

EASY DIET - DIET PLAN SUGGESTION APPLICATION FOR DIABETES PATIENTS

Hewa Bajjamage Beenuka Pivithuru

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**Department of Computing
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Abstract

Diabetes is one of the most common non-communicable diseases that prevail in today's society. Due to the busy lifestyles of people, they lack healthy eating habits and regular exercises and as a result, this deadly diabetes hits them easily. In today's context technology plays an important role in facilitating humans' lives. So, the motivation for this research was to incorporate technology to support diabetes patients' lives by suggesting regularly updated meal plans specific to the patient him/herself.

The proposed system was designed with the aim of suggesting these meal plans through an android mobile application because in Sri Lanka nearly 90% of market share is led by android smartphones. In addition to the meal plan suggestion, the proposed system facilitates users to see their diabetes status, i.e. whether they've diabetes or not. This dual performance is one of the key contributions of this proposed system, to the field of technology.

A manually created dataset was used in the process of suggesting meal plans, which is based on patients' blood report records and BMI values, and for the diabetes status prediction problem secondary data were used. Finally, to address these problems, Machine Learning techniques were carried out. For both meal plan suggestions and diabetes status prediction, three classification models were fitted separately. Out of the three models created, Random Forest recorded the highest accuracy rate of 72.9% for the meal plan suggestion, and Gradient Boosting recorded the highest accuracy rate of 79.1% for the diabetes status prediction problem. An overall positive impression was given by both the industry and the domain experts, to the proposed system. Some valuable approaches for classification models given by domain experts which could be used in future enhancement processes.

Key Words:

Easy Diet, Diabetes meal, Check diabetes