people typically experience as the process finishes?	Extend What happens after the experience is over?
Steps What does the person (or group) typically experience?	<div>Watching ads</div> <div>Getting triggered to someone</div> <div>To achieve something</div> <div>Meet people and people of eating healthy by watching ads</div> <div>Send people get inspired to meet eating people their healthy</div> <div>People who want to achieve something but can't find ways</div>	<div>Make entry</div> <div>Day Chart</div> <div>Water Reminder</div> <div>Meet other of all activities</div> <div>Intending healthy diet chart</div> <div>They water reminder to start to eat</div>	<div>Check weights</div> <div>Chose goals</div> <div>Working it out</div> <div>They person that weights, how well they can do something better current situation</div> <div>According to their weight, how much they can eat</div> <div>Finally, working hard but with a regular plan</div>	<div>Learned feedback</div> <div>Answers</div> <div>Receive feedback feedback for learning</div> <div>Receive to aware of eating healthy</div>	<div>Shares their journey with others</div>
Interactions What interactions do they have at each step along the way? <ul style="list-style-type: none"> People: Who do they see or talk to? Places: Where are they? Things: What digital touchpoints or physical objects would they use? 	<div>Talk to people who are in same field of expertise</div> <div>Check websites for online videos</div> <div>Seeing action/ actors</div>	<div>Creating account</div> <div>Adding their personal details like age, height, weight, etc.</div>	<div>Checks profile</div> <div>User interface</div>	<div>Feels motivated</div> <div>Feels confident</div>	<div>Recommendations by advertisements</div>
Goals & motivations At each step, what is a person's primary goal or motivation? ("Help me..." or "Help me avoid...")	<div>To become fit</div> <div>To become healthy</div>	<div>Buy healthier foods</div> <div>Learn healthier cooking techniques</div>	<div>Learn about good nutrition</div> <div>Reduce the risk of developing chronic diseases</div>	<div>Satisfied</div> <div>Joyful</div>	<div>Get rid of unhealthy habits</div>
Positive moments What steps does a typical person find enjoyable, productive, fun, motivating, delightful, or exciting?	<div>Looks good</div> <div>Physically active</div>	<div>Supports muscles</div> <div>Boosts immunity</div>	<div>Eat whole foods</div> <div>A liter of water everyday</div>	<div>Certain supplements can be healthy</div>	<div>Get used to healthy eating</div>
Negative moments What steps does a typical person find frustrating, confusing, angering, costly, or time-consuming?	<div>Can't afford expensive foods</div>	<div>Hard to keep up with program because He/she loses motivation</div>	<div>Sometimes nutritional values of food are not exact</div>	<div>Meeting calories goals are difficult</div>	<div>Following a routine of different recipes is hard</div>
Areas of opportunity How might we make each step better? What ideas do we have? What have others suggested?	<div>Load data faster</div> <div>Show new items</div>	<div>Motivational quotes</div>	<div>Minimize ads</div>	<div>Daily water tracker</div>	<div>Share User's</div>

CHAPTER -5

Project Planning Phase

Milestones & Activities

S.No	Milestones	Activities	Team Members
1.	Setting up the application Environment	Create Flask Project	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Create an IBM Cloud account	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Install IBM Cloud CLI	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Docker CLI Installation	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Create an account in Send grid	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Create an account in Nutrition API	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
2.	Implementation of Web Application	Create UI to interact with the application	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S

		Create IBM DB2 and connect with Python	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Integrate Nutrition API	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
3.	Integrating SendGrid Service	SendGrid integration with Python code	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
4.	Deployment of App in IBM Cloud	Containerize the app	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Upload Image to IBM Container Registry	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Deploy in Kubernetes Cluster	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
5.	Ideation Phase	Literature Survey on The Selected Project & Information Gathering	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Prepare Empathy Map	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S

		Ideation	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
6.	Project Design Phase -I	Proposed Solution	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S

		Problem Solution Fit	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Solution Architecture	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
7.	Project Design Phase - II	Customer Journey	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Functional requirement	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Data Flow Diagrams	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Technology Architecture	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S

8.	Project Planning Phase	Prepare Milestones & Activity List	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Sprint Delivery Plan	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
9.	Project Development Phase	Project Development – Delivery of Sprint – 1	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Project Development – Delivery of Sprint – 2	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Project Development – Delivery of Sprint – 3	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S
		Project Development – Delivery of Sprint - 4	Chandrakanth. G Bharani. V Jeevanraj.S Kishore.S

CHAPTER -6

CREATING AN ACCOUNT IN THE NUTRITION API

The screenshot shows the RapidAPI website for the 'Recipe - Food - Nutrition' API. The API is listed as 'PREMIUM' and 'Verified'. It has a popularity score of 9.9/10, a latency of 685ms, and a service level of 100%. The documentation section is titled 'Recipe - Food - Nutrition API Documentation' and describes the API's capabilities, including searching for recipes, calculating nutritional information, and estimating recipe costs. It also lists special diets/dietary requirements currently available: vegan, vegetarian, pescetarian, gluten free, grain free, dairy free, high protein, low sodium, low carb, Paleo, Primal, ketogenic, and more.

GET Search Recipes

Search through thousands of recipes using advanced filtering and ranking. NOTE: Since this method combines searching by query, by ingredients, and by nutrients into one endpoint, each request counts as 3 requests.

Personal Account: Chandrakanth G

RapidAPI App: default-application_6865533

Code Snippets: (Node.js) Axios

```
const axios = require('axios');

const options = {
  method: 'GET',
  url: 'https://spoonacular-recipe-food-nutrition-v1.p.rapidapi.com/recipes/complexSearch',
  params: {
    query: 'pasta',
    cuisine: 'italian',
    excludeCuisine: 'greek',
    diet: 'vegetarian'
  }
}
```

The screenshot shows the RapidAPI website for the 'Recipe - Food - Nutrition' API, specifically the 'GET Search Recipes by Nutrients' endpoint. The endpoint is listed as 'REQUIRED' and 'Verified'. It has a popularity score of 9.9/10, a latency of 685ms, and a service level of 100%. The documentation section is titled 'GET Search Recipes by Nutrients' and describes the endpoint's capabilities, including searching for recipes by nutrient, ingredient, or equipment. It also lists special diets/dietary requirements currently available: vegan, vegetarian, pescetarian, gluten free, grain free, dairy free, high protein, low sodium, low carb, Paleo, Primal, ketogenic, and more.

GET Search Recipes by Nutrients

Search through thousands of recipes using advanced filtering and ranking. NOTE: Since this method combines searching by query, by ingredients, and by nutrients into one endpoint, each request counts as 3 requests.

Personal Account: Chandrakanth G

RapidAPI App: default-application_6865533

Request URL: rapidapi.com

Header Parameters:

- X-RapidAPI-Key: 831c18667emshaf9010327e133a3p1bd7c6jsnac5dH (REQUIRED)
- X-RapidAPI-Host: spoonacular-recipe-food-nutrition-v1.p.rapidapi.com (REQUIRED)

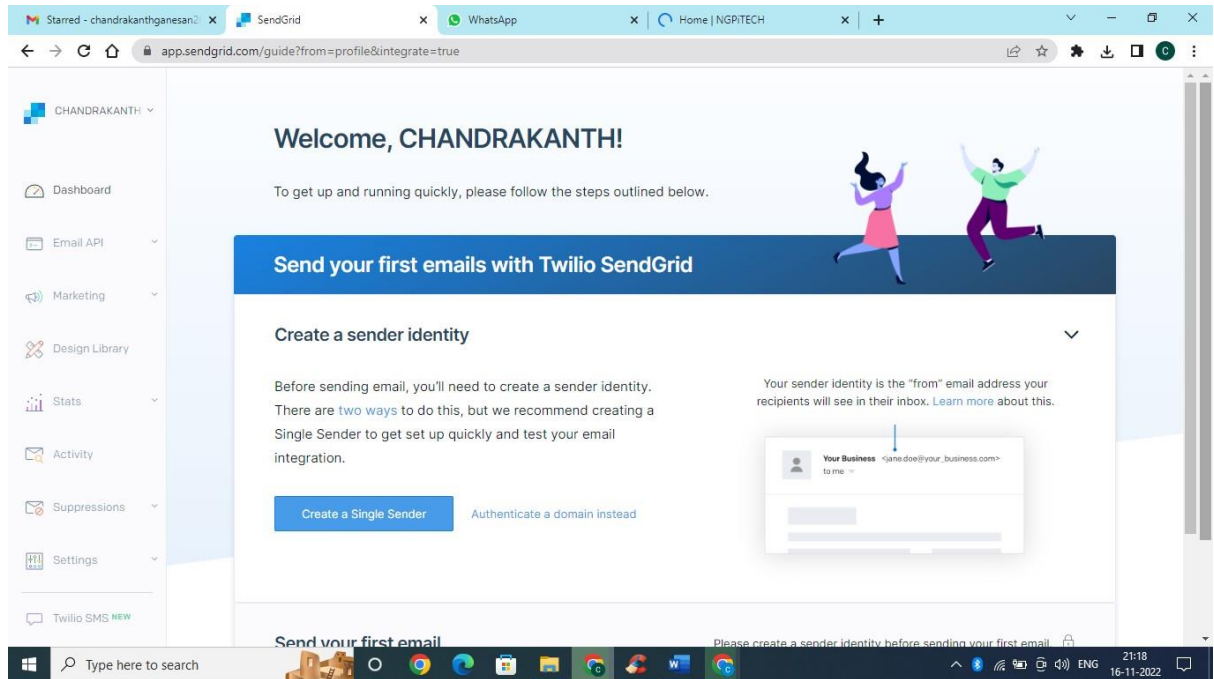
Required Parameters:

- query: pasta

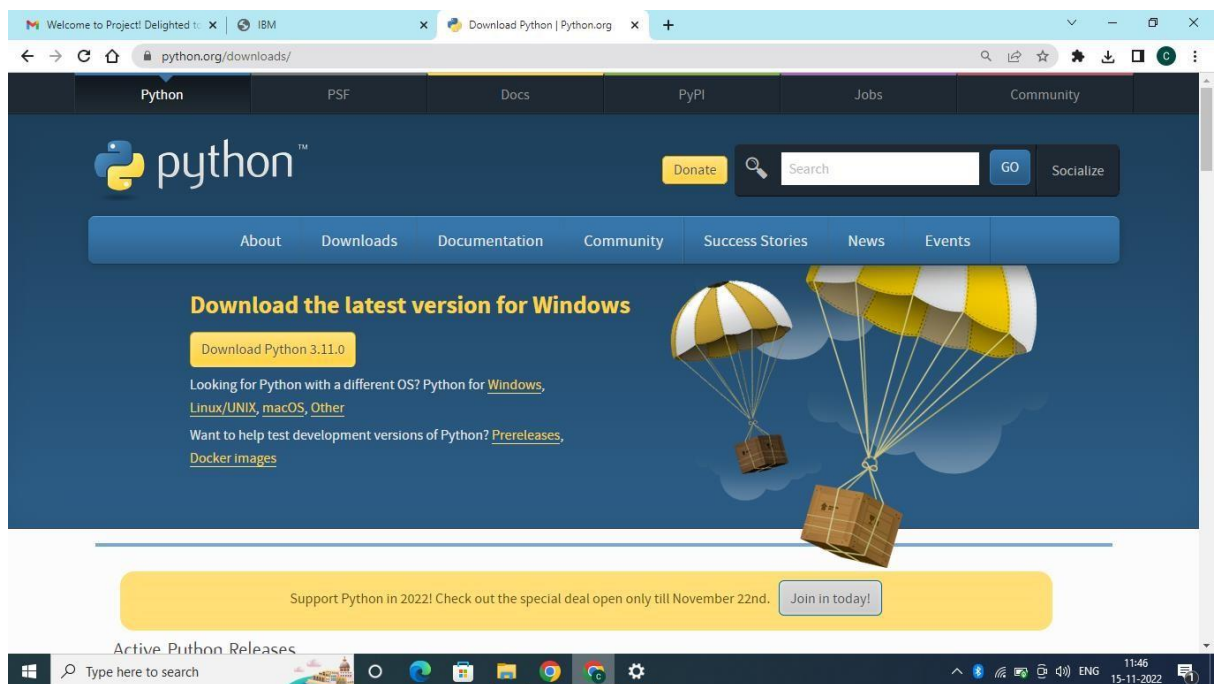
params:

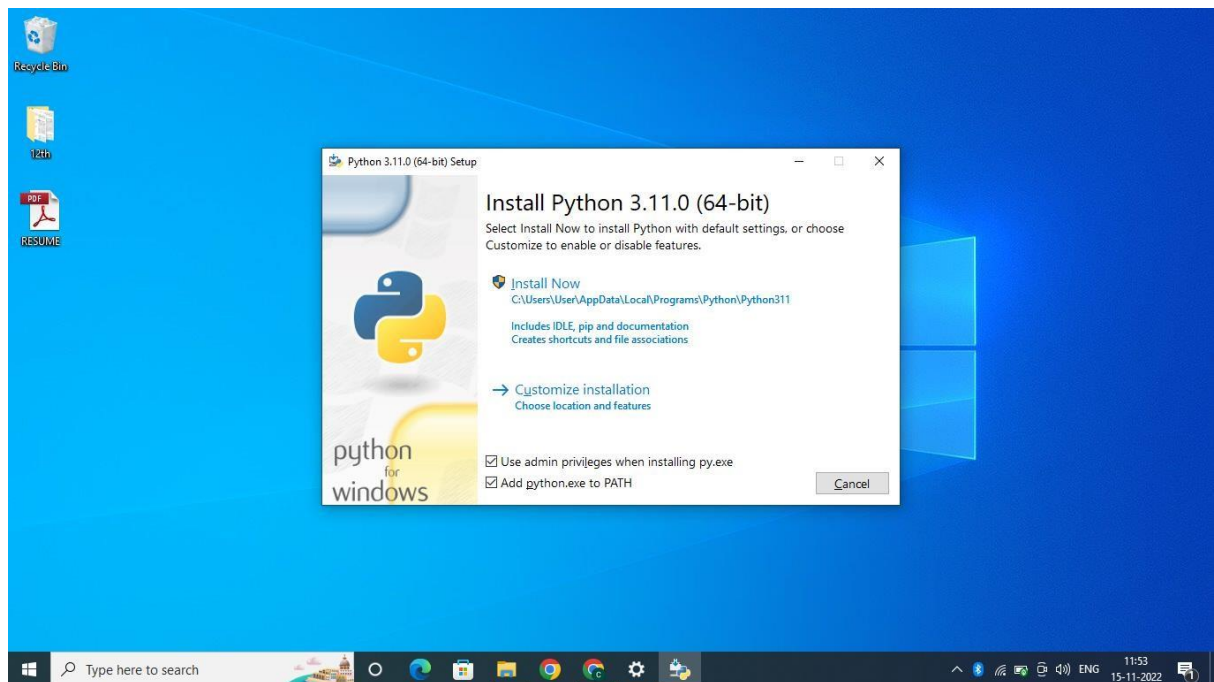
```
{
  query: 'pasta',
  cuisine: 'italian',
  excludeCuisine: 'greek',
  diet: 'vegetarian',
  intolerances: 'gluten',
  equipment: 'pan',
  includeIngredients: 'tomato,cheese',
  excludeIngredients: 'eggs',
  type: 'main course',
  instructionsRequired: 'true',
  fillingredients: 'false',
  addressInformation: 'false',
  titleMatch: 'Crock Pot',
  maxReadyTime: '20',
  ignorePantry: 'true',
  sort: 'calories',
  sortDirection: 'asc',
  minCarbs: '10',
  maxCarbs: '100',
  minProtein: '10',
  maxProtein: '100',
  minCalories: '50',
  maxCalories: '800',
  minFat: '10',
  maxFat: '100',
  minAlcohol: '0',
  maxAlcohol: '100',
  minCaffeine: '0',
  maxCaffeine: '100',
  minCopper: '0',
  maxCopper: '100'
}
```

CREATING AN ACCOUNT IN SENDGRID



CREATING FLASK PROJECT





```
Command Prompt
ERROR: You must give at least one requirement to install (see "pip help install")

[notice] A new release of pip available: 22.3 -> 22.3.1
[notice] To update, run: python.exe -m pip install --upgrade pip

C:\Users\User>py -m pip install flask
Collecting flask
  Downloading Flask-2.2.2-py3-none-any.whl (101 kB)
----- 101.5/101.5 kB 1.4 MB/s eta 0:00:00
Collecting Werkzeug>=2.2.2
  Downloading Werkzeug-2.2.2-py3-none-any.whl (232 kB)
----- 232.7/232.7 kB 950.7 kB/s eta 0:00:00
Collecting Jinja2>=3.0
  Downloading Jinja2-3.1.2-py3-none-any.whl (133 kB)
----- 133.1/133.1 kB 877.6 kB/s eta 0:00:00
Collecting itsdangerous>=2.0
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting click>=8.0
  Downloading click-8.1.3-py3-none-any.whl (96 kB)
----- 96.6/96.6 kB 263.3 kB/s eta 0:00:00
Collecting colorama
  Downloading colorama-0.4.6-py2.py3-none-any.whl (25 kB)
Collecting MarkupSafe>=2.0
  Downloading MarkupSafe-2.1.1.tar.gz (18 kB)
  Preparing metadata (setup.py) ... done
Installing collected packages: MarkupSafe, itsdangerous, colorama, Werkzeug, Jinja2, click, flask
  DEPRECATION: MarkupSafe is being installed using the legacy 'setup.py install' method, because it does not have a 'pyproject.toml' and the 'wheel' package is not installed. pip 23.1 will enforce this behaviour change. A possible replacement is to enable the '--use-pep517' option. Discussion can be found at https://github.com/pypa/pip/issues/8559
  Running setup.py install for MarkupSafe ... done
Successfully installed Jinja2-3.1.2 MarkupSafe-2.1.1 Werkzeug-2.2.2 click-8.1.3 colorama-0.4.6 flask-2.2.2 itsdangerous-2.1.2

[notice] A new release of pip available: 22.3 -> 22.3.1
[notice] To update, run: python.exe -m pip install --upgrade pip

C:\Users\User>py -m pip flask --version
ERROR: unknown command "flask"

C:\Users\User>py -m flask --version
Python 3.11.0
Flask 2.2.2
Werkzeug 2.2.2

C:\Users\User>py -m pip install
```

```
IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> import flask
Traceback (most recent call last):
  File "<pyshell#0>", line 1, in <module>
    import flask
ModuleNotFoundError: No module named 'flask'
>>> import flask
Traceback (most recent call last):
  File "<pyshell#2>", line 1, in <module>
    flask.version
  File "C:\Users\User\Downloads\Lib\site-packages\flask\__init__.py", line 71, in __getattr__
    raise AttributeError(name)
AttributeError: _version_. Did you mean: '__version__'?
>>> flask.__version__
'2.2.2'
>>>
```

CREATING AN IBM CLOUD ACCOUNT

Welcome to Project! Delighted to... x IBM x Sign up for IBM Cloud x IBM-EPBL/IBM-Project-38512-16 x

cloud.ibm.com/registration

IBM Cloud Catalog Cost estimator Docs

Create an IBM Cloud account

Already have an IBM Cloud account? [Log in](#)

☒ Account information

Email

710719104023@smartinternz.com

Password

.....

Next

☐ Verify email

☐ Personal information

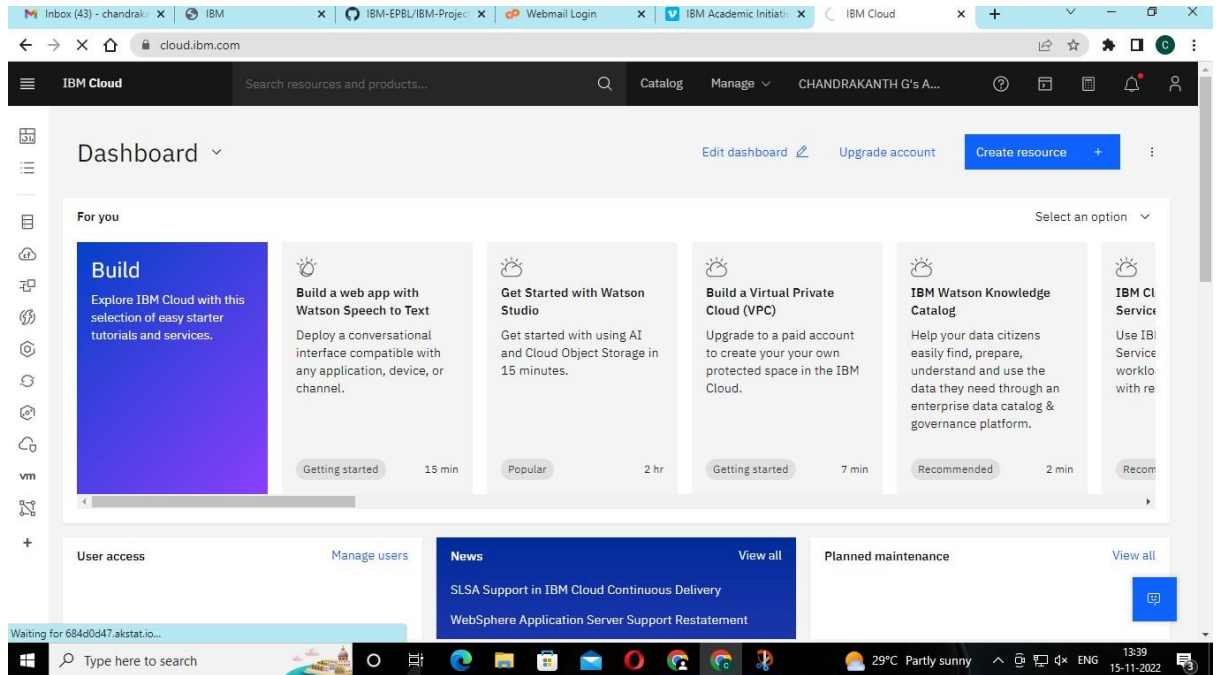
Get started with a USD 200 credit

Receive a credit for your first USD 200 of apps and services on us.

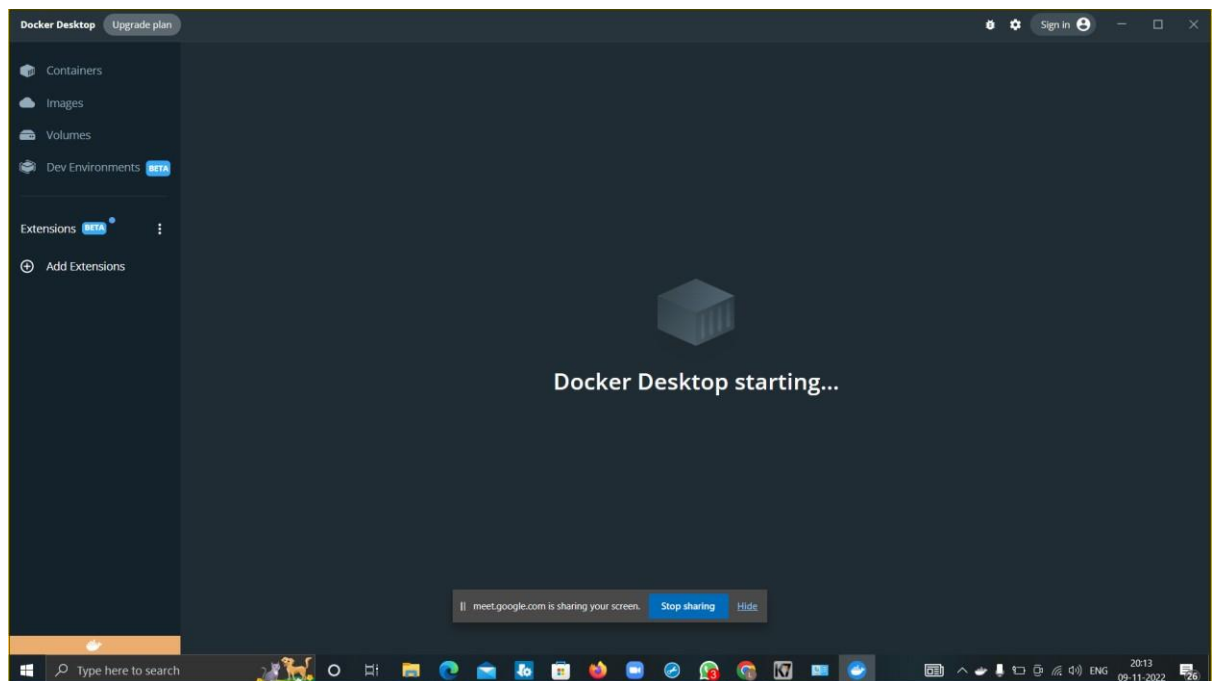
Build your journey to public cloud

Build, deploy, and manage solutions in IBM's public cloud.

29°C Partly sunny 13:24 15-11-2022



DOCKER CLI INSTALLATION



```
Command Prompt
Microsoft Windows [Version 10.0.19044.2006]
(c) Microsoft Corporation. All rights reserved.

C:\Users\VAILEEN LINCY>docker version

Client:
Client integration: v1.0.29
Version: 20.10.20
API version: 1.41
Go version: go1.18.7
Git commit: 9fdeb9c
Built: Tue Oct 18 18:28:44 2022
OS/Arch: windows/amd64
Context: default
Experimental: true

Server: Docker Desktop 4.13.1 (90346)
Engine:
Version: 20.10.20
API version: 1.41 (minimum version 1.12)
Go version: go1.18.7
Git commit: 83df974
Built: Tue Oct 18 18:18:35 2022
OS/Arch: linux/amd64
Experimental: false
containerd:
Version: 1.6.8
GitCommit: 9cd3357b7fd7218e4aec3eae239db1f68a5a6ec6
runc:
Version: 1.1.4
GitCommit: v1.1.4-0-g5fddc4d
docker-init:
Version: 0.19.0
GitCommit: de40ad0

C:\Users\VAILEEN LINCY>docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
C:\Users\VAILEEN LINCY>
```

```
Command Prompt
Go version: go1.18.7
Git commit: 83df974
Built: Tue Oct 18 18:18:35 2022
OS/Arch: linux/amd64
Experimental: false
containerd:
Version: 1.6.8
GitCommit: 9cd3357b7fd7218e4aec3eae239db1f68a5a6ec6
runc:
Version: 1.1.4
GitCommit: v1.1.4-0-g5fddc4d
docker-init:
Version: 0.19.0
GitCommit: de40ad0

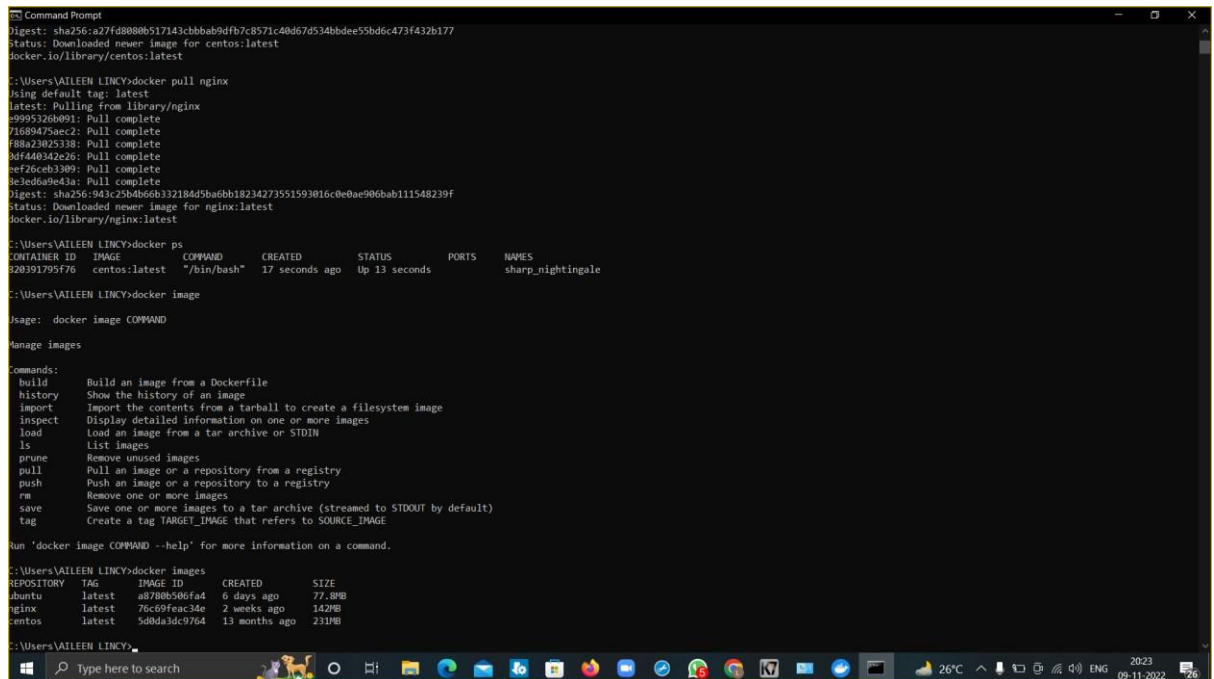
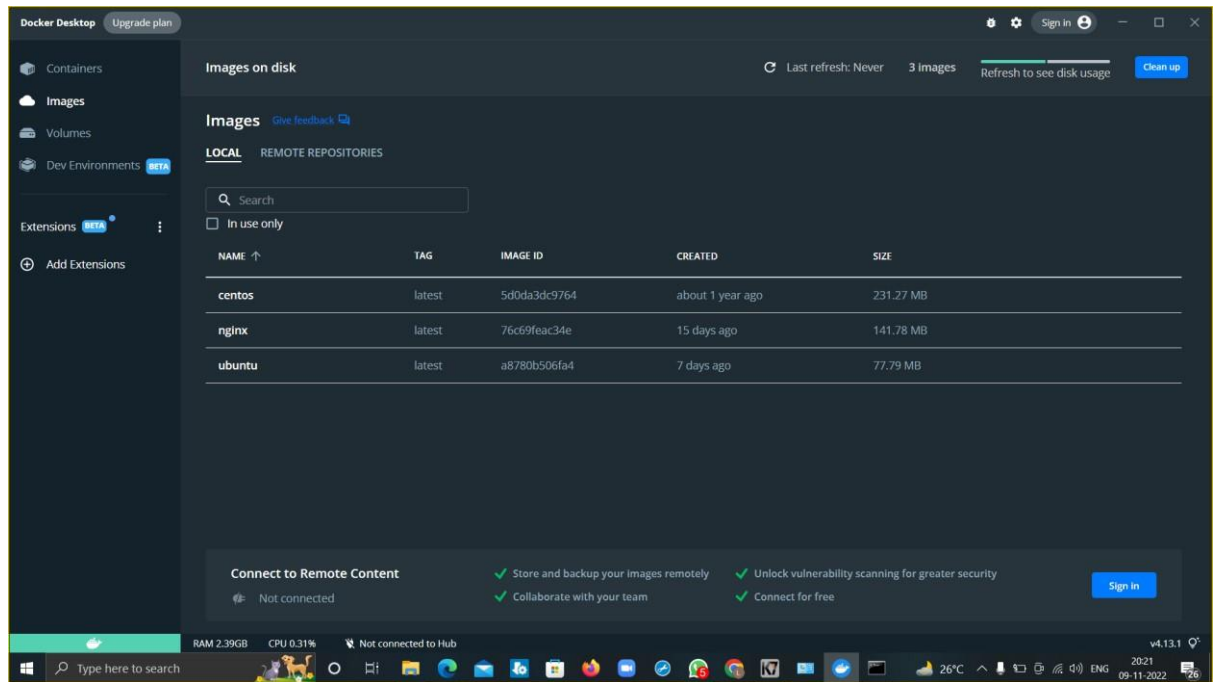
C:\Users\VAILEEN LINCY>docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES

C:\Users\VAILEEN LINCY>docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
e9be957aae57: Pull complete
Digest: sha256:4b1d8c4a2d2aa63b3711f34eb9fa89fa1bf53dd6e4ca954d47caebca4005c2
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest

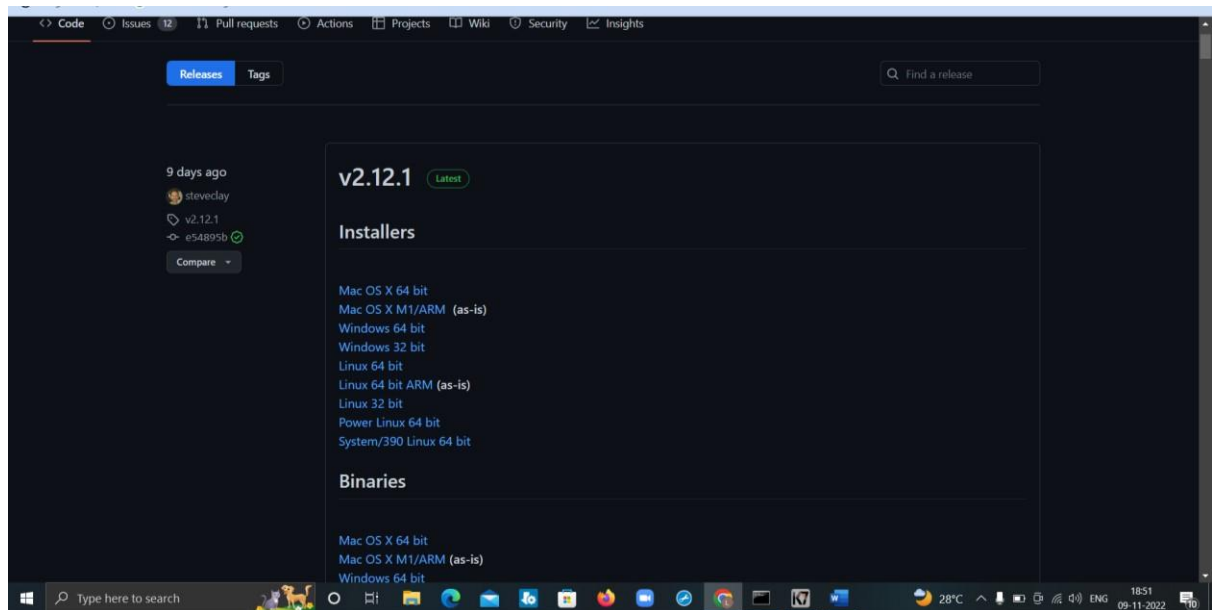
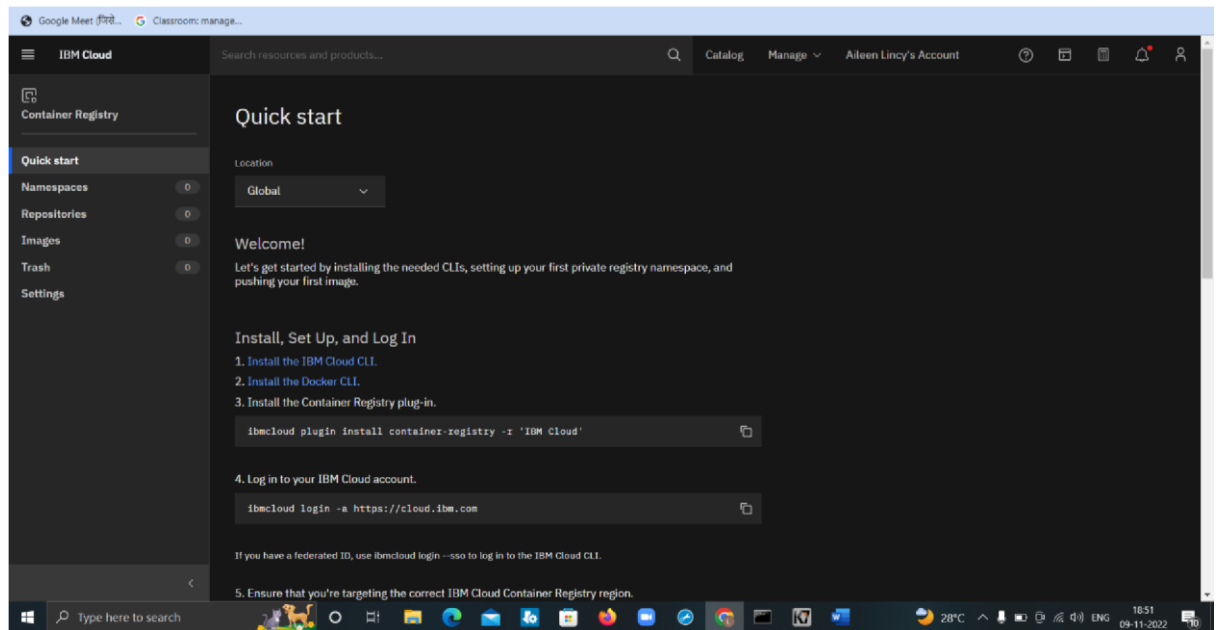
C:\Users\VAILEEN LINCY>docker pull centos
Using default tag: latest
latest: Pulling from library/centos
a180c7532777: Pull complete
Digest: sha256:a27f408080b517143cbbab9dfb7c8571c40d67d534bbdee55bd6c473f432b177
Status: Downloaded newer image for centos:latest
docker.io/library/centos:latest

C:\Users\VAILEEN LINCY>docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
e9995326b091: Pull complete
71689475aec2: Pull complete
f8ba22025338: Pull complete
3df440342e26: Pull complete
9ef26ceb3309: Pull complete
3e3ed6a9e43a: Pull complete
Digest: sha256:943c2b0d66b332184d9ba6bb18234273551593016c0e0ae906bab111548239f
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest

C:\Users\VAILEEN LINCY>
```

INSTALLING IBM CLOUD CLI



```
Microsoft Windows [Version 10.0.19044.2006]
(c) Microsoft Corporation. All rights reserved.

C:\Users\AILEEN LINCY>ibmcloud login
API endpoint: https://cloud.ibm.com

Email> allency1082002@psnacet.edu.in

Password>
Authenticating...
Targeted account Aileen Lincy's Account (3bbc5e3491f845d597f412e11eb8ec0f)

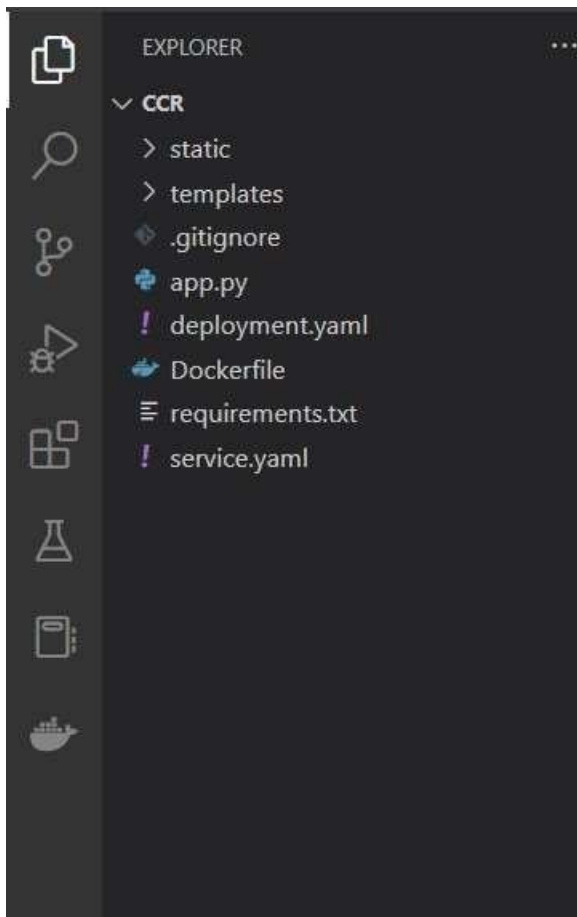
Select a region (or press enter to skip):
1. eu-syd
2. in-che
3. jp-osa
4. jp-tok
5. kr-sao
6. eu-de
7. eu-gb
8. ca-tor
9. us-south
10. us-east
11. br-sao
Enter a number> 4
Targeted region jp-tok

API endpoint: https://cloud.ibm.com
Region: jp-tok
User: allency1082002@psnacet.edu.in
Account: Aileen Lincy's Account (3bbc5e3491f845d597f412e11eb8ec0f)
Resource group: No resource group targeted, use 'ibmcloud target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:

C:\Users\AILEEN LINCY>
```

CONTAINERIZE THE APP

Step 1. Create the Docker file and paste the code



CHAPTER - 7

CODING

Login checker :

```
<!doctype html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width , initialscale=
1.0">
<title>LOGIN PAGE</title>
<link
href="HTTPS://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/CSS/bootstrap.min.
CSS" rel="stylesheet" integrity="sha384-
Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi"
crossorigin="anonymous">
<style>
h3{
color: blue;
border:10px;
border-radius: 10px;
background-color: cyan;
}
h4{
color: black;
}
.form-group{
color: black;
text-align: center;
background color: light sky blue;
}
input{
color: black;
text-align: center;
}
#border{
border-radius:10px;
background color: light sky blue;
color: black;
width:560px;
height:740px;
padding:10px;
}
#yellow{
background-color: yellow;
size: 40px;
margin-left: 5px;
}
#pink{
background-color:palevioletred;
margin-left: 5px;
}
#orangbackground color or: dark orange;
margin-left: 5px;
```

```

}
</style>
</head>
<body style="background-color: light pink">
<center>
<div id="border" style="margin-top:2px;">
<form action="#" method="POST" autocomplete="off" border="3">
<div class="col-MD-offset-4 col-MD-6" style="margin-top:
200px;">
<h3>LOGIN PAGE</h3>
<div class="form-group">
<label id="mail"><h4>mail</h4></label>
<input type="email" name="mail" class="form-control"
required>
</div><br>
<div class="form-group">
<label><h4>password</h4></label>
<input type="password" name="password" class="form-control"
required>
</div><br><br>
<div class="form-group">
<a href="/nutrition_page"><input type="button" name="login"
value="sign in" id="pink"></a>
<a href="/account"><input type="button" value="signup"
id="yellow"></a>
<a href="/home_page"><input type="button" value="home"
id="orange"></a>
</div>
</div>
</div>
</div>
</form>
</div>
</center>
</body>
</html>

```

SIGNUP

```

<!doctype html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width , initialscale=
1.0">
<title>create account</title>
<style>
h3{
text-align: center;
color: blue
}
Form background color: light sky blue;
}
.form-group,input{
color: black;
text-align: center;
}

```

```

#center{
margin-top: 300px;
}
#border{
border-radius:10px;
background color: light sky blue;
color: black;
width:560px;
height:740px;
padding:1px;
}
#message{
background-color: light cyan;
color: black;
}
.table{
background-color: Alice blue;
text-align: center;
}
</style>
<!-- CSS only -->
<link
href="HTTPS://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/CSS/bootstrap.min.
CSS" rel="stylesheet" integrity="sha384-
Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi"
crossorigin="anonymous">
</head>
<body style="background-color: light pink">
<center>
<div id="border">
<form action="/register" method="POST" autocomplete="off"
border="3">
<div class="col-MD-offset-4 col-MD-6">
<h3 style="text-transform:uppercase;">create account</h3>
<div class="form-group">
<label>name</label>
<input type="text" name="name" class="form-control"
required>
</div>
<div class="form-group">
<label>age</label>
<input type="text" name="age" class="form-control"
required>
</div>
<div class="form-group">
<label>address</label>
<input type="text" name="address" class="form-control"
required>
</div>
<div class="form-group">
<label>contact</label>
<input type="number" name="contact" class="form-control"
required>
</div>
<div class="form-group">
<label>mail</label>

```

```

<input type="email" name="mail" class="form-control"
required>
</div>
<div class="form-group">
<label>new password</label>
<input type="password" name="password" class="form-control"
required placeholder=" enter the strong password">
</div>
<div class="form-group">
<label>confirm password</label>
<input type="password" name="confirm_password" class="form-control"
required placeholder=" enter the correct password to ">
</div><br><br>
<div class="form-group">
<input type="submit" name="submit" value="register" class="btn
btn-success">
<input type="reset" value="clear" class="btn btn-danger">
<a href="/home_page"><input type="button" value="home"
class="btn btn-danger"></a>
</div><br><br>
<div>
</div>
</div>
</div>
</form>
</div>
</center>
</body>
</html>

```

HOME

```

<!doctype html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width , initialscale=
1.0">
<title>home</title>
<link
href="HTTPS://cdn.jsdelivrivr.net/npm/bootstrap@5.2.2/dist/CSS/bootstrap.min.
CSS" rel="stylesheet" integrity="sha384-
Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi"
crossorigin="anonymous">
<style>
h1{
font-family:Arial, Helvetica, sans-serif;
text-transform: uppercase;
text-shadow:5px 0 red;
border: 300px;
border-radius:30px;
text-align: center;
}
h1:hover{
background color: light sea green;
}

```



```

.form-group{
border-radius:10px;
background color: light slate grey;
color: black;
width:100%;
padding:2px;
}
.form-group:hover{
background-color: chartreuse;
}
#home{
float: left;
margin-right:10px;
color: black;
}
#reg{
float: left;
margin-right: 10px;
color: black;
}
#log{
float: left;
margin-right: 10px;
color: black;
}
#abt{
color: black;
}
img{
border-radius:10px;
width:100%;
height: 640px;
padding:10px;
float: inline-start;
}
#home: hover{
background-color: aqua;
}
#reg: hover{
background-color: fuchsia;
}
#log: hover{
background-color: yellow;
}
#abt: hover{
Background color: deep pink;
}
#pure{
font-family: 'Gill Sans', 'Gill Sans MT', Calibri,
'Trebuchet MS', sans-serif;
font-style: italic;
color:dark goldenrod;
font-size:30px;
border:1300px;
border-radius: 30px;
}

```

```

#pure: hover{
background-color: lightgoldenrodyellow;
}
</style>
</head>
<body style="background-color: light pink">
<h1><center><b>welcome to nutrition assistant
application</b></center></h1>
<div>
<div class="form-group">
<form action="#" >
<a href="#"><input type="button" value="home" id="home"
class="btn btn-orange:#fd7e14;"></a>
<a href="/account"><input type="button" value="create account"
id="reg" class="btn btn-orange:#fd7e14;"></a>
<a href="/login"><input type="button" value="login" id="log"
class="btn btn-orange:#fd7e14;" ></a>
<a href="/about"><input type="button" value="about" id="abt"
class="btn btn-orange:#fd7e14;"></a>
</form>
</div>
<br>
<div id="float-center">
<p id="pure">we are made to create healthy people in natural
way</p>

</div>
</div>
</body>
</html>

```

CHAPTER 8 CONCLUSION

For controlling and treating chronic illnesses, nutrition monitoring is essential. Much less food is entered on personal mobile devices than a headache because of food photography and image recognition. Using deep-based image recognition, we have developed a system for tracking nutritional intake that can quickly and accurately record the food and nutrients consumed. Through actual user food photo testing and user research, we found that laboratory models serve as the foundation of the solution but leave out some of the most important challenges. More genuine food visuals are available than in the lab-developed model. Ingredient-based recognition is a technique for monitoring the free-style and homemade food recognition tasks when training data is limited and unrepresentative.

CHAPTER 9

FUTURE SCOPE

We'll be introducing more user-friendly features in the future. The web application's UI/UX will be enhanced. expanding the project to accommodate more use cases and clients. putting distributed computing into practice for processing effectiveness. standardizing encryption for cloud storage. 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. Nutrition and Dietetics can work as a dietitian in hospitals and Nutritionists in health clinics, health centers, and MNCs. Opportunity to be a registered dietitian (RD). Graduates can work as project assistants, project associates, and chief nutritionists in NGOs and private organizations.