



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 13, Issue 3, March 2024

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423



9940 572 462



6381 907 438



ijirset@gmail.com



www.ijirset.com

Review on Diet Recall System

Dr. Nitin R. Chopde¹, Ishwari V. Khandre², Dipali S. Misal³, Sakshi R. Gadge⁴, Sharayu N. Konde⁵

Associate Professor, Dept. of Computer Science Engineering, P. R. Pote (Patil) College of Engineering and Management, Amravati, Maharashtra, India¹

U.G. Student, Dept. of Computer Science Engineering, P. R. Pote (Patil) College of Engineering and Management, Amravati, Maharashtra, India^{2,3,4,5}

ABSTRACT: This paper presents a comprehensive Diet Recall System that seamlessly integrates Python-based Machine Learning (ML) techniques with Android application development. The system boasts a user-friendly graphical interface, complete with a secure login page for user authentication. After successful login, users are prompted to provide essential details including gender, age, weight, height, dietary preferences (vegetarian/non-vegetarian), and fitness objectives (maintaining, slimming down, or gaining weight). Utilizing this input, the system generates personalized diet plans that offer detailed calorie and nutrition information for recommended foods. Additionally, it enhances user engagement by sending timely food reminders via SMS. Going beyond dietary assistance, the system also incorporates disease detection capabilities, with a specific focus on prevalent health conditions such as heart disease and diabetes, utilizing pertinent datasets. This innovative solution aims to address the dynamic healthcare landscape by leveraging ML to remotely monitor and deliver personalized care, thereby revolutionizing the conventional approach to health management.

KEYWORDS: Machine learning, Food reminders via SMS, Personalized Diet Plans, Disease Detection.

I. INTRODUCTION

In today's fast-paced world, maintaining good health is essential for people of all ages and backgrounds. One of the key aspects of a balanced life is making informed decisions about what we eat, tailored to our individual needs. With the abundance of dietary information available, it can be overwhelming to navigate the complexities of modern nutrition. Health and nutrition play a vital role in our daily lives, but finding personalized and balanced dietary advice can be challenging. To address this challenge, recommender systems powered by machine learning (ML) have emerged, particularly in the realm of healthcare. However, many existing health and fitness applications offer generic recommendations that may not be tailored to individual needs. To bridge this gap, our Health Recommendation System utilizes advanced ML algorithms to create personalized diet plans for each user, taking into account their unique characteristics and preferences. In addition to dietary guidance, our system also incorporates disease detection based on user input, with a focus on conditions such as heart disease and diabetes. This proactive approach improves the effectiveness of the system, requiring specific datasets related to heart health and diabetes management for comprehensive health monitoring. Our goal is to empower users to make informed decisions about their diet and overall health. By providing personalized recommendations and support, our Health Recommendation System aims to help individuals achieve their fitness goals and cultivate a healthier lifestyle.

II. LITERATURE REVIEW

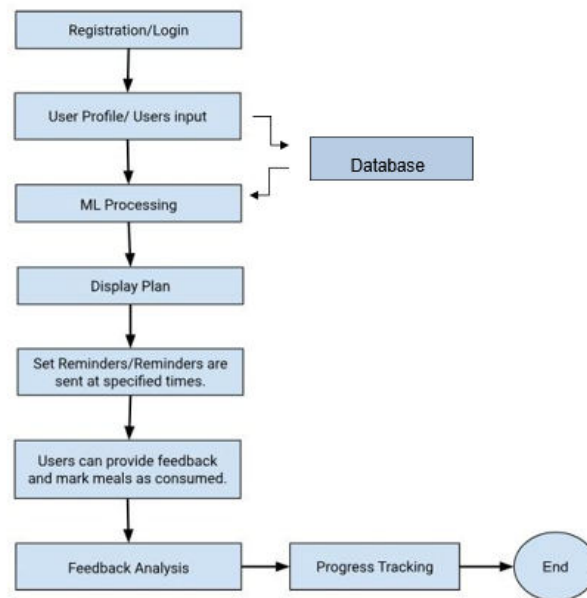
1. Celestine Iwendi et al. (2020): The study delves into the data collection capabilities of their system, focusing on Machine Learning (ML) and deep learning algorithms such as Naive Bayes, Logistic Regression, Multilayer Perceptron (MLP), Gated Recurrent Units (GRU), Recurrent Neural Networks (RNN), and Long Short-Term Memory (LSTM), specifically applied to Internet of Medical Things (IoMT) data. They gathered information from 30 individuals with 13 different illnesses, as well as 1000 items from online sources and hospitals. Their system utilizes eight features in its analysis, with data preprocessing and encoding preceding the application of ML and deep learning techniques.

2. Thi Ngoc Trang Tran et al. (2021): This research presents a comprehensive review of healthcare recommender systems, drawing from significant previous studies and outlining various scenarios and approaches. The exploration encompasses dietary recommendations, drug suggestions, health status predictions, service recommendations, and guidance from healthcare professionals. Real-world examples are provided to aid in understanding recommendation systems.
3. Gao et al. (2019): The authors propose a computational framework for a personalized diet recommendation system employing Bayesian personalized ranking and matrix factorization to discern user preferences from diverse data sources. Their approach outperforms conventional collaborative filtering methods, demonstrating superior personalized recommendation performance.
4. Butti Gouthami and Malige Gangappa (2020): This study utilizes the USDA nutrition dataset to devise personalized diet recommendations for users. They incorporate grocery shopping data and the user's preferred food intake, leveraging the USDA database's nutritional information. The system computes BMI based on user-provided data, and daily food intake is used to generate diet recommendations sorted by nutritional deficits.
5. Yera et al.: The authors propose a food recommendation system that considers user preferences and nutritional data to create personalized meal plans. The system prioritizes both user preferences and nutritional requirements in its recommendations.
6. Iigo Orue Saiz et al.: The research investigates recommendation systems and research trends in major databases over the past five years. Previous works often prioritize collaborative filtering methods over data description or sample details. The study highlights the importance of working with open or well-described data for reproducibility and comparability.
7. Phanich, et al.: This paper introduces a recommendation system for diabetic patients, focusing on nutrition therapy tailored to individual dietary restrictions. The authors employ clustering analysis and self-organizing methods to formulate personalized food recommendations for diabetic individuals.
8. Freyne, J., et al.: The authors provide an extensive overview of evaluation techniques for recommender systems, covering various methods and metrics. They demonstrate their application through a case study investigating the effectiveness of different recommender algorithms in a recipe recommender system designed to aid in daily food planning.
9. Prof. Prajkta Khair, et al.: The study introduces an application featuring a complex algorithm to generate personalized diet plans based on user characteristics such as height, weight, and BMI. Additionally, users can consult with a dietitian through the application and access information on health and the human body.
10. Shivani Singh, et al.: This paper presents a system incorporating user data such as height, weight, and age to calculate Basal Metabolic Rate (BMR) and predict diabetes risk. The system offers exercise recommendations and suggests food items based on calorie and fat content. It includes both administrator and user login functionalities and features an online artificial specialist providing dietary advice.

III. METHODOLOGY

The proposed Health Recommendation System seamlessly integrates Python-based Machine Learning (ML) techniques with Android application development, offering a comprehensive solution to empower users in achieving and maintaining a healthier lifestyle. Upon secure login, users are prompted to input essential information, including gender, age, weight, height, dietary preferences (vegetarian/non-vegetarian), and fitness goals. Utilizing this input, the system generates personalized diet plans with detailed calorie and nutrition information tailored to individual needs. Additionally, the system sends timely SMS reminders to encourage adherence to the recommended dietary schedule. Beyond personalized nutrition, the system incorporates disease detection capabilities, leveraging relevant datasets for conditions such as heart disease and diabetes. This holistic approach addresses the challenges of information overload, providing users with actionable advice and a user-friendly interface for informed decision-making, ultimately promoting improved health and well-being.

IV. SYSTEM DIAGRAM



V. CONCLUSION

In a world inundated with overwhelming information, this system emerges as a valuable solution. It simplifies complex nutritional data into practical, personalized advice tailored to each user, removing the burden of deciphering generic diet plans for health-conscious individuals. Users receive a customized roadmap for achieving better well-being, thanks to the proposed framework that seamlessly integrates Machine Learning (ML), Android application development, and user-centric customization in the Healthcare recommendation system. This Health Recommendation System effectively tackles the challenge of maintaining a balanced diet that caters to diverse individual needs and aspirations. Moreover, by incorporating advanced features such as disease detection based on user input, particularly targeting conditions like heart disease and diabetes, the system takes a comprehensive approach to user well-being. By leveraging relevant datasets, it offers holistic support to users. Through personalized diet plans, SMS reminders, and disease detection capabilities, the system not only enables users to make informed and healthier choices but also significantly contributes to overall improved health and well-being.

REFERENCES

- [1] Celestine Iwendi, Suleman Khan, Joseph Henry Anajemba, Ali Kashif Bashir, And Fazal Noor, "Realising an Efficient IoMT-Assisted Patient Diet Recommendation System Through Machine Learning Model", IEEE Access, vol. 8, 2020, pp. 28462-28474, doi: 10.1109/ACCESS.2020.296853.
- [2] Thi Ngoc Trang Tran, Alexander Felfernig, Christoph Trattner and Andreas Holzinger, "Recommender systems in the healthcare domain: state-of-the-art and research issues", Journal of Intelligent Information Systems, vol. 57, 2020, pp. 171–201, doi: 10.1007/s10844-020- 00633-6.
- [3] Jun Gao, Ninghao Liu, Mark Lawley, and Xia Hu, "An Interpretable Classification Framework for Information Extraction from Online Healthcare Forums", Journal of Healthcare Engineering, Cui Tao, vol. 2019, Article ID 2460174.
- [4] Butti Gouthami and Malige Gangappa, "NUTRITION DIET RECOMMENDATION SYSTEM USING USER'S INTEREST", International Journal of Advanced Research in Engineering and Technology (IJARET), vol. 11, 2020, pp. 2910-2919, doi: 10.34218/IJARET.11.12.2020.272
- [5] Rachel Yera Toledo, Ahmad A Alzahrani And Luis Martinez, "A Food Recommender System Considering Nutritional Information And User Preference", IEEE Access, vol.7, 2019, pp. 96695- 96711.



- [6] Inigo Orue-Saiz, Miguel Kazarez, And Amaia Mendez-Zorrilla, “Systematic Review Of Nutritional Recommendation Systems”, Applied Science, vol. 11, no. 24: 12069, 2021.
- [7] Phanich, M., Pholkul, P., & Phimoltare, S., “Food recommendation system using clustering analysis for diabetic patients,” in Proc. of International Conference on Information Science and Applications, pp. 1-8, IEEE, April 2019. Article.
- [8] Freyne, J., & Berkovsky, S., “Evaluating recommender systems for supportive technologies,” User Modeling and Adaptation for Daily Routines, pp. 195-217, Springer London, 2021.
- [9] Prof. Prajкта Khaire, Rishikesh Suvarna, Ashraf Chaudhary, “Virtual Dietitian: An Android based Application to Provide Diet”, International Research Journal of Engineering and Technology (IRJET), Volume: 07 Issue: 01 | Jan 2020
- [10] Shivani Singh, Sonal Bait, Jayashree Rathod, Prof. Nileema Pathak, “Diabetes Prediction Using Random Forest Classifier And Intelligent Dietician ” , International Research Journal of Engineering and Technology (IRJET), Volume: 07 Issue: 01 | Jan 2020



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details