ARTIFICIAL INTELLIGENCE FOR DITETEIAN

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Abstract:
Artificial dietician project is an application with artificial intelligence about human diets. It acts as a diet consultant similar to a real dietician. This system acts in a similar way as that of a dietician. A person in order to know his/her diet plan needs to give some information to the dietician such as its body type, weight, height and working hour details. Similar way this system also provides the diet plan according to the information entered by the user. The system asks all his data from the user and processes it to provide the diet plan to the user. Thus the user does not need to visit any dietician which also saves time and the user can get the required diet plan in just a click. The project also has a login page where in the user is required to register and only then can view the availability of blood and may also donate blood if he/she wishes to. This project requires internet access and thus there is a disadvantage of server failure. The system will give more accurate results as it accepts the data entered by the user and processes it depending on some metrics already known to the application on the basis of which a diet plan is generated and ask the user if the user accepts the diet plan. If not accepted the system may also give and alternative diet plan.

Keywords:
real dietician, working hours, donate blood, diet plan

I. INTRODUCTION:

According to the father of Artificial Intelligence, John McCarthy, it is "The science and engineering of making intelligent machines, especially intelligent computer programs". Artificial Intelligence is a way of making a computer, a computer-controlled robot, or a software think intelligently, in the similar manner the intelligent humans think.AI is accomplished by studying how human brain thinks, and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.

Philosophy of AI:

While exploiting the power of the computer systems, the curiosity of human, lead him to wonder, "Can a machine think and behave like humans do?"

Thus, the development of AI started with the intention of creating similar intelligence in machines that we find and regard high in humans.

Goals of AI:

- To Create Expert Systems : The systems which exhibit intelligent behavior, learn, demonstrate, explain, and advice its users.

- To Implement Human Intelligence in Machines : Creating systems that understand, think, learn, and behave like humans.

What is AI Technique?

In the real world, the knowledge has some unwelcomed properties −

- Its volume is huge, next to unimaginable.
- It is not well-organized or well-formatted.
- It keeps changing constantly.

AI Technique is a manner to organize and use the knowledge efficiently in such a way that −

- It should be perceivable by the people who provide it.
- It should be easily modifiable to correct errors.

- It should be useful in many situations though it is incomplete or inaccurate.

AI techniques elevate the speed of execution of the complex program it is equipped with.

Applications of AI:

AI has been dominant in various fields such as −

- Gaming : AI plays crucial role in strategic games such as chess, poker, tic-tac-toe, etc., where machine can think of large number of possible positions based on heuristic knowledge.

- NaturalLanguage Processing − It is possible to interact with the computer that understands natural language spoken by humans.

- Expert Systems : There are some applications which integrate machine, software, and special information to impart reasoning and advising. They provide explanation and advice to the users.

- Vision Systems : These systems understand, interpret, and comprehend visual input on the computer. For example,

  o A spying aeroplane takes photographs, which are used to figure out spatial information or map of the areas.

  o Doctors use clinical expert system to diagnose the patient.

- o Police use computer software that can recognize the face of criminal with the stored portrait made by forensic artist.

- **Speech Recognition** : Some intelligent systems are capable of hearing and comprehending the language in terms of sentences and their meanings while a human talks to it. It can handle different accents, slang words, noise in the background, change in human's noise due to cold, etc.

- **Handwriting Recognition** :The handwriting recognition software reads the text written on paper by a pen or on screen by a stylus. It can recognize the shapes of the letters and convert it into editable text.

- **Intelligent Robots** : Robots are able to perform the tasks given by a human. They have sensors to detect physical data from the real world such as light, heat, temperature, movement, sound, bump, and pressure. They have efficient processors, multiple sensors and huge memory, to exhibit intelligence. In addition, they are capable of learning from their mistakes and they can adapt to the new environment.

History of AI:

Here is the history of AI during 20th century −

Year	Milestone / Innovation
1923	Karel Čapek play named "Rossum's Universal Robots" (RUR) opens in London, first use of the word "robot" in English.
1943	Foundations for neural networks laid.
1945	Isaac Asimov, a Columbia University alumni, coined the term *Robotics*.
1950	Alan Turing introduced Turing Test for evaluation of intelligence and published *Computing Machinery and Intelligence*. Claude Shannon published *Detailed Analysis of Chess Playing* as a search.
1956	John McCarthy coined the term *Artificial Intelligence*. Demonstration of the first running AI program at Carnegie Mellon University.
1958	John McCarthy invents LISP programming language for AI.
1964	Danny Bobrow's dissertation at MIT showed that computers can understand natural language well enough to solve algebra word problems correctly.
1965	Joseph Weizenbaum at MIT built *ELIZA*, an interactive problem that carries on a dialogue in English.
1969	Scientists at Stanford Research Institute Developed *Shakey*, a robot, equipped with locomotion, perception, and problem solving.
1973	The Assembly Robotics group at Edinburgh University built *Freddy*, the Famous Scottish Robot, capable of using vision to locate and assemble models.

1979	The first computer-controlled autonomous vehicle, Stanford Cart, was built.
1985	Harold Cohen created and demonstrated the drawing program, .
1990	Major advances in all areas of AI − • Significant demonstrations in machine learning • Case-based reasoning • Multi-agent planning • Scheduling • Data mining, Web Crawler • natural language understanding and translation • Vision, Virtual Reality • Games
1997	The Deep Blue Chess Program beats the then world chess champion, Garry Kasparov.
2000	Interactive robot pets become commercially available. MIT displays *Kismet*, a robot with a face that expresses emotions. The robot *Nomad* explores remote regions of Antarctica and locates meteorites.

Today, as many people try to keep well and fit, healthy food is becoming more and more important for business and educational organizations. Many common diseases and their symptoms can often be prevented or alleviated by active living and better nutrition. The science of nutrition attempts to understand how and why specific dietary aspects influence health. A dietitian (or registered dietitian, in contrast to nutritionist, which is not regulated) deals with the most obvious mistakes people do and helps to promote good health through proper eating. The majority of dietitians are health professionals and are trained to provide safe, evidence-based dietary advice and interventions by counting calories, checking the amount of vitamins, carbohydrates and fat in different kinds of ingredients exposed to various preparation methods.

A. EASE OF USE OF THIS APPLICATION:

Ditetian can use this system to make sure what they recommended patient.This system can be used in medical colleges for teaching and practicing purposes so that students can learn from it.This system can be used in gym particularly for calculating the calories and diet plan. Individual can also use this software especially for themselves at home.In sports ditetion can also use this applicaion to maintain sportsperson fitness

B. Use of this application of the patient:

Doctors prescribe a variety of diets for patients in a hospital setting, ranging from a normal diet to nothing by mouth for a designated amount of time. The type of diet depends on the patient's needs and restrictions, according to Susan G. Dudek in "Nutrition Essentials for Nursing Practice." For example, a patient just coming out of tonsillectomy surgery will be on a completely different diet than a patient recovering from a broken leg.

Using diet application helps many sportsperson to remain fit. By using this this application and technology sportspersons can maintain their body.as sports is all realated with body.by maintaining a proper diet chart it eill be very benifitual for them.

II. Technique used in AI for dietitian:

A] Clustering Analysis

B] Pattern Matching

A] Clustering:

There are various methods for clustering which act as a general strategy to solve the problem and to complete this, an instance of method is used called as algorithm. Broadly clustering methods can be divided into two main categories which have number of instances. On the basis of that we have hierarchical and partitioning based methods. In hierarchical based clustering, the data sets of n elements are divided into hierarchy of groups which has tree like structure. In partitioning based methods the output is like k partitions of N dataset elements. International Journal of Computer Applications Categorization of clustering methods and algorithms Hierarchical methods: There is a tree like structure in this method. These all are compared based on parameters differentiating them like the algorithms supported, type and size of dataset supported.

B] Pattern matching:

For each level a pattern matching process will be done in order for ViDi to detect keywords from patient inputs data. several steps need to be done in the process and the steps are as follows

. Receive input data from patient.

.seperate words from sentence by dot ".",comma "," and space" ".

Put all words into an array.

Create an array of possible input to be match .

Exit all loop if matching were found.

The total possible input to be matched is calculated by the triangular number equations.

.m- variable for matching.

.n-total words in input data.

$.T_n - \frac{n(n-1)}{2} - \sum m$

III. Literature Survey:

Though there exists numerous commercial offerings of applications targeting dietary improvement and personal health tracking, data regarding the effectiveness of certain approaches are better documented in academic studies, which will therefore form a foundation upon which our product ideas are developed.

In introduction we get to know about the artificail intelligence how can the technology can be used and is helpful .

According to reference[II a] used by using clustering technique we can maintain the record of the person.According to refrence[II b]by the help of pattern matching technique The patterns generally have the form of either sequences or tree structures. Uses of pattern matching include outputting the locations (if any) of a pattern within a token sequence, to output some component of the matched pattern, and to substitute the matching pattern with some other token sequence (i.e., search and replace).

By using reference [IV]we can know about how the system works.what data is required?How the application works?

IV] Proposed System:

We provide more effective diabetes diet care service of the performance of Diet Recommendation via collaborative based reasoning used to suggest the diet plan. Here, we are constructed food ontology (FO) from the input food database.FO algorithms include generating an ontology structure with K-Means clustering algorithms and Self Organizing Map (SOM).we passed the input data in to diet plan construction module .In that module, we have to extract the user information from the user profile accordingly recommend the nutrients fact that module derived from based on the two method that is content based approach (CB) and other hand is

collaborative filtering approach (CF).CB approach to recommendation has its roots in information retrieval and information filtering. CF systems try to predict the utility of items for a particular user based on the items previously rated by other users. Our cluster analysis consists of the two stages first construct and trains the SOM, and then the SOM is clustered using K-mean approach. Food ontology construction module can be composed ripple class naming and instance ranking, which is to classify each food item based on granular ranking method .Finally, we can calculate diet plan of the system that system could be more powerful and that describes the degree of user satisfaction level. The features of the proposed system are: User Satisfaction Degree is increased.

- System trustworthiness.
- Enhance the performance.
- Process the complicated data.
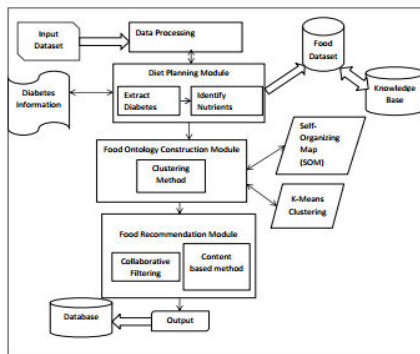- Reflective of all the experts opinions.

Fig. 1: Block Diagram of System Architecture.

Conclusion:

From the above study we come to know that how a machine can work according to human mind which can helps to reduce human work.

Refrences:
[I]https://www.tutorialspoint.com/index.htm

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[II.B] Abu Sawar, Atwell, chatbot: are they really useful?, LDV-Forum band -2007.
[IV] International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.55 (2015).