NOVEL ALGORITHM FOR NUTRITION BASED FOOD RECOMMENDATION

(machine learning based approach)

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Abstract

Diet consciousness is in increasing phase for people of all ages. individual eating habits are varied based on the life style and type of work.
The new norm of work from home and healthy eating can not work at the same time as it has less amount of physical stress and more of mental work.
It has a raised many health related issues and the diet problems.
The research is proposing a new algorithm that processes on each day input of food intake and provides the suitable food plan for the next scheduled duration with machine learning and areas of artificial intelligence. out novel approach of this framework is the acknowledgement of the current diet habits and user preferences for vegetarians. The research will generate chart of users with per user BMI calculation based on collective user data to generate proper food based nutrition chart. precision, recall and accuracy are the parameters to compare the results.

Introduction

As we all know diet plays essential role for our body to keep healthy and fit. Nowadays lot of people conscious about their diet. however, there are lot of people in all around the world who are unconscious bout their diet. They have no proper knowledge how many they should eat and what they should eat throughout the day.

To live a lite people, require diet and diet is depends on their body height weight and their body situations. Like old people require healthy diet with lot of nutrients. While pregnant lady require diet with full of nutrients, vegetables and fruits. also, as we know people who do a labor work which requires lot of carbohydrate food to maintain their body. Same people who do office works theyrequires less carbohydrate food.

During covid-19 pandemics lot of people do work from home. During the work from home situation people had lot of food. Unnecessary food in our body cause obesity. work from home and healthy eating cannot work at the same time as it has less amount of physical stress and more of mental work.

Obesity is root of all cause of all diseases such as diabetes, blood pressure and so on. Lot of research prove the people who do work from home or have no any activity to do they consume lot of food rather than who do some activity. There are 73% people in all around world who take obesity problem because of bad diet schedules. There are numerous people who want to reduce their weight but they are not success well enough.

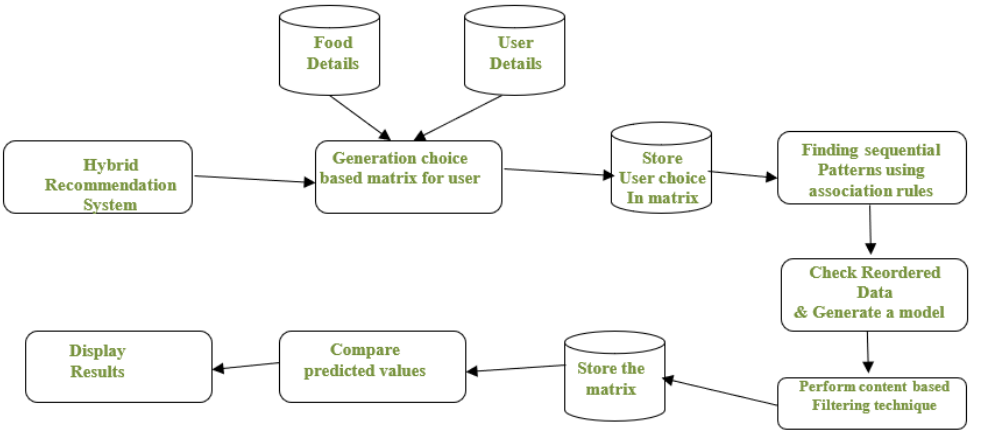
For solving this problem our research is proposing a new algorithm that processes on each day input of food intake and provides the suitable food plan for the next scheduled duration with machine learning and areas of artificial intelligence. out novel approach of this framework is the acknowledgement of the current diet habits and user preferences for vegetarians. The research will generate chart of users with per user BMI calculation based on collective user data to generate proper food-based nutrition chart. precision, recall and accuracy are the parameters we are used to compare the results.

Hence, this research might be help the people to get holistic development for their body.it helpful to solve problem about people diet such as when how much should eat and what is more Helpful food for our body according BMI.

System Design and Implementation

The system design, system flow and implementation along with its results and evaluation are shown in this chapter.

Architectural Overview



Proposed Architecture

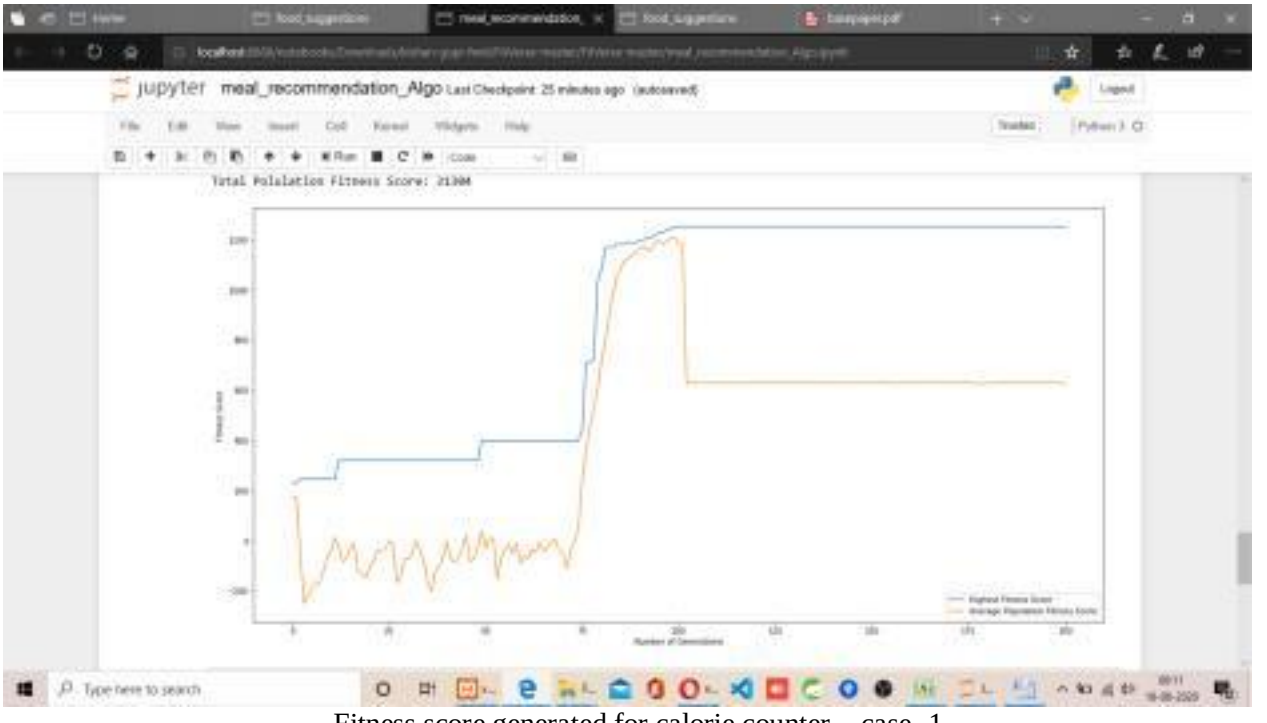
This process diagram depicts that the proposed work and methodology in step by step. In The very first step the system will be ask about food details and user details (BMI). then the System will be generated choice according based matrix for user. After find the matrix the system will store choice of user in matrix. In the next step, association rules used for finding sequential patterns. After that, the system will check the recorded data generate model according record data. After generating model, performance context-based filtering technique that used for recommendation such as what should eat etc.t then that store in the matrix after that compare predicted values and based on that system generate final result.

Here, I am going to use hybrid recommendation where two algorithms are used Apriori and context Based Filtering. Apriori algorithm used for generate the pattern that gives Combinations. And context based filtering used for Recommendation.

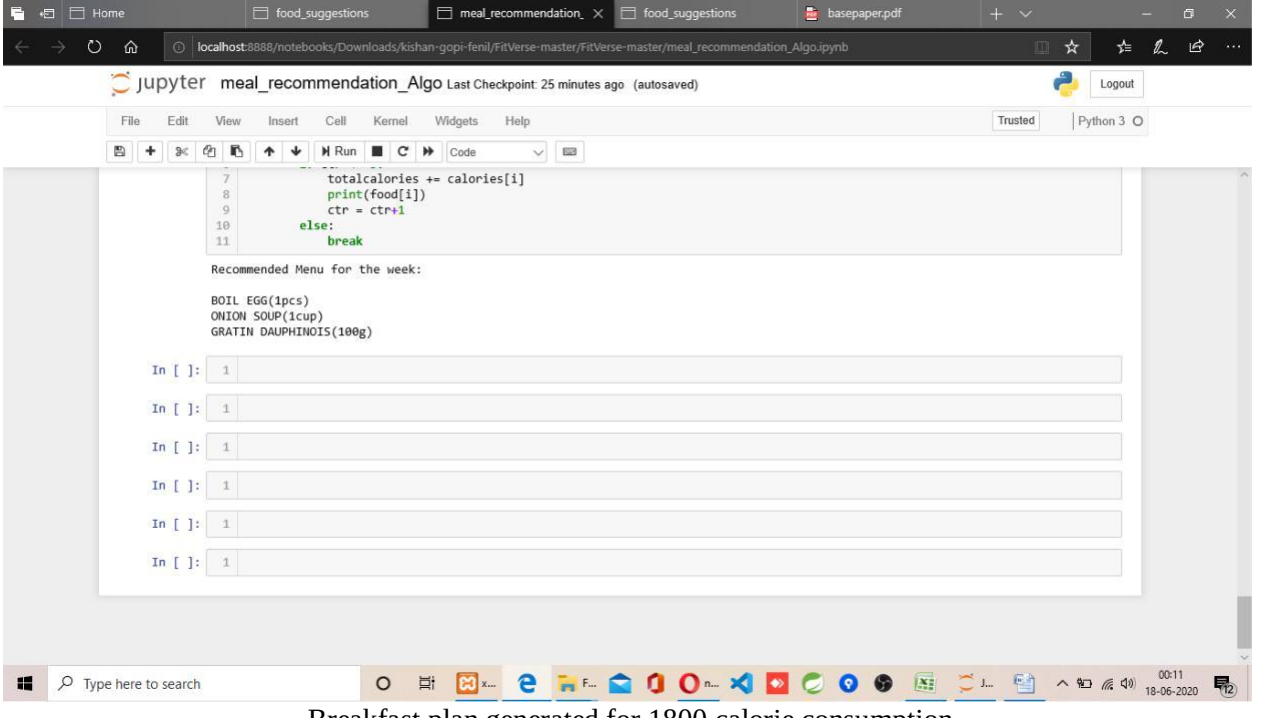
System Implementation steps

Step 1: Read transaction/Food data and User data
Step 2: Using feature extraction algorithm, build feature set
Step 3: Translate similar feature-based collections into product name concatenations
Step 4: Construct an 2d matrix of order X product details table
Step 5: Sort the product dataset details in order
Step 6: Generate a physical model
Step 7: Form matrix based on new feature-based rules with dataset
Step 8: Read the data from new matrix
Step 9: Check the size and shape of two data sets (order and product details)
Step 10: Check the data of one table
Step 11: Check re-ordered level data from rules matrix and save it to matrix
Step 12: Check order count of every product with content based filtering technique
Step 13: Filter the product details by sorting them
Step 14: Compare prediction to measurements
Step 15: Output estimate of state
Step 16: Display result.

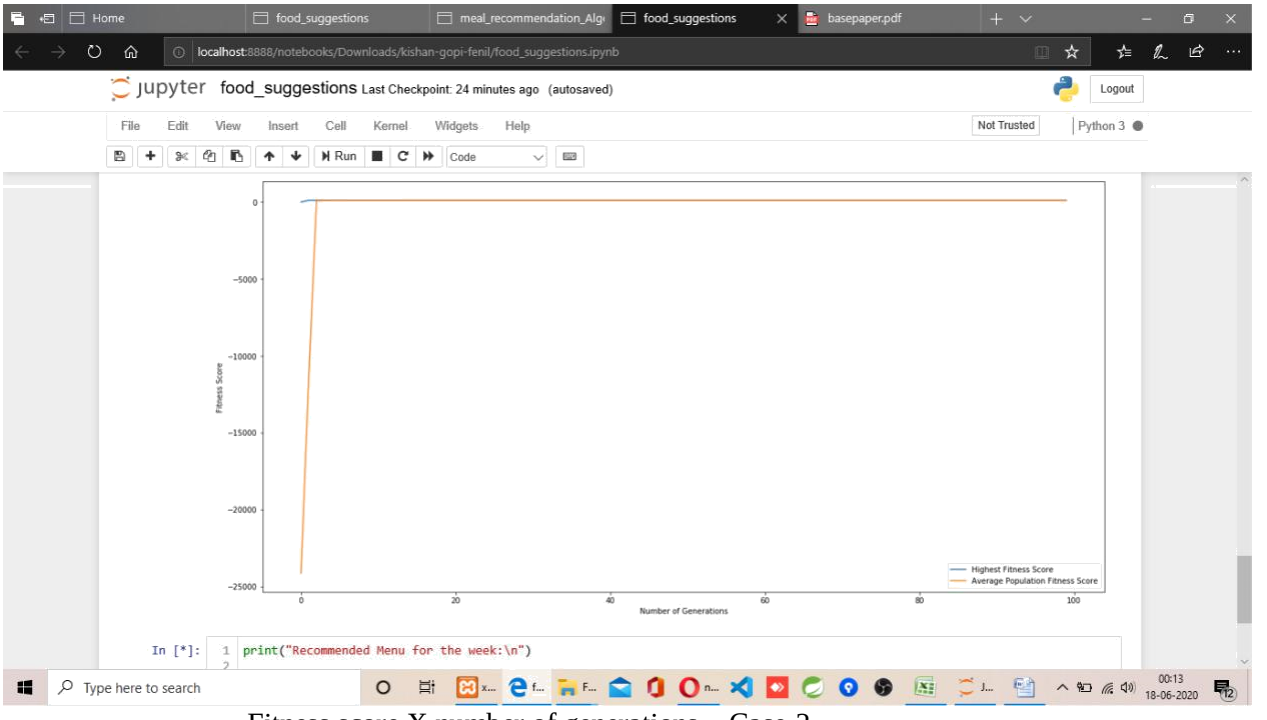
Results and Evaluation



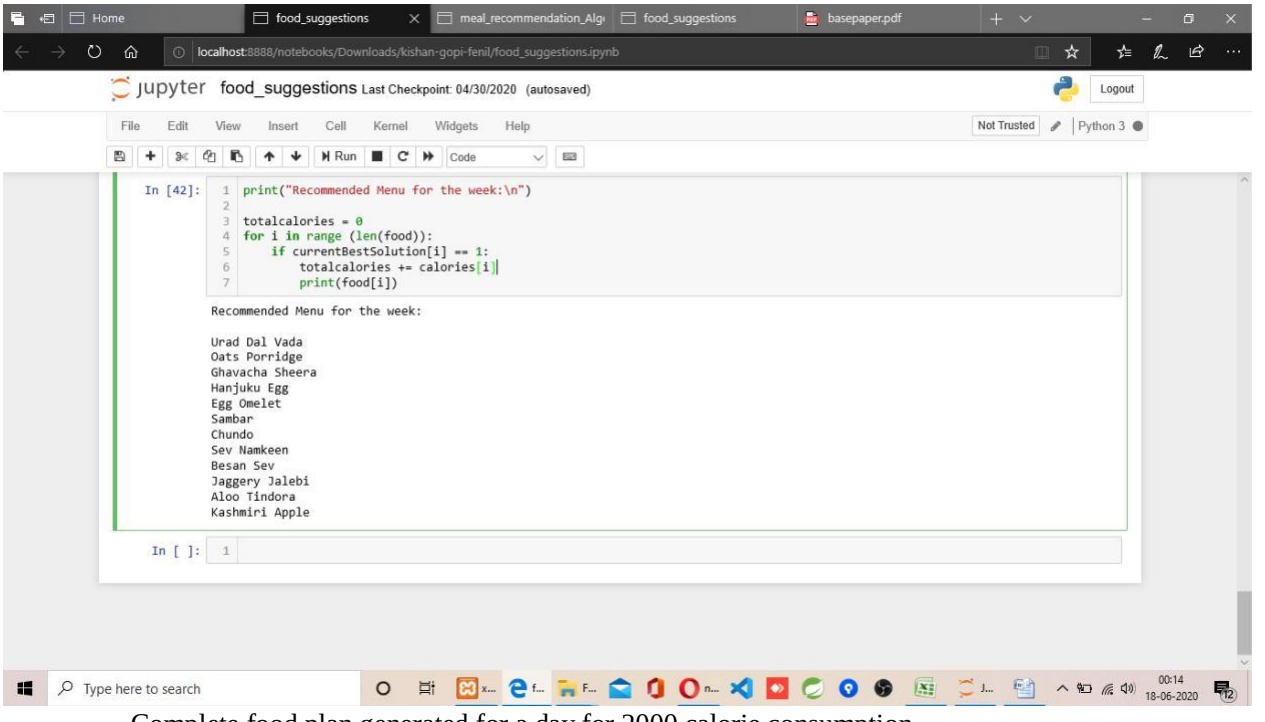
Fitness score generated for calorie counter – case- 1



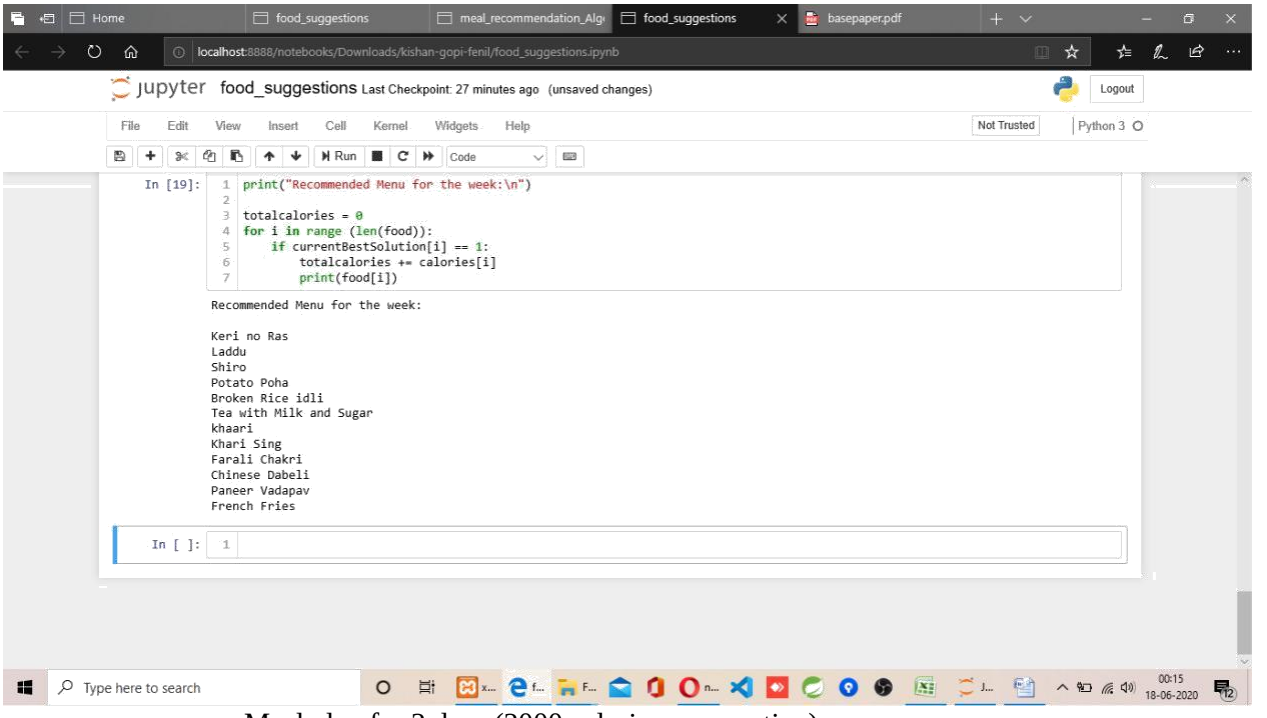
Breakfast plan generated for 1800 calorie consumption



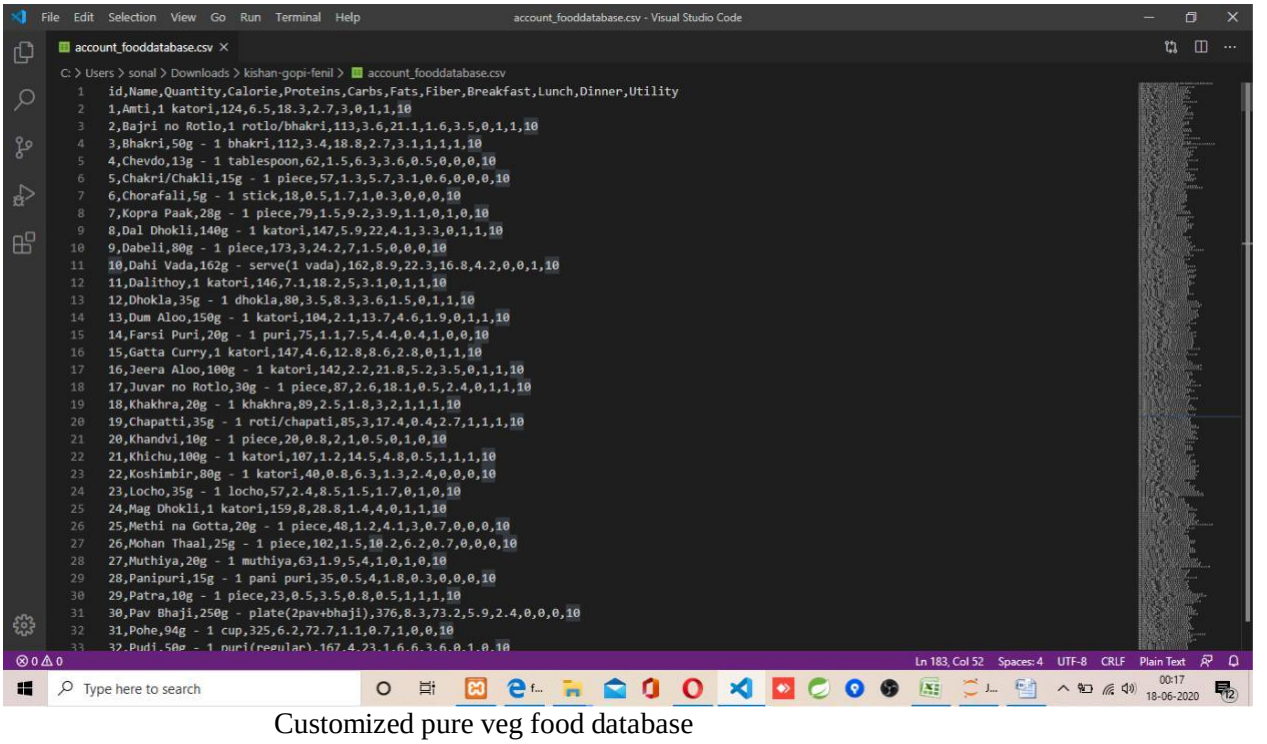
Fitness score X number of generations – Case-2



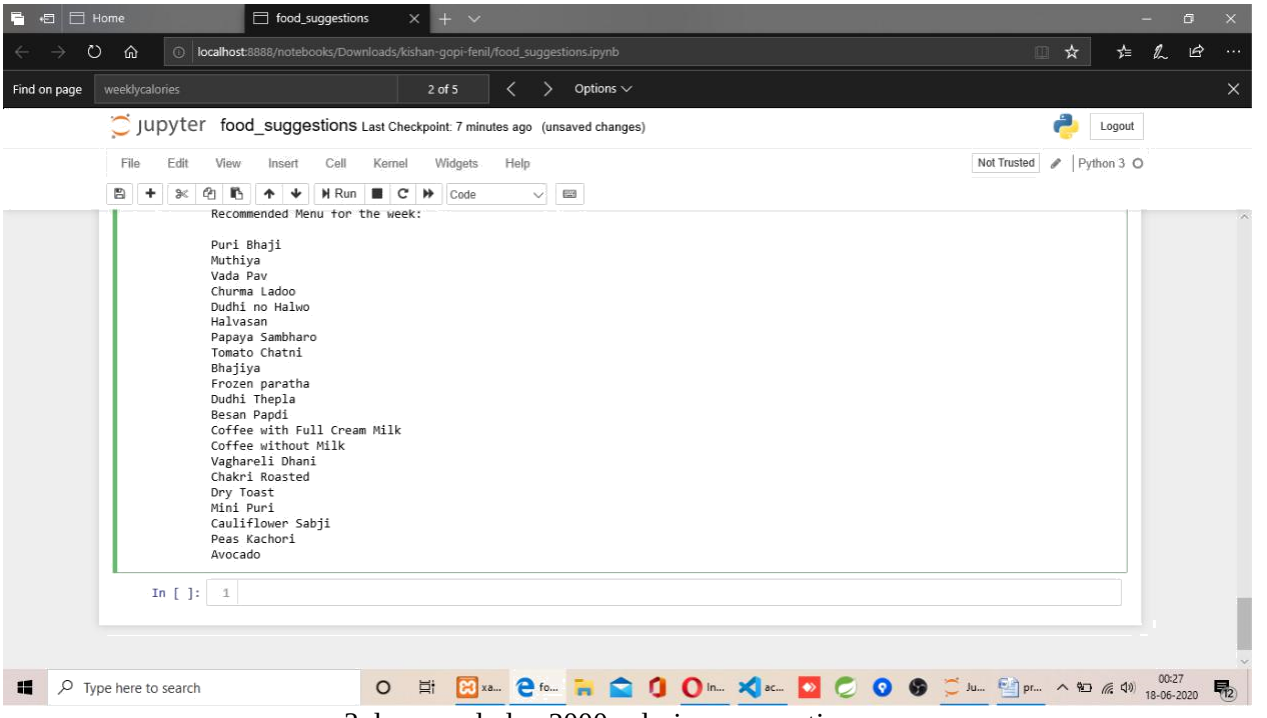
Complete food plan generated for a day for 2000 calorie consumption



Meal plan for 2 days (2000 calorie consumption)



Customized pure veg food database
(data taken from several sources like healthifyme, noom etc…



3 days meal plan 2000 calorie consumption

Conclusion

This research algorithm is works according to people BMI index, firstlyprocess start with to get each day body data like each day food intake and give the suitable food plan for next day scheduled duration. For that we are going to use machine learning and area of artificial intelligence hybrid recommendation approach that generate chart of users with per user BMI calculation based on collective user data to generate proper food-based nutrition chart**.** This research helping the people to get holistic development for their body. It helpful to solve problem about people diet such as when how much should eat and what is more helpful food for our body accordingto BMI.

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9] Mining Nutrition Survey Data Lydia Manikonda∗ , Raghvendra Mall† , Vikram Pudi‡ and Raghunatha Rao§ ∗†‡Center of Data Engineering Hyderabad, India Email: {{lydia,raghvendra.mall}@research,vikram}@iiit.ac.in

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10]Computers in Biology and Medicine journal homepage: www.elsevier.com/locate/compbiomed HANA: A Healthy Artificial Nutrition Analysis model during COVID-19 pandemic Mahmoud Y. Shams a , Omar M. Elzeki b,* , Lobna M. Abouelmagd c , Aboul Ella Hassanien d,f , Mohamed Abd Elfattah c , Hanaa Salem e
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