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PREDICTION OF TYPE-2 DIABETES USING PREDICTIVE MODELLING

[1]J.NANDINI , [2]V.UMA MAHESHWARA RAO, [3]K. PAVAN SATYA MANIKANTA [4]Mrs.S.ASHA VARMA

[1,2,3]Student, Department of CSE,NRI Institute of Technology, Pothavarappadu (V), Via Nunna,Agiripalli(M),PIN-521212.

[4] Assistant Professor ,Department of CSE, NRI Institute of Technology, Pothavarappadu (V), Via Nunna,Agiripalli (M), PIN-521 212.

ABSTRACT:

In today's world diabetes is the significant wellbeing challenges in India. It is a gathering of a disorder that outcomes in as well much sugar in the blood. It is an extended condition that influences the manner in which the body motorizes the glucose. Avoidance and forecast of diabetes mellitus is progressively picking up enthusiasm for clinical sciences.In this paper the purpose of using Predictive Modeling for presumptive diagnosis of Type 2 Diabetes Mellitus based on symptomatic analysis is the optimization of the diagnosis phase of the disease through the process of evaluating symptomatic characteristics and daily habits, allowing the forecasting of Type 2 Diabetes without the need of medical exams through predictive analysis.

I.INTRODUCTION

Globally, many chronic diseases are prevalent in developing and developed countries .Diabetes affects the different parts of the human body parts like eyes, kidneys, heart, and nerves. DM is one of the most common endocrine disorders, affecting more than 200 million people worldwide. The onset of diabetes is estimated to rise dramatically in the upcoming years. Diabetes Mellitus is defined as a group of metabolic disorders mainly caused by abnormal insulin secretion and/or action. Insulin deficiency results in elevated blood glucose levels and impaired metabolism of carbohydrates, fat and proteins. The ordinary recognizing process is that patients need to visit a symptomatic focus , counsel their primary care physician, and hold on for a day or more to get their reports. Also, every time they need to get their finding report, they need to squander their cash futile. Diabetes leads to serious complications or even premature death. In any case, to diagnosing diabetes, a few tedious tests and examining basic elements are finished.Presently AI calculations are utilized to arrange and analysis the maladies, so as to dispense with the issue and diminish the necessary expense. Other than that, utilizing the AI calculation lead to significant and precise choices. Hence, the prevention and detection of disease in the early

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stages could likely save human lives. Most common are Type-I diabetes and Type-II diabetes. In Type I disease, insulin will not be produced by the human body and 10% of diabetes caused by this type. Type II diabetes is non-insulin- dependent diabetes caused because of not enough production of insulin by the pancreas or body cells are resistant to absorb it. Therefore, there is a need to prevent and diagnose the disease to save human life from an early death. Specialists have demonstrated that information mining and AI models Decision Tree, Support Vector Machine and so on works better in diagnosing ailments. Machine learning methods support researchers to retrieve new facts from large health-related data sets, which improves health care distribution, decision making and disease supervision. The major aim of this study is to investigate the performance of various classification models, that can anticipate the probability of disease in patients with the greatest precision. One of the issues in bioinformatics investigation is to accomplish the right conclusion of certain important data. Machine learning is prominent technique in medical sciences. This is promising approach that improves sensitivity and specificity of disease detection and diagnosis by Support Vector Machine. In this paper, the disease diagnosis and decision making is obtained from the Pima Indian diabetic database .

II.Proposed Model

The disease prediction and diagnosis use the different algorithms and approaches which can be applied by the traditional machine learning algorithms and association rule learning to achieve the best classification accuracy.The extensive afford made to identify machine learning techniques to diabetic research.

In this study we obtain a dataset from Pima Indian diabetes database that have several features that are responsible for diagnosis and prediction. Take the training data from the Pima Indian diabetes dataset which are noise free and apply the machine learning techniques to evaluate the training data then create a model, which is implemented by the machine learning prediction classifier and take the decision based on the input data.

Algorithm

Here, we are using SVM algorithm for prediction of the membership of the class to categorize into different classes using hyperplane.

A.Support Vector Machine

A Support Vector Machine is a supervised classification algorithm that has been extensively used for classification task. That supports the regression and classification tasks and can be handled with multiple variables. SVM can proficiently perform nonlinear order utilizing what is known as the kernel trick, certainly mapping their inputs to high-dimensional feature spaces.

The SVM classifier first maps the input vectors into a decision value, and

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then performs the classification using an appropriate threshold value.
SVM is a technique suitable for binary classification tasks,so we choose SVM to predict the diabetes.

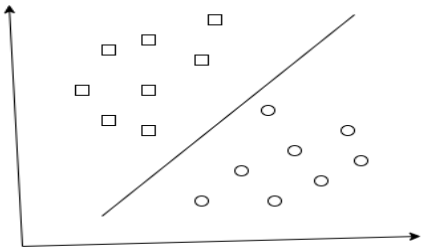

Fig.Support Vector Machine

III.Results

The user needs to enter the required fields and press the submit button to get the result. The fields that he needs to enter are 1.plasma glucose concentration 2.diastolic blood pressure 3.Age 4.serum Insulin 5.Body Mass Index(BMI).

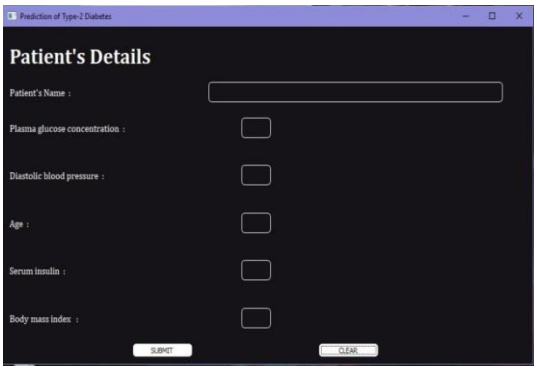

Fig.User Inteface Page

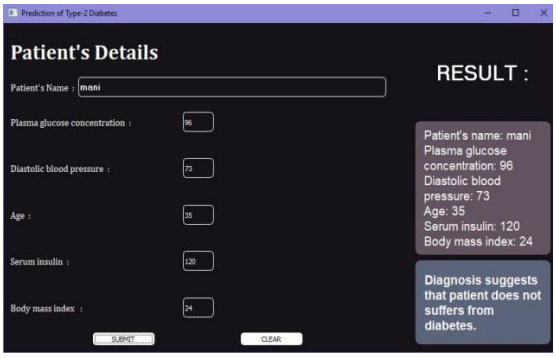

Fig.Page that shows the user does not suffers from diabetics.

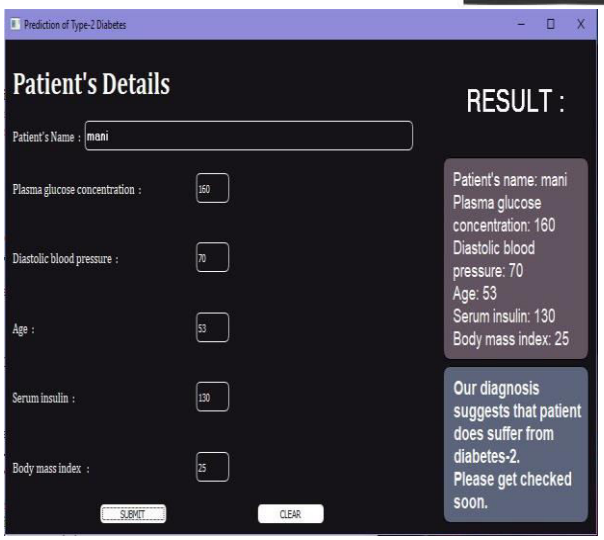

Fig.Page that shows the user has diabetes and should get checked soon .

IV.Conclusion

Discovery of diabetes in its beginning periods is the key for treatment. Machine learning has an incredible capacity to revolutionize the diabetes risk prediction with the help of advanced computational methods and availability of large amount of epidemiological and genetic diabetes risk dataset. . However, features that are not included in the system can be considered as future enhancements Having more data is always a good idea. It allows the “data to tell for itself,” instead of relying on assumptions and weak correlations. Presence of more data results in better and accurate models. The objective of parameter tuning is to find the optimum value for each parameter to improve the accuracy of the model. To tune these parameters, you must have a good understanding of these meaning and their individual impact on model. You can repeat this process with a number of well performing models.Major constraint is that the

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system is designed and developed to be executed only on a system which has python installed in it. In future it can be used to develop a smart phone application or a website.

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