

Diet Monitoring and Health Analysis Using Artificial Intelligence

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ABSTRACT

This mobile application helps to categorise the disease for the user by getting their input. And the classifier categorise the disease based on the users input. It is also used to generate the diet plan needed to improve their health. Chatbots act as a personal nutritionist. To make the conversation with chatbot more meaningful with regards to the user's previous chat sessions, a user specific session ability has been added to the chatbot architecture. The changes in the user details can be updated by the user.

Keywords - chatbot,Diabetes, Conversational Agent, VDMS.

I. INTRODUCTION

In the rapid advancement of computing technology and the underlying language processing software progresses. The diet management application categorises the disease for the user and suggest the diet plan for the user to maintain their diet.

Categorizing of the disease is done by the classifiers. The classifier used for this application is the naive bayes classifier. The Chatbot act as a personal nutritionist and provide suggestion for the user .The web-based chatbot will help general community members and diabetes patients by interacting with them during a question answer session. A new user needs to register first in order to start a session. Similarly, this mobile application will also use the input from the user and provide the desired result.

II. EXISTING SYSTEM

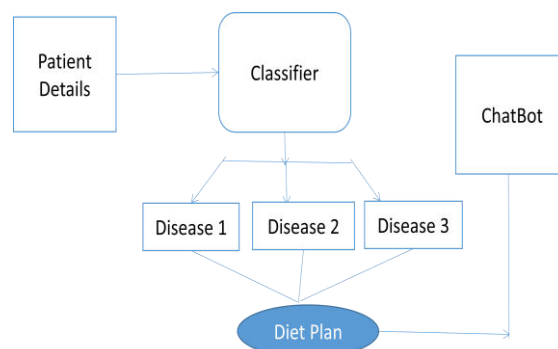
The application that exist so far can generate only diet plan for the specific user or it can only track the users health by considering their information like height, weight etc. The application like lung cancer risk predictor, clardia, etc will not suggest the diet plan for the users to monitor their health.

III. DISADVANTAGES

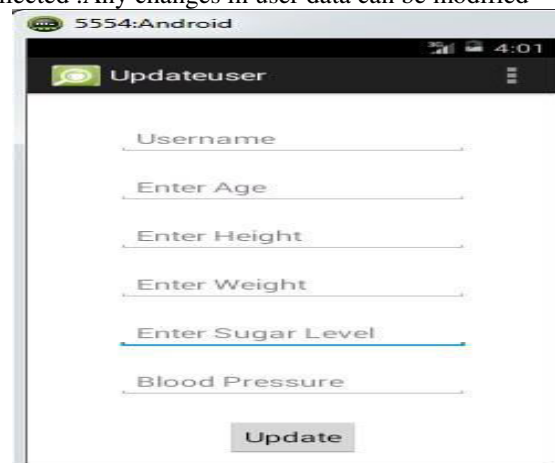
- Does not categorize the disease of the user.
- Diet plan is generated only for one disease.
- These applications are only used for detection of the disease rather than classification.

IV. PROPOSED SYSTEM

This application will generate the diet plan as well as it also monitor the user health. This application will also use the AI algorithms like naive bayes to classify the category of the disease and to create the diet plan. This application will also reduce the cost of consulting the personal nutritionist.



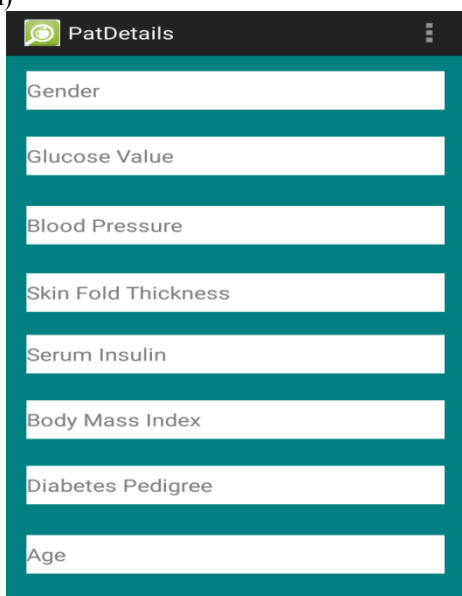
The data details like name, age, height, weight, etc are collected .Any changes in user data can be modified



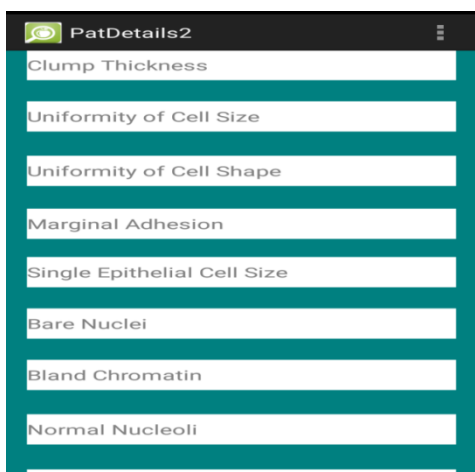
The user gives input for the disease and the naive bayes classifier categorize the users according to the disease and provides the result. The diseases that are classified are Diabetes, Lung cancer, Heart disease. Naive bayes classifiers are a collection of classification algorithm based on bayes theorem .Every pair of features being classified is independent of each other. Bayes theorem finds the probability of an event occurring given the probability of another event that has already occurred.

$$P(A/B) = P(B/A) P(A) / P(B)$$

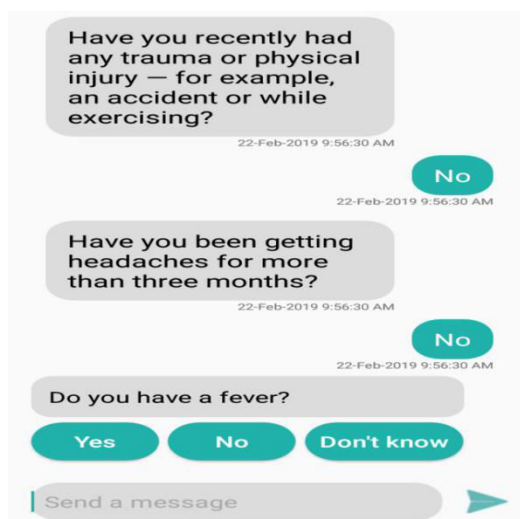
Bayes theorem finds the probability of an event occurring given the probability of another event that has already occurred. Datasets for the diabetes, lung cancer and heart disease are taken from UCI machine learning repository. The dataset is divided into two parts, namely feature matrix and response vector. Feature matrix contains all the vectors of the datasets in which each vector consists of the value of dependent features. Response vector contains the value of class variable for each row of the feature matrix.

$$P(Y/x_1, \dots, x_n) = P(x_1/y)P(x_2/y) \dots P(x_n/y)P(y) / P(x_1)P(x_2) \dots P(x_n)$$


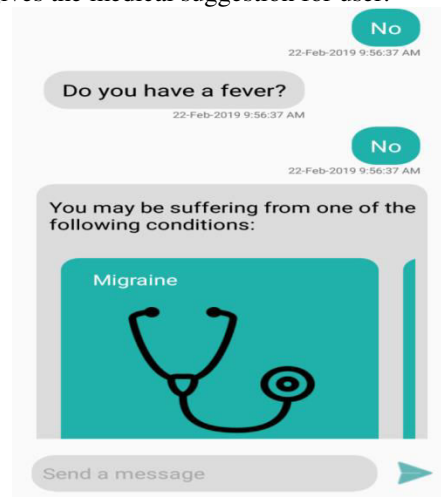
The user gives the input like gender, glucose level, blood pressure, skin foldness thickness, serum insulin, body mass index, diabetes pedigree ,age ,clump thickness, uniformity of cell size, uniformity of cell shape, marginal adhesion, single epithelial cell size, bare nuclei, bland chromatin ,normal nucleoli ,mitosis.



The diet plan for the user is generated .The calories to be gained by the user is displayed .The food items with its calorie level is displayed for the user, an the user can select his own choice of food to achieve the given calorie level.



The user interacts with the chatbots, it diagnose the user input and gives the result. Medical assistant finally determines the disease of the user. It also gives the medical suggestion for user.



V. EVALUATION ANALYSIS

- Data Collection
- Categorizing disease using classifier
- Generating the diet plan
- Chatbot acts as a medical assistant

VI. CONCLUSION

Diet management applications gets the user input and categorize the input and classifier the disease of the user. After Classification diet plan is generated for the user. User can also get suggestion from the medical assistant .This project is a highly efficient because it uses the naïve bayes classifier for detecting and categorizing the disease and Chabot can be used as an information access system where users can use natural language dialogues to access information. I have introduced a chatbot in this paper that uses Wikipedia as a secondary knowledge base and diet plan generated for the user in order to meet the daily calorie level.

VII. FUTURE WORK

- The diseases can be identified accurately by the classifiers.
- Wearable are used by the user to keep track of the diet.
- Intake of the food is taken into count and suggestions are provided to improve the health of the user.

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