e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
Volume:03/Issue:05/May-2021 Impact Factor- 5.354 www.irjmets.com

FOOD RECOMMENDATION SYSTEM

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ABSTRACT

As of late, food recommender systems have gotten expanding consideration due to their pertinence for solid living. Most existing ponders on the food space center on suggestions that propose appropriate food things for personal clients on the premise of considering their inclinations or wellbeing issues. These systems moreover give functionalities to keep track of wholesome utilization as well as to convince clients to alter their eating behavior in positive ways. In this paper, we show a diagram of proposal methods for people within the sound food space. In expansion, we analyze the existing state-of-the-art in food recommender systems and talk about challenges related to the improvement of future nourishment proposal innovations.

Keywords: K-Nearest Neighbor Algorithm, Machine Learning, Data Cleaning, Pandas.

I. INTRODUCTION

Individuals make choices related to nourishment each day. They all think about what to eat, where to eat, how much dietary esteem this nourishment has, can this make me lose weight, can this nourishment make me solid and other questions. So this system helps the user to make fast decisions in these complex information spaces.

One such personalized service, ideally suited to informing diet, is a food recommendation. This recommender ay misuse the dietary values of the nourishment to advise its proposals. The goal of the application is to provide a platform where users find their favourite food and its nutritional value. This is useful for anyone who is having a particular health issue or he/she is health conscious or wants to lose weight. Much of this consideration is being paid to count calories administration systems, which have been supplanting conventional paper-and-pen strategies. These systems incorporate instructive substance and administrations, which convince clients to modify their conduct. Due to the ubiquity of these count calories checking offices, these systems hold a tremendous sum of client inclination data, which can be saddled to personalize intuitively highlights and to extend engagement with the system and the slim down program. This food recommendation application can help the user to find their favourite food and its nutritional value considering their health issue or the particular disease he/she is suffering. This is done by looking at the nourishments that contain one of the prime fixings and their wholesome esteem.

OBJECTIVE

To implement a system which is used to give food recommendations by taking into consideration a person's past medical history and help him to choose food which is more beneficial for him. To develop an efficient and effective model which predicts the price of a used car according to the user's inputs.

II. LITERATURE SURVEY

Paper 1:- A Food Recommender system considering nutritional information and user Preferences.

The aim of this paper is to provide a global solution to be used as the intelligent systems layer of this architecture. This solution incorporates the nutritional context determination based on a MCDA approach for filtering out inappropriate food, and a short term intelligent model based on an optimization scenario which considers both nutritional and preference-aware information. The current paper has presented a food recommendation approach focused on generating daily personalized meal plans for the users, according to their nutritional necessities and previous food preferences. The modification of the foremost later related works demonstrates that in spite of the fact that there are a few investigations centered on creating computational devices for nourishment admissions advice, most of them don't specifically oversee both client inclinations and wholesome data.

Paper 2:- Food Proposal System Utilizing Clustering Examination for Diabetic Patients.

This system will recommend the proper substituted foods in the context of nutrition and food characteristics. For diabetes diet care, nutrition is the major key for controlling diabetes. Nevertheless, the existing categorization mechanism is not efficient for classifying the food group for diabetic patients. For the past research the ontology has been suggested for diabetes diet care and automated food mechanism, however, the results cannot achieve fairish food categories. For this reason, our research aims to present the next step in categorization by using the SOM algorithm along with K-mean clustering. In contrast with the existing research, SOM algorithm will categorize the food, by considering eight significant nutrients as main features that have an effect on diabetic patients.

Paper 3:- A context-aware food recommendation system.

This proposed system receives a user's profile, physiological signals, and environmental information around the dining table in real time. In this paper, we proposed u-BabSang that recommends appropriate foods in real time to each individual by utilizing each individual's profile, physiological signals, and sensed environmental information. The advantage of the proposed system is that it empowers the administration of personalized well-being care by joining client settings with other settings amid run time, and translating these settings in a client centric way. More particularly, by analyzing their individual circumstance (e.g., physiological status, eating custom, climate, area, etc.), the proposed system can screen the wellbeing of people with particular clinical history.

Paper 4:- Profound Learning based Recommender System: A Study and Modern Perspectives.

This article points to a comprehensive audit of later inquiries about reports on profound learning based recommender systems. More concretely, we offer and devise taxonomy of profound learning based suggestion models, alongside giving a comprehensive rundown of the state-of-the-art. In this article, we gave a broad audit of the foremost striking works to date on profound learning based recommender systems. We proposed a classification scheme for organizing and clustering existing publications, and highlighted a bunch of inertial research prototypes. We too talked about the advantages/disadvantages of utilizing profound learning strategies for suggestion assignments. Also, we detail a few of the foremost squeezing open issues and promising future expansions. Both profound learning and recommender frameworks are ongoing hot inquiries about subjects within the later decades. There are a huge number of modern creating strategies and rising models each year. We hope this survey can provide readers with a comprehensive understanding towards the key aspects of this €eld, clarify the most notable advancements and shed some light on future studies.

Paper 5:- The Utilize of Machine Learning Calculations in Recommender Systems: A Efficient Audit.

Recommender systems (RS) are utilized to assist clients discover unused things or administrations, such as books, music, transportation or indeed individuals, based on data around the client, or the suggested thing. Recommender systems(RS) are broadly utilized in e-commerce, social systems and a few other domains. Since its presentation within the mid 1990s, inquire about in RSs has been advancing. One dynamic step in RS history is the appropriation of machine learning (ML) calculations, which permit computers to memorize based on client data and to personalize proposals in advance. Machine learning is an Manufactured Insights (AI) inquiry about a field that includes calculations whose objective is to anticipate the result of information preparing.ML has made major breakthroughs within the areas of picture acknowledgment, look motors, and security. Be that as it may, the ML field has a few calculations depicted within the writing, with changed characteristics. The writing needs a classification framework for calculations appearing in the environment in which they are most appropriate. Subsequently, choosing an ML calculation to be used in RSs may be a troublesome assignment. In addition, researchers in RSs do not have a clear view of the trends in ML calculation utilization to choose on where to center their inquiry about efforts. Software building (SE) may be a field that thinks about the advancement of computer programs from concept to usage, and upkeep. The field has apparatuses that can help the advancement of RSs that contain ML calculations. However, analysts have to know in which SE region RS improvement needs assets. This idea proposes a precise survey to watch the ML calculations that are utilized in RSs and what SE ranges can help the improvement of such RSs.

2.1 REQUIREMENTS

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Hardware Specification:

Operating System – Windows 7,8, 10 or Professional editions

Processor – dual core 2.4 GHz+(i5 or i7 series Intel processor or equivalent AMD)

RAM – 8GB

Hard Drive – 256 GB or larger solid state hard drives

Software Specification:

Python 3.7

Pandas

Sklearn

Numpy

III. METHODOLOGY

There are two primary phases in the system:

1. Training phase:

The framework is prepared by utilizing the information within the information set and fits a show (line/curve) based on the calculation chosen appropriately.

2. Testing phase:

The framework is given with the inputs and is tried for its working. The accuracy is checked. And therefore, the data that is used to train the model or test it, has to be appropriate.The system is designed to detect the accurate food for the people.and appropriate algorithm is used to do the task.

Before the algorithms were selected for further use, different algorithms were compared for their accuracy. The well-suited one for the task was chosen.

3.1. ALGORITHMS:

1. CONTENT FILTERING ALGORITHM

The content-based suggestion calculations determine from data recovery and sifting inquire about. The content-based suggestion is the continuation and advancement of early collaborative filtering strategy. Content-based proposal systems suggest things comparable to those that the client has chosen within the past instead of the user's comments of things. Numerous current content-based systems construct the users' profile and items' profile. A client profile contains data around a user's tastes, inclinations and needs which can be evoked from users' surveys or learned from their value-based behavior over time, whereas a thin profile contains a set of traits of things. Then the system calculates the similarity of user profile and each profile of all the items and recommended items may satisfy user need or tastes.

Combining the include of things and the client intrigued demonstrate, the utility work is more often than not characterized as:

u(c, s) = score(ContentBaseProfile(c),Content(s))

There are numerous strategies to calculate the utility, for case, the cosine similarity measure:

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

K-NEAREST NEIGHBORS ALGORITHM:

KNN is a machine learning algorithm to find clusters of similar users based on and make predictions using cosine similarity. We can understand it's working with the help of following steps:

I. For actualizing any calculation, we require an information set. So amid the primary step of KNN, we must stack the preparing as well as test data.

II. Next, we have to select the esteem of K i.e. the closest information focuses. K can be any integer.

III. For each point within the test data do the following –

i. Calculate the remove between test information and each push of preparing data with the assistance of cosine similarity.

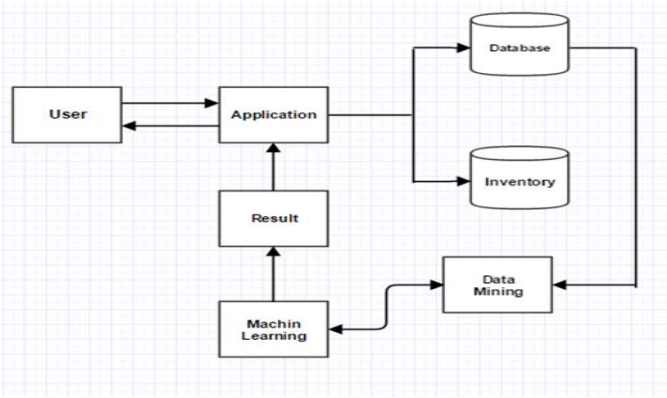
ii. Now, based on the removed esteem, sort them in rising order.

iii. Next, it'll select the best K lines from the sorted array.

iv. Now, it'll relegate a lesson to the test point based on the foremost visit lesson of these rows. End

3.2. Proposed System:

The project entitled "FOOD RECOMMENDATION SYSTEM" recommends a food item list and displays the result depending on the patient health issues and nutritional value of the food item. Here, a primary food ingredient is selected by the user. Then from the database it recommends the user the perfect food he/she can have on the basis of the health of the patient. The project analyzes the user's health and according to the user's health issue or the disease he is suffering from, the application suggests the food item he/she can have. In this project , as the user gets login to the application the users medical history is collected from the particular hospital and according to his health issue or the disease he was suffering the application recommends the suitable food he/she can order. It completely looks after the health of the user and works particularly.



IV. CONCLUSION

A food recommendation approach focused on generating daily personalized meal plans for the users, according to their nutritional necessities and the health issue he/she is facing according to the users medical history. The modification of the foremost later related works demonstrates that in spite of the fact that there are a few investigations centered on creating computational devices for nourishment admissions advice, most of them don't specifically manage both client preferences and dietary data. In this project we focus on all the different ways the user can keep themselves healthy.

FUTURE SCOPE

In the future this machine learning model is used to give food recommendations by taking into consideration a person's past medical history and help him to choose food which is more beneficial for them. It too makes a difference for a person to remain sound and fit and this application not as it were keeps the individual fit but he/she can too appreciate nourishment they need concurring to their specific nourishment level.

V. REFERENCES

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