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NutriFit: An AI-Based Personalized Nutrition Recommendation System Using BMI Analysis

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Abstract: *Personalized nutrition plays a critical role in maintaining overall health and preventing lifestyle-related disorders. Traditional diet recommendation systems often rely on static guidelines and fail to adapt to individual health parameters. This paper presents NutriFit, an AI- based personalized nutrition recommendation system that utilizes Body Mass Index (BMI) analysis and large language models to generate customized dietary guidance. The proposed system collects user-specific health attributes such as height, weight, age, gender, and activity level, and computes BMI to classify users into predefined health categories. Based on this classification, a dynamically generated prompt is constructed and processed using an AI-driven language model to produce personalized diet recommendations. The system is implemented as a web-based application using a modular architecture that integrates data processing, health analysis, and AI-assisted decision support. Unlike conventional rule-based systems, NutriFit provides adaptive and context- aware recommendations without relying on predefined diet charts. The proposed approach demonstrates the potential of integrating artificial intelligence with healthcare applications to enhance personalization, scalability, and decision accuracy in nutrition planning*

Keywords: *Personalized nutrition*

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