Review On Diet Recommendation System Using Machine Learning

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Abstract: In today's modern world people all around the globe are becoming more interested in their health and lifestyle. But just avoiding junk food and doing an exercise is not enough, we require a balanced diet. A balanced diet based on our height, weight and age can lead a healthy life. Combined with physical activity, your diet can help you to reach and maintain a healthy weight, reduce your risk of chronic diseases (like heart disease and cancer), and promote your overall health. A balanced diet is one that gives your body the nutrients it needs to function correctly. Calories in the food is the measure of amount of energy store in that food. Our body use calories for basically everything like breathing, walking, running etc. On average a person needs 2000 calories per day but specifically intake of calories depends upon persons physical aspects like weight, height, age and gender. So, your food choices each day affect your health — how you feel today, tomorrow, and in the future. Thus, a proposed system gives recommend you a diet plan based on your physical aspects and your end goal.

Index Terms – diet recommendation system, machine learning, diet plan

1. INTRODUCTION

The recommending systems for the patients diets tracks the complete health conditions of the patients in a personalized manner and recommends the suitable and the variety of the food items that the patients can have. The dieting recommending system (DRS) is carefully utilized to provide the suggestion on the diets that could be used as a nutritional supplement to the patients as well as the food products that satisfies the health requisites, tastes and the dietary preferences. Further the on the basis of the healthy living the DRS are capable of delivering optimal solutions that would meet the patients choices on foods taking into consideration the huge amount of data accessible and correlated to foods or the recipes.

Manifold procedures and algorithms offering an efficient suggestions have been put forth by many researchers. This is presented in the related work section of the paper. The researchers conducted so far has demonstrated that the diet suggestion provided to the patients were indeed a medication to the many patients who have diseases. In the DRS centered product details with the automated suggestion, food habits as suggested by the dietitians based on the health conditions would enhance the robustness, extending protection against the many disease and improving the quality of living of an individual.

The nutritious foods improves the health condition by providing a proper level of vitamins, antioxidants, minerals, proteins, fiber and the fat that are essential for the body they also remain as the fundamental factor to the perfect physical functioning of the body and sometimes causes defects in the patient's body that are allergic to the nutritious intake because of the disease they are suffering from

The real time suggestion of healthy system for the patients with regard to the nutritional requisite of the patients has become a very serious issue for the researchers. So the proposed method in the paper puts forth an DRS with the deep learning classifier to develop an automatic food suggestion RS and further embeds the cosine similarity and the K-Clique into the DRS along with the deep learning models to identify the similar patients with same disorders , who require a same type of diet and group them respectively. Incorporating the K-clique in the DRS along with the DL- Model enhances the preciseness and the accuracy of the deep learning techniques.

The remaining of the paper proceeds with the section 2 presenting the related works about the diverse applications of the recommendation system, the section 3 providing the proposed method on the developing a K-DLRS for the diet suggestion based on the patients' needs and disorders. Section 4 with the empirical observation of the developed system and comparison with the other models. And section 5 the conclusion of the work.

2. Literature Review

Phanich, et al [1] as nutritious diets are the important for maintaining a good health, it becomes necessary for everyone to intake a healthy diet. The paper devises a recommendation system that suggests a nutrition therapy as a key remedy for the diabetic patients who have diverse food restrictions. The author utilizes the clustering analysis method and the Self organizing method to formulate a FRS for the diabetes patients to provide perfect suggestion on their food intake.

Jeong, et al [2] demonstrates the applicability of the recommendation system to the movie lens, the proposed methodology of the paper utilizes the "personal propensity and the secure collaborating filtering to deliver remedies to the sparsity and the scalability problems".

Hao, et al [3] scopes in surveying the various social network analysis strategies to examine the social frame work and the significant properties using the network and the graph theories, utilizing the "soft computing strategies like the fuzzy logic the formal concept examination using the rough set theory and the soft set theory".

Tran et al [4] the increasing attention of the FRS because of their significance in the healthy living is the motivation behind this paper is to present the comprehensive over view of the FRS for the individuals as well as cluster of people using the healthy food domain. The paper also examines the current standard FRS, and presents the discussion on the research issues associated in designing a next generation suggestion technologies. Norouzi et al [5] Smart FRS developed in the paper uses the artificial intelligence to design a knowledge base according to the guiding principle laid out by the "American diabetes association". The favorites and the health status of the patients was analyzed to suggest a perfect snack for the affected.

Xinchang, et al [6] presents the "Movie Recommendation Algorithm Using Social Network Analysis to Alleviate Cold-Start Problem."Vilakone et al [7] proposes "The Efficiency of a Do Parallel Algorithm and an FCA Network Graph Applied to Recommendation System."Vilakone, et al [8] put forth a "Personalized Movie Recommendation System Combining Data Mining with the k-Clique Method."

Smys, S et al [9] put forth the. "Big Data Business Analytics as a Strategic Asset for Health Care Industry."Pandian, et al [10] devised a "Sleep Pattern Analysis and Improvement Using Artificial Intelligence and Music Therapy." Bashar et al [11] presents the. "Survey on Evolving Deep Learning Neural Network Architectures." Manoharan, et al [12] presents the feature detection based on the "Hermitian graph

Problem Statement

Food for the body is like to an engine oil for the vehicle. The Quality of food will matters on health a lot so that there need a system which will helps the people for good food. Food will impacts a lot in every body. Excessive and improper food harms a lot. So that there is necessity of proper food intake for the body now days there numbers of clinic and doctors those are recommending the proper diet plan. There is need of such technique which can give us a proper digestive plan.

3. PROPOSED SYSTEM

As per the problem segment scene it is need to be evaluate with a proper diet recommendation system which helps the user to get a proper diet plan based on calories need by particular body here we are manipulating BMI of the person and determining the calories required by them which getting to be pass as a independent variable to the machine learning algorithm which help us to recommend a proper diet as per the requirement of that particular body Accordingly, we train the ML model with different inputs to get the desired results for the user.

We mainly using Decision Tree Algorithm:
 The above algorithm will helps to get the appropriate results as compared to other one the proposed mechanism will be workout not only with diet recommendation but it is also differ by the technique and terminology we are using

4. Decision Tree

Decision Tree is the most powerful and popular tool for classification and prediction. A Decision tree is a flowchart-like tree structure, where each internal node denotes a test on an attribute, each branch represents an outcome of the test, and each leaf node (terminal node) holds a class label. *Decision tree for the concept Play Tennis.*

4.1.   Construction of Decision Tree: A tree can be *"learned"* by splitting the source set into subsets based on an attribute value test. This process is repeated on each derived subset in a recursive manner called *recursive partitioning*. The recursion is completed when the subset at a node all has the same value of the target variable, or when splitting no longer adds value to the predictions. The construction of a decision tree classifier does not require any domain knowledge or parameter setting, and therefore is appropriate for exploratory knowledge discovery. Decision trees can handle high-dimensional data. In general decision tree, classifier has good accuracy. Decision tree induction is a typical inductive approach to learn knowledge on classification

5. Methodology
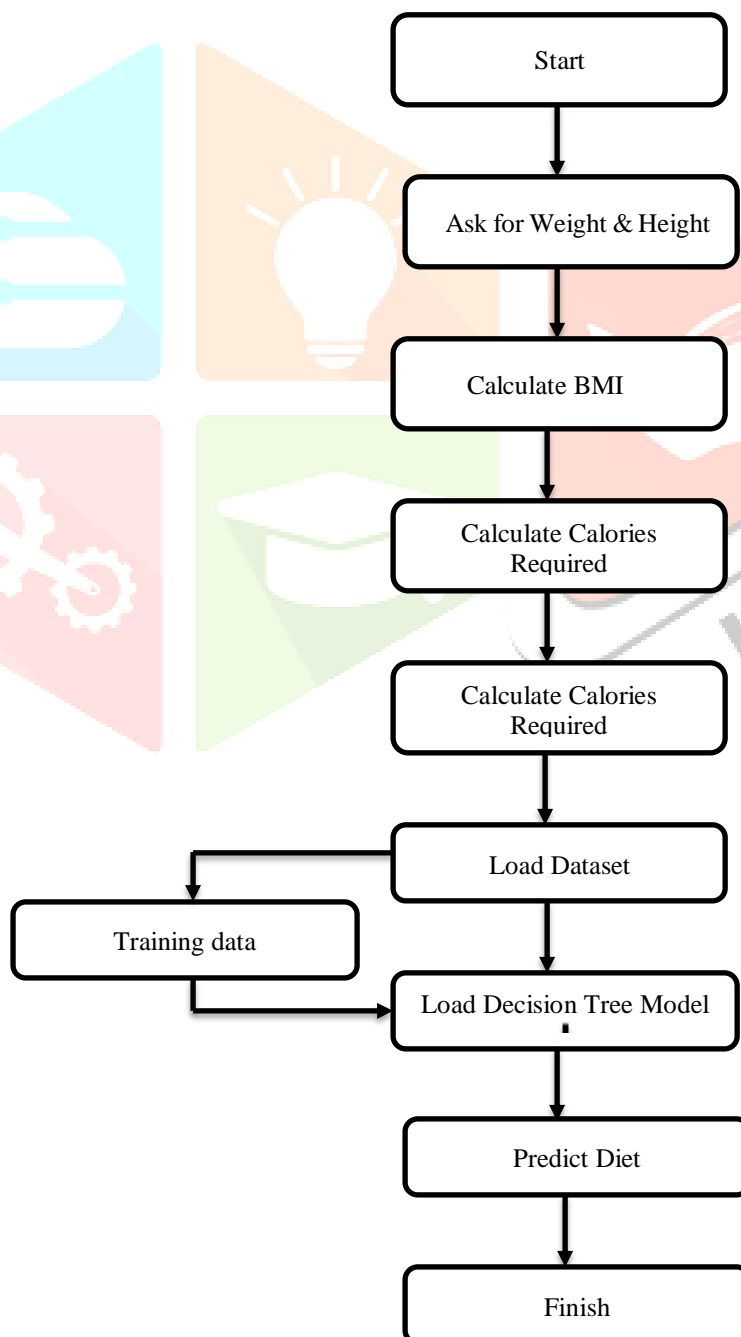
as per the about diagram shown firstly we are taken height and weight of the user as a input on the basis of that the BMI of the user will be calculated which is going to be pass as an input to calculation of calories required once the calories will be determine a datasheet with Calories and food is going to be load for prediction purpose. Here system will recommend the diet as per the BMI index values.

6. Conclusion

The emerging technologies like machine learning and artificial intelligence playing a important part in the development of the IT (Information Technology) industries. We have made use of these technologies and create a website for people who are consult about their diet and want to lead a healthy life. The importance of nutritional guidance is increasing day by day to lead a healthy and fit life and by accepting the user's preferences and a user's profile in the system a healthy diet plan is generated.

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