iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** XII **Month of publication:** December 2023

DOI: https://doi.org/10.22214/ijraset.2023.57546

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue XII Dec 2023- Available at www.ijraset.com

Disease Based Food Recommendation System Using Machine Learning

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Abstract: ***We mean to involve the new progress in development to cultivate dietary as assessment game plans which is a more worthwhile method for managing screen consistently food confirmation and control dietary examples. Food, calorie and food assessment system is incredibly helpful for social classes to check and manage their consistently food affirmation. Computer based intelligence will make proposition reliant upon the things that are of client's benefit or adored by them previously. Moreover these computations are used to propose the food that the client could like. The recommended food and food in standard plans set by client's own situation are in a comparative gathering, which meets the client's restorative balance. We include the issue of assurance of genuine eating routine that ought to fulfill everyone's supporting essentials.***
Keywords: Diet Recommendation, Machine Learning, Linear Regression, Random Forest.

I. INTRODUCTION

A. Overview

In the present tumultuous world, the meaning of diet the board has extended most certainly. On account of appalling and irregular dietary examples, the spread of diet related diseases is at an unrivaled high. In India, in excess of 2 out of every 100 people experience the evil impacts of diabetes, while 32 out of every 100 people experience the evil impacts of coronary disease. There are an enormous gathering of diet related applications and plans open today. While the meaning of changed eating routine keeps on growing, the grouping of usages on display today really need satisfaction. This application will help clients with arranging their step by step diet as shown by various individual factors which consolidate BMI, hypersensitivities, diseases, etc. There are different categories of BMI as shown in the following figure.

Standard BMI Categories

Weight Status Category	**BMI Range** (kg/m²)
Underweight	Below 18.5
Healthy weight	18.5 to 24.9
Overweight	25 to 29.9
Obese	30 or greater

Fig1. BMI Types

B. Objective & Scope

Fundamental objective is to develop a structure that assists the clinical experts with crossing affirm their dissected consequences of anticipated diet.
As the current finding process is tedious, difficult and exorbitant, overall this AI.

C. Problem Statement

1) Proposal of diet utilizing client inclinations.
2) It is a device which will accept input as the weight, level, veg or Non-veg in view of it will foresee the conceivable outcomes diet utilizing AI.
3) It give higher precision over past examination.
4) To give remarkable and most uplifting instrument that can assist the experts with suggesting the eating routine.

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II. LITERATURE SURVEY

Anonnya Banerjee et al. [1] stated that, to give a superior dietary arrangement our paper proposes a model to premise of their potassium level in blood. Arrangement of the patients is carried out suggest nourishment for patients experiencing kidney infection on the utilizing WEKA and afterward further utilizing inquiry based matching we suggested nourishment for the distinguished levels in light of the earnestness of the illness.

Akash Maurya, Rahul Wable [2] proposed that the highlights which are liable for CKD, then AI cycle can robotize the arrangement of the ongoing kidney sickness in various stages as per its seriousness. The goal is to utilize AI calculation and recommend reasonable eating routine arrangement for CKD patient utilizing grouping calculation on clinical trial records. Diet proposal for patient will be given by potassium zone which is determined utilizing blood potassium level to dial back the movement of CKD.

Heba Abdelgader Mohammed [3] proposed that to foster a sort 2 fuzzy rationale based diet suggestion framework for diabetes to help accomplishing a sound way of life to control the infection.

Celestine Iwendi et al. [4] stated that in this paper, profound learning answer for wellbeing base clinical dataset that naturally recognizes which food ought to be given to which patient base on the illness and different elements like age, orientation, weight, calories, protein, fat, sodium, fiber, cholesterol. This exploration structure is centered around carrying out both machine and profound learning calculations like, strategic relapse, innocent bayes, Intermittent Brain Organization (RNN), Multi-facet Perceptron (MLP), Gated Repetitive Units (GRU), and Long Momentary Memory (LSTM).Divya Mogaveera et al. [5] stated that basically helpful for the specialists to suggest diet and exercise in view of their most recent reports and individual wellbeing subtleties. For this, we have extensively arranged our framework into 2 modules: Wellbeing Checking and Diet and Exercise Proposal. In the Wellbeing Observing module, the framework would propose follow-up meetings until the reports come ordinary.

Prithvi Vasireddy [6] stated that specific application, taskbots and metabots are utilized. The proposed arrangement is fit for sending an enormous number of diet suggestions to many clients in a data set at an exceptionally speedy rate.

Arushi Singh et al. stated that [7] is contrived for making a legitimate eating regimen plan for individuals of each age bunch utilizing information gathered from a wide range of sources. An eating regimen rundown will be proposed to the client by computing the important measure of starches, nutrients and minerals, milk protein, meat protein, fat and sugar as per the age bunch they fall in.

V.Nallarasan and L.Anand et al. [8] proposed that food things the Eating routine Proposal Framework utilizes client inputs from a Graphical UI including age, level, weight, veggie lover or non-vegan food and choosing the over three classes. The functioning model of the Eating regimen Suggestion Framework records a bunch of food things according to the client inputs. The module utilizes the weight and level to work out the weight Record (BMI) of the client and in light of the inclination of the sort of diet he needs the Proposal Framework predicts the rundown of food things.

III. PROPOSED METHODOLOGY

A. Proposed Methodology

Individuals login into the framework and straightforwardly enter their wellbeing related data and working way of life which is straightforwardly put away into the information base. This wellbeing and way of life related data gained through the product is the direct material for this framework for example the level, weight, illnesses and so on. The information in regards to food things and its healthy benefit is gathered from the dataset given by USDA farming examination administration food datasets. By and large, the information procurement module specifically gets information from the external web climate, as far as usefulness to give material and assets to the last calculations.

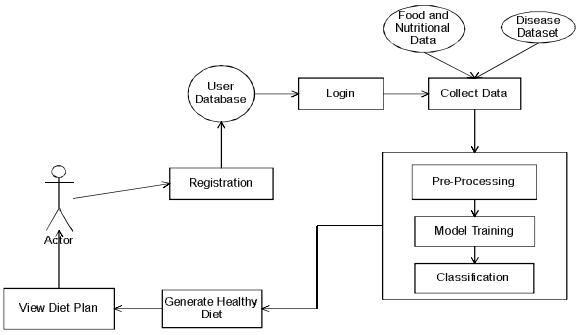


Fig2. Proposed Architecture

IV. IMPLEMENTATION ALGORITHMS

A. Linear Regression

Whenever we've acquired data with various variables, one indispensable request is how the elements are associated. For example, we could need the association between people's heaps and heights, or survey time and grades. Backslide is a lot of systems for surveying associations, and we'll focus in on them in our structure as displayed in figure3. In this paper, we'll focus in on finding presumably the most clear sort of relationship direct. This connection is clearly called straight backslide, and it has various applications.

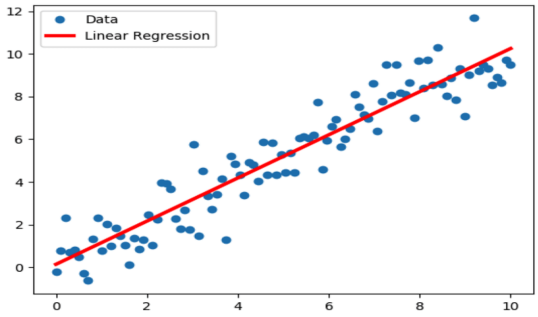


Figure3. Linear Regression

B. Random Forest

An random forest is an AI strategy that is utilized to take care of relapse and order issues. It uses outfit realizing, which is a strategy that joins numerous classifiers to give answers for complex issues.

An irregular backwoods calculation comprises of numerous choice trees. A random forest algorithm consists of many decision trees calculation is prepared through sacking or bootstrap conglomerating. Packing is a troupe meta-calculation that works on the exactness of AI calculations.

The (irregular backwoods) calculation lays out the result in view of the expectations of the choice trees. It predicts by taking the normal or mean of the result from different trees. Expanding the quantity of trees builds the accuracy of the result.

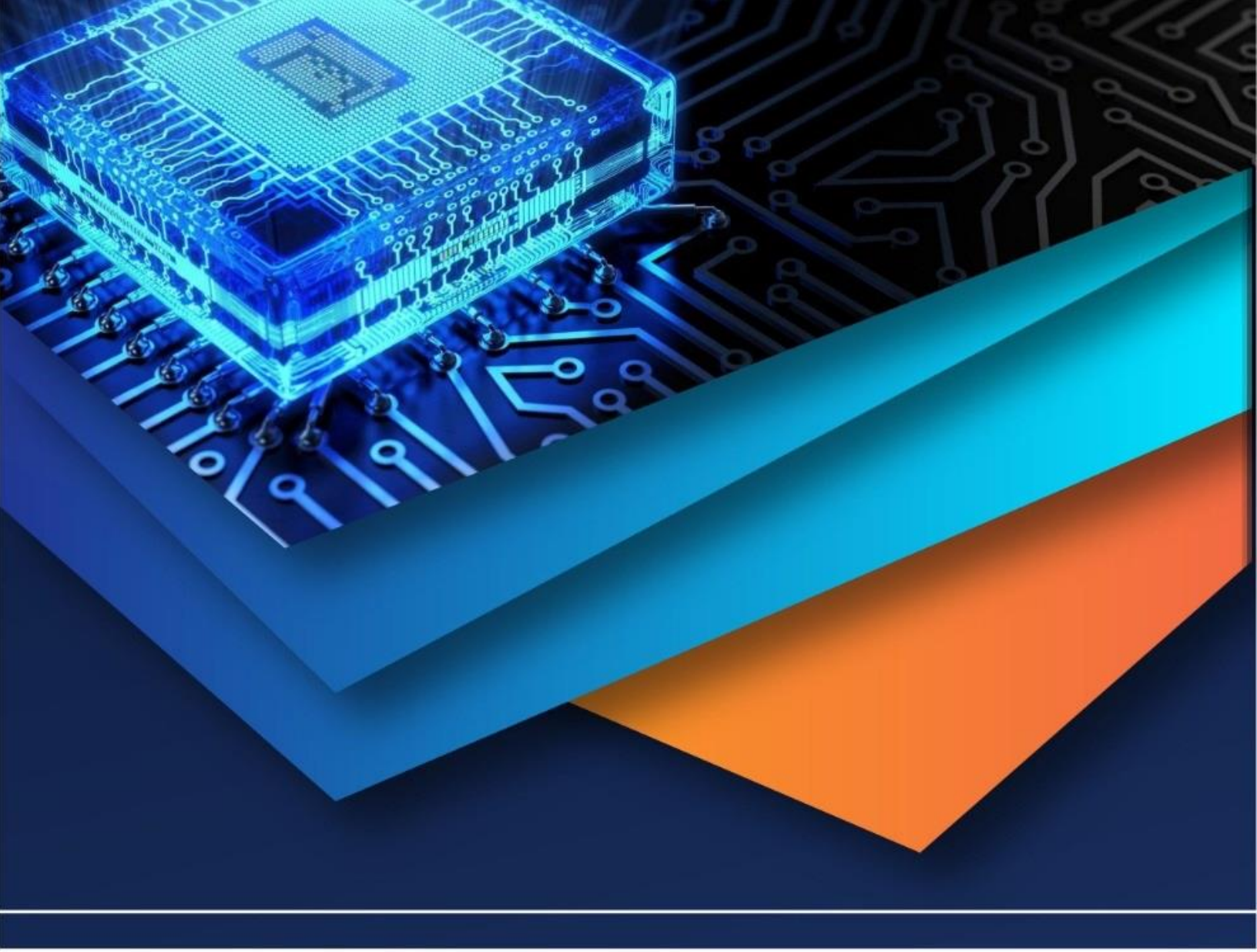
V. CONCLUSION

We give an easy to use application that covers viewpoints like infections and menu age alongside giving dietary data. The result will be as Proposed Supplement Admission Unrefined components, as well as the Menu Created.

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