

# Diet and Nutrition Management System

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## **ABSTRACT**

Many people suffer from three chronic diseases (diabetes, hypertension, cholesterol) and they often use search engine to collect related information. However, most of dietary information on internet is not convenient for users to know about the diet recommendations. In this paper, a diet recommendation system is suggested which can recommend a rational diet for users. We are proposing a diet recommendation system which has the expert knowledge of three high chronic diseases. The system uses fuzzy logic as a guide prior to inference. According to the patient's health information, the system infers daily calories requirement. The Apriori algorithm is used to recommend suitable foods for users. The system was evaluated by nutritionists to prove it is effective.

**KEYWORDS-Chronic, Fuzzy logic, Apriori algorithm**

## **INTRODUCTION**

Diet is one of the supporting factors of life, plays a key role in maintaining health and prevention of diseases. In Modern Science, the balanced diet is one which includes a variety of foods in such quantities and proportions that the need for energy, proteins, vitamins, minerals, fats, carbohydrates and other nutrients for maintaining health. In Ayurveda the "balanced diet", which nourishes both the mental and physical built [1].

Individual's food choices depend on energy needs, nutrient needs and enjoyment. Family, friends and personal beliefs, including cultural and environmental considerations, also play a major role in people's food selection. Many genetic, environmental, behavioural and cultural factors can affect a person's health. Understanding family history of disease or risk factors, such as body weight and fat distribution, blood pressure and blood cholesterol, can help people make more informed decisions about how to improve health. Making good food choices is among the most pleasurable and effective ways of improving health.

## **LITERATURE SURVEY**

Effective personal dietary guidelines are essential for health management and preventing chronic diseases. The objective of this research is to achieve nutrient-balanced food recommendations for each individual, while considering individual's requirements at the same time. The location-aware interactive diet consultant named Smart Diet based on the multi-objective optimization was proposed. The proposed personalized diet planning

approach not only translates nutrient recommendations into realistic dish choices, but also accepts feedbacks from users to fine-tune their meal plans. The results showed that daily nutrition needs can be fulfilled by the designated meals and the interactive diet planning scheme helps a user adjust the plan in an easier way. The guidelines generated by Smart Diet are expected to potentially improve the overall health and reduce the risk of chronic diseases of individuals.

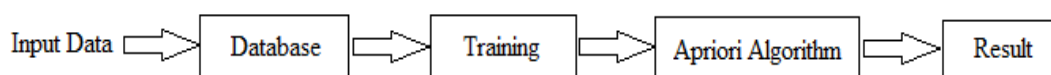
There are many studies which are focused on diet planning for humans. Some of them are focused on a specific region or a situation. Kljusurić et al. presented a nutrition planning system using fuzzy logic modeling method for boarding schools in Croatia. Daily menu price, meal preference, nutritional and energy value of foods considered input parameters. They take meal preference as input since nutrition habits are different in various places of Croatia. Their software is suitable for planning of menu which has optimal cost and adequate nutrient intake. Kurozumi et al. [2]

## PROPOSED METHODOLOGY

Nutrition is a conscious activity, taking nutrients needed by the body adequately and on time, to protect the health and improve the quality of life. Taking every item of the energy and nutrients that essential for growing-regeneration and working of the body and proper use of them in the body is called “Adequate and Balanced Nutrition”. We should consume fat and sugar group at least. We can group the animal and plant nutrients according to the chemical properties as follows:

- Carbohydrates
- Proteins
- Fat
- Vitamin
- Minerals
- Water

Following block diagram shows working of proposed system:



**Fig 1: Block Diagram of Proposed System**

Based on the data from number of users, the database will be created. While training the dataset, different diseases like diabetes, cholesterol etc. will be considered and with the help of local dietician, dataset will be trained. Afterwards, Apriori algorithm will be applied on the dataset and a proper diet will be suggested to the user. For instance, diabetic patient will enter his data from the blood report in the system and based on it he will be suggested with a suitable diet.

**Apriori Algorithm-** Apriori is an algorithm for frequent item set mining and association rule learning over databases. It identifies the frequent individual items in the database and extending them to larger and larger item sets as long as those item sets appear sufficiently often in the database. These frequent item sets determined by Apriori can be used to find association rules which highlight general trends in the database: this has applications in domains such as market basket analysis.

## CONCLUSION

Balanced diet should help users to prevent eating disorder such as anorexia nervosa, diabetes, and obesity. This study shows this system can be used to represent recommended energy and nutrient intake adequately. Here we are proposing an apriorialgorithm for suggesting a best diet for the user. This system will be helpful for dieticians and general physicians for suggesting a suitable diet for patients using automatic approach.

## REFERENCES

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