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Healthy Nutrition Prediction Based on Blood Test Parameter using Data Mining Technique

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Abstract: Healthy eating seems to be a key component of overall mental, physical, and social wellbeing. Diurnal diets provide the body with the vitamins and energy it needs for a healthy metabolism. But when it comes to wholesome eating habits, urban and rural people have extremely different food preferences. In our study, we collected survey data on various human diets, food plan kinds, nutritional intake, nutritional demand, and fitness level with regard to food intake behaviour, as well as many records evaluation methods. A records evaluation technique was applied to build our record after investigating data from numerous authorities and stay surveys. Unusual drinking habits and persistent illness rates are lower than inside a city and better than within a village.Our analysis's major goal was to identify the key differences between a healthy diet and a powerful immune system. These discoveries help people live longer, healthier lives.

Keywords: Blood parameter, Flask, KNN,Navie, manage, database

INTRODUCTION

To support long-term spatial testing, feeding the astronauts is a crucial requirement. At some point in the prolonged and arduous work of the planets above the earth, food satisfies not only the physical needs of existence but also the mental needs of relaxation and happiness. We have developed a humorous and healthy formula for building materials that may be made with the help of a renewable agricultural machine using the limited resources that are available on Mars. It is ironic because Jenkins was used to perform a low GI observation in 1982. The results of numerous researchers are then analysed, however the majority of the times in the article utilized a single meal, and there were few studies that employed multiple dishes. When I think about the future health of individuals, it's critical to create a menu with a low GI diet that is the solution to a problem when a lifestyle-related illness becomes a problem. This study so promoted a low GI diet and was created to evaluate low GI foods using blood sugar levels.

Scope

1. A data mining application called "Healthy Nutrition Predictability Based Blood Testing Using the Data Mining Technique."
2. "Healthy Nutrition Prediction-Based Blood Testing Using the Data Mining Technique" is a problem area for evaluating the efficiency of algorithms.
3. "Healthy Food Predictability-Based Blood Testing Parameters Using the Data Mining Technique" is a set of performance analysis and predictive automation algorithms that are suitable for use with healthy foods.

LITERATURE SURVEY

[1] Health-related fitness knowledge (HRFK), which J. Brenden, A. Lawler, and B. Smyth (2017) introduced in a study, has been a key idea in many health and physical education programmes. There is little knowledge of and research of HRFK growth over time. In the middle school years, under one curriculum context, this longitudinal study assessed HRFK growth and its individual and school level associations. The aim of this study was to investigate the association between physical fitness (PF), health-related fitness knowledge (HRFK), and physical activity (PA) in a group of college-aged adults. Included are participants.

[2] According to Paul Covington and Jay Adams' Deep Neural Network for YouTube Recommendation paper, YouTube is one of the most complex and comprehensive industrial recommendation systems now in use. In this study, we give a high-level description of the system and concentrate on the significant performance enhancements brought about by deep learning. The two parts of the work are divided into the traditional two stages of information retrieval:

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first, we discuss a deep candidate generation model, and then we describe a different deep ranking model. Include any applicable lessons and insights you've learned from creating, improving, and sustaining a sizable recommendation system with a significant user impact.

[3] In this Understanding Kaggle Challenge and Workshop at ECCV'18, Joonseok Lee, Apostol (Paul) Natsev, Walter Reade, Rahul Sukthankar, and George Toderici) have proposed The 2nd YouTube-8M Large-Scale Video Understanding Challenge paper, with the task of classifying videos from frame-level and video-level audio-visual features. We limited the size of the final model in this year's challenge to 1GB or less, encouraging competitors to investigate representation learning or improved architecture rather than bulky ensembles of numerous models. The YouTube-8M dataset and challenge task are briefly introduced in this study, followed by participant statistics and result analysis. We list the concepts that participants have put forth, including architectures, techniques for temporal aggregation, resembling and distillation, data augmentation, and more.

[4] Barry Smyth, Aonghus Lawlor, and Jakim Berndsen have suggested Running with Recommendation paper. In this work, we investigate the viability of a turner-specific collaborative commander system in the exercise domain. We investigate the differences between recreational and elite runners using a large dataset of over 600,000 runners' finish times. We then make a prediction about how our commander system might help to lessen some of these differences. We also briefly examine a few of the difficulties these commendable tasks confront and offer suggestions for how to overcome them.

[5] The paper was proposed by Jason A. Bennie, Glen H. Wiesner, George Thomas, and Asaduzzaman Khan. Are Australian fitness industry professionals motivated to interact with groups at high health risk? to assess the amount of enthusiasm among fitness experts in working with at-risk groups.

METHODOLOGY

FLASK:

Flask is a web framework which means it provides the tools, libraries and technologies that allows to build any web application. This web applications can be a blog, web pages, a web based calendar applications and also as a commercial website. Flask is also a lightweight web application framework which is written in Python language and baseband on the WSGI(Web Service Gateway Interface) toolkit and also Jinja2 template engine.

Features of Flask:

(a). Uses Jinja2 Template engine
(b). Supports for securing cookies
(c). Supports Google app engine compatibility
(d). Restful requests dispatching

PYTHON:

Python is a high level programming language that focuses on the codes readability and , for web development lines of code will be fewer than any other languages. It's possible for python because of the large standard libraries which makes the Web development code simple and easy to understand. These libraries have some pre-coded functions provided by Python community which can also be easily downloaded and can be used as per users development needs. Initially Python was also designed for web designer in web servers to deal with incoming traffics on servers. Python also has syntax that allows the developers to write programs with lesser lines of code than any other programing languages. Python can also consider as a procedural way, an object oriented way or also a functional way. Python also runs on an interpreter system which means that code can be executed as soon as it is written.

Machine learning

Machine learning, a form of artificial intelligence (AI), enables computers to read without precise programming. Making software that can adjust to new data as it is presented to it is the aim of machine learning. In this article, we'll look at the principles of machine learning and show you how to build a simple machine learning algorithm in Python.

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IMPLEMENTATION

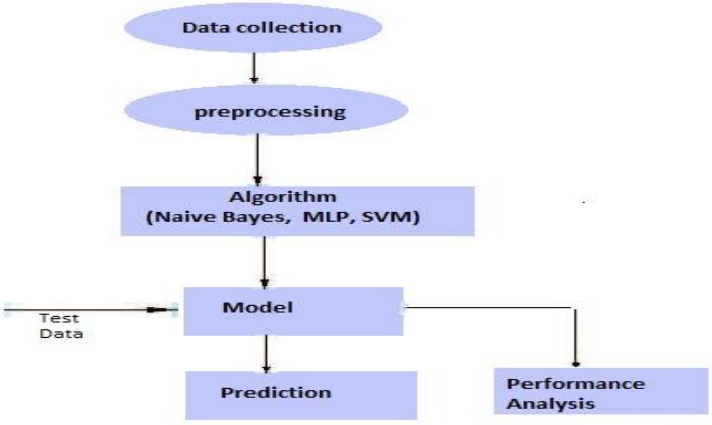

Fig. 1 Overview of machine learning model.

SVM

A supervised learning model called SVM is used to analyse data for regression and classification purposes[8].
It can be used even on complex data, where it attempts to segment the data depending on the specified class labels. Two varieties of SVM exist:
1. Linear SVM
2.Nonlinear SVM
For the purpose of data classification, we employed linear SVM.

Naive Bayes

The supervised learning model utilised by the Naive Bayes method for classifying data is also used. One of the procedures is to turn the dataset into frequency values.
2. Creating a likelihood table and determining the probability of the given attributes.
3. The Bayes theory is used to calculate posterior probability.

MLP

The accuracy is increased by taking the average of several decision trees on various datasets, which makes up MLP. The steps consist of:
1. From the training set, K random data points are chosen.
2. Decision trees are constructed in relation to the chosen data points (Subsets).
3. Decide how many decision trees you wish to construct.
4. Repetition of Steps 1 & 2
5. Discover the predictions for each new dataset of a decision tree, and allocate the new data points to the category that receives the majority of votes.

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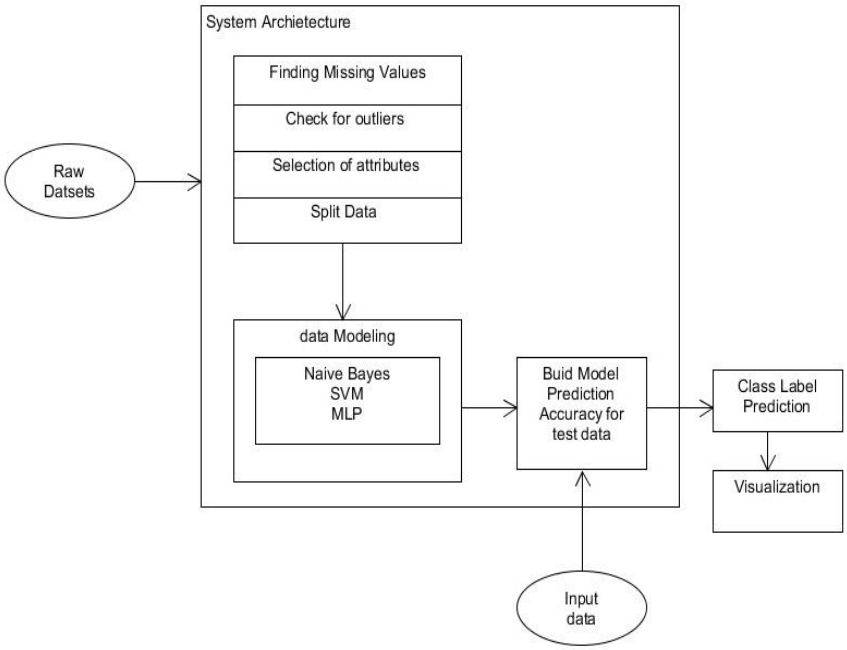

Fig. 2 Architecture

RESULTS

Upload data-set.
In the beginning, 400 informational pieces based solely on six principles are posted to a website. To generate predictions of accurate donor information and to record whether the donor is still qualified to donate blood or not, 400 units of information are received from the website online.

Predictability
Three algorithms in this project operate on those previously saved databases. The Naive Bayes set of rules is found to perform better than Multilayer Perception (MLP) and Support Vector Machine in all three algorithms (SVM).

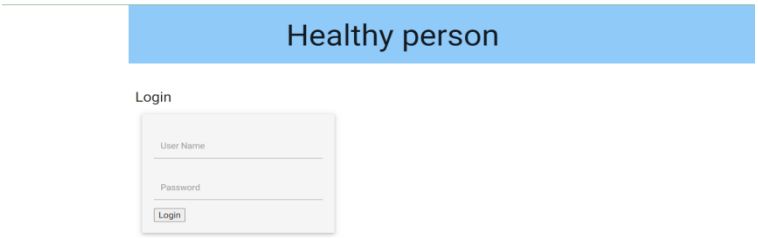

Fig 3 Input Screenshot

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Fig4 Blood Parameter Input Screenshot

CONCLUSION

The use of statistics mining techniques for predictive analysis could be highly important in the field of health since it gives us the ability to identify illnesses in advance and, as a result, save lives through the hope of a cure. This tool uses data mining algorithms such as SVM, Naive Bayes, and MLP to predict both sick and healthy patients based on blood parameter data. We have a developed version for YouTube video guidance that is solely dependent on blood parameters for this task. Choice tree demonstrated its overall effectiveness in forecasting with high-quality effects in terms of low execution time, according to simulation results.

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