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Recommendation System in the form of an Ontology-based Chatbot for Healthy Food Recommendations for Teenagers

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Abstract: Adolescents need adequate nutrition to support their growth and to avoid nutritional problems, such as malnutrition or obesity. Nutritional issues during adolescence can significantly influence health problems in adulthood. Although information about nutrition science is widely available on the internet, accurate interpretation requires specialized knowledge of nutrition science. Therefore, a system is needed to provide direct recommendations for healthy food to adolescents. In this study, a recommendation system in the form of a chatbot was developed to recommend healthy food that meets the nutritional needs of adolescents. The system was constructed using Ontology supplemented with Semantic Web Rule Language (SWRL), enabling the recommendation of food according to adolescents' health conditions. From the collected sample data, 150 food menus were recommended. Validation results by nutrition experts showed a precision value of 0.75, a recall of 1, and an F1-score of 0.857. These results indicate that the system is capable of providing appropriate food recommendations for adolescents.

Keywords: recommendation system, chatbot, ontology, adolescent nutrition, semantic web rule language

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