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Multiple Disease Prediction System

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Abstract: *The purpose of this paper is to predict multiple diseases .In multiple disease prediction, it is possible to predict more than one disease at a time. So the user doesn't need to traverse different sites in order to predict the diseases. The medical industry generates a huge amount of patient data which can be processed in a lot of ways. So, with the help of machine learning, we have created a Prediction System that can detect more than one disease at a time. Many of the existing systems can predict only one disease at a time and that too with lower accuracy. Lower accuracy can seriously put a patient's health in danger. We have considered three diseases for now that are Heart, Parkinson's, and Diabetes and in the future, many more diseases can be added. The user has to enter various parameters of the disease and the system would display the output whether he/she has the disease or not. This project can help a lot of people as one can monitor the persons' condition and take the necessary precautions thus increasing the life expectancy.*

Keywords: Import-export, DotNet , ADO.NET, Angular, SQL Server.

I. INTRODUCTION

Disease Prediction using Machine Learning is the system that is used to predict the diseases from the symptoms which are given by the patients or any user. The system processes the symptoms provided by the user as input and gives the output as the probability of the disease. In this digital world, data is an asset, and enormous data was generated in all the fields. Data in the healthcare industry consists of all the information related to patients. Here a general architecture has been proposed for predicting the disease in the healthcare industry.

we are concentrating on providing immediate and accurate disease predictions to the users about the symptoms they enter along with the disease predicted.

In this system, we are going to analyze Diabetes, Heart, and Parkinson's disease analysis. Later many more diseases can be included. To implement multiple disease prediction systems we are going to use machine learning algorithm logistic regression. Python pickling is used to save the behavior of the model. The importance of this system analysis is that while analyzing the diseases all the parameters which cause the disease is included so it is possible to detect the disease efficiently and more accurately.

II. LITERATURE SURVERY

A lot of analysis over existing systems in the health care industry considered only one disease at a time. For example, one system is used to analyse diabetes, another is used to analyse diabetes retinopathy, and another system is used to predict heart disease. Maximum systems focus on a particular disease. When an organization wants to analyse their patient's health reports then they have to deploy many models. The approach in the existing system is useful to analyse only particular diseases. Some of the models have lower accuracy which can seriously affect patients' health. When an organization wants to analyse their patient's health reports, they have to deploy many models which in turn increases the cost as well as time Some of the existing systems consider very few parameters which can yield false results.

2.1 Proposed Method

Machine learning aims at developing algorithms that can learn and create statistical models for data analysis and prediction. The ML algorithms should be able to learn by themselves—based on data provided and make accurate predictions, without having been specifically programmed for a given task. We are taking three diseases that are

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Parkinson's, Diabetes, and Heart. . As all the three diseases are correlated to each other. To implement multiple disease analyses we are going to use machine learning algorithms. When the user is accessing this API, the user has to enter the parameters levels like blood pressure level, glucose level, age, gender, etc., depending upon the type of disease. The webpage will invoke the corresponding model and returns the status of the patient.

Logistic regression is like linear regression in that the goal is to find the values for the coefficients that weight each input variable. Unlike linear regression, the prediction for the output is transformed using a nonlinear function called the logistic function. Logistic regression is another technique borrowed by machine learning from the field of statistics. It is the go-to method for binary classification problems. Comparing with any other machine learning algorithms logistic regression prediction more accurate.

2.2 Analysis:

The current and arranged the technology calculated model and methods for creating the frameworks for the investigators to a data framework that accompany in the exercieses such as:

- Plan
- Execution
- Testing
- Sending
- Activities
- Result

III. SOFTWARE REQUIREMENTS

The equipments will work on the laptop or the system, the working system will be the basic and straightforward and the controls which permit the client and the application will be clear and it will infer the usefulness inside the application and the connection point is that it will take inputs just as two illustrations and gives the output.

- Operating system : Windows 10.
- Coding Language : Python.

IV. HARDWARE REQUIREMENTS

- System : i5 Processor.
- Hard Disk : 500 GB.
- Monitor : 15'' LED.
- Input Devices : Keyboard, Mouse.
- Ram : 4 GB

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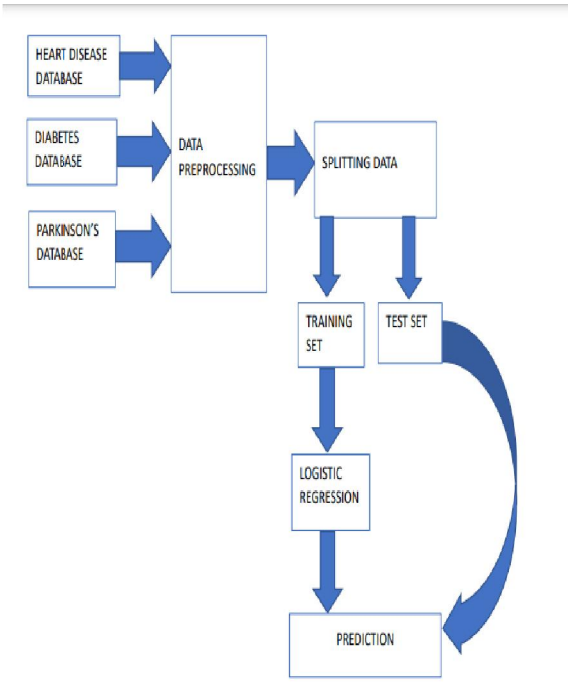
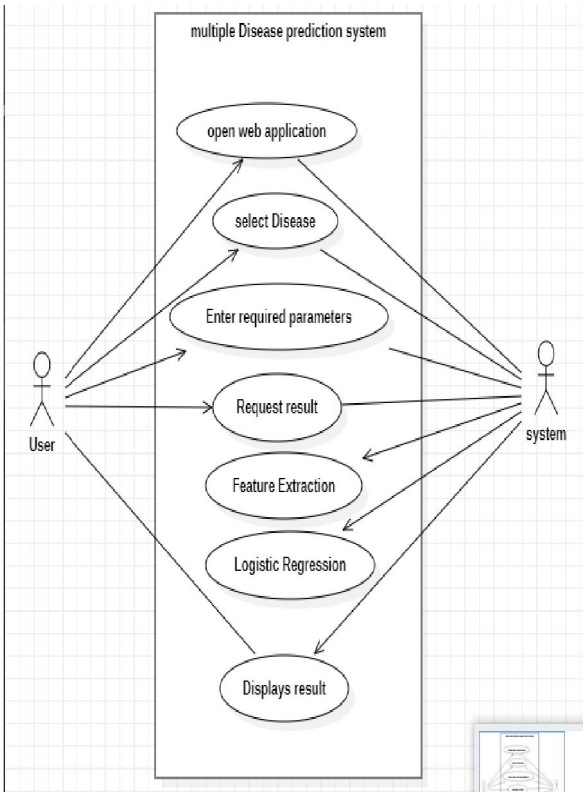
V. SYSTEM DESIGN



UML DIAGRAMS:

Use case diagram



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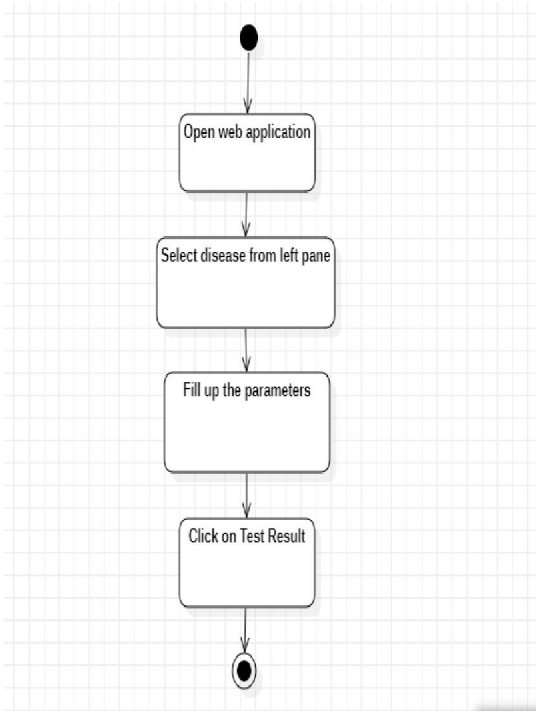
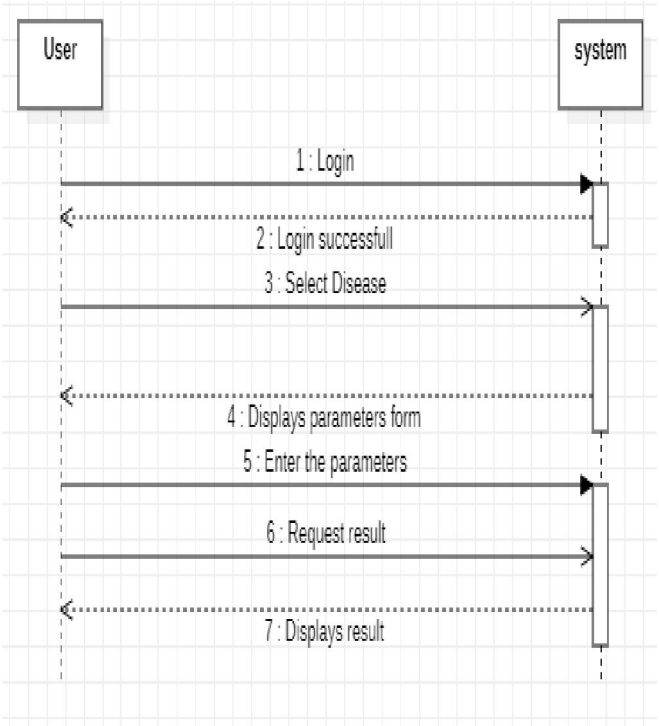
Activity diagram:



Sequence diagram:



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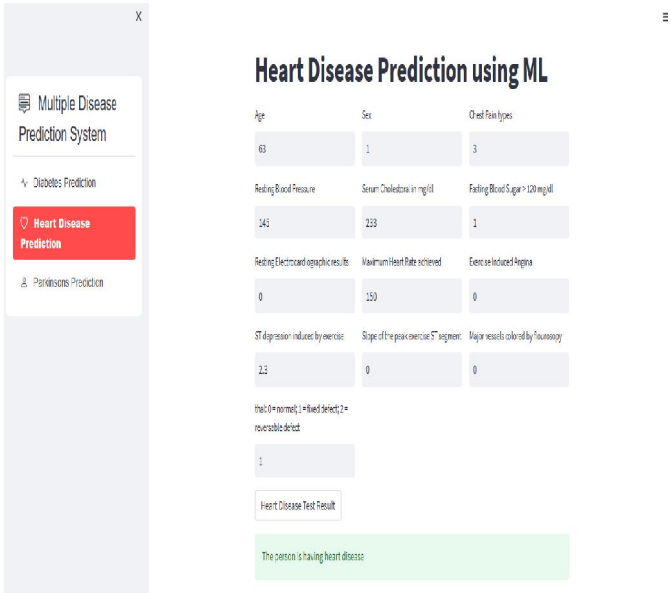
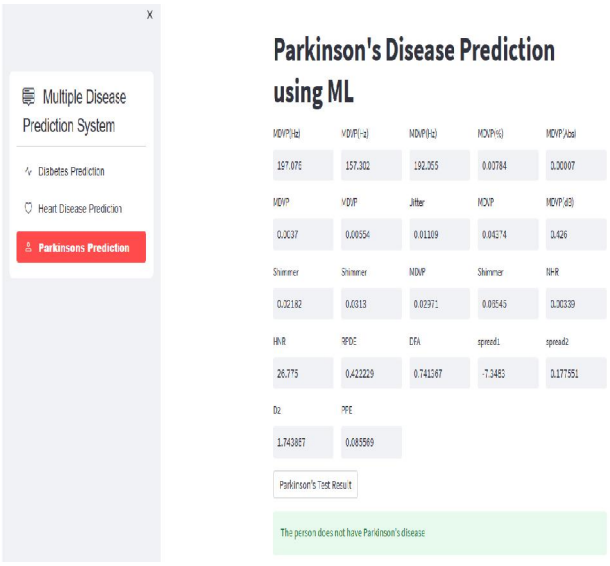
VI. ALGORITHM

Input: Training dataset
Output: A class of testing dataset.
1.Import the dataset
2.Explore the data to figure out what they look like
3.Pre-process the data
4.Split the data into attributes and labels
5.Divide the data into training and testing sets
6.Train the logistic regression
7.Make some predictions
8.Evaluate the results of the algorithm
9.Combine individual train models of(heart,diabetes,Parkinson's)using streamlit in python
10.Open the web application through a navigator(we used anaconda navigator)in a browser

VII. RESULT





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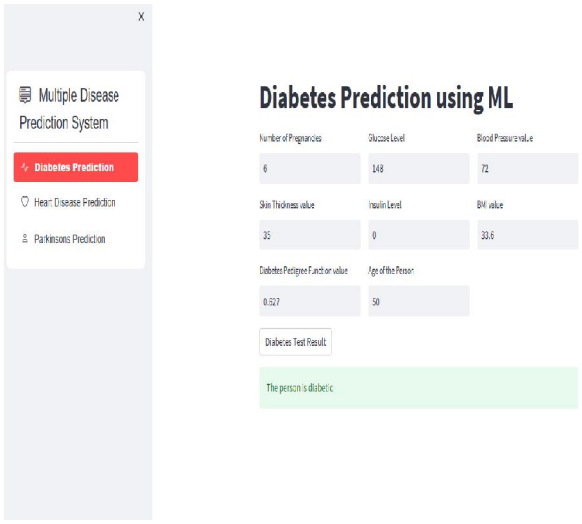

VIII. ACCURACY

It is proven that Logistic Regression is quite good in solving binary classifications due to its predictive power in probability values. The results show that the proposed system provides an accuracy of 95% that is higher than that of the other algorithms. It is highly believed that the proposed system can reduce the risk of chronic diseases by diagnosing them earlier and also reduces the cost for diagnosis, treatment, and doctor consultation. The main objective of this project was to create a system that would predict more than one disease and do so with high accuracy.

IX. CONCLUSION

In this project, the performance of the proposed model is compared with other algorithms such as Naïve Bayes, decision tree, etc., The results show that the proposed system provides an accuracy of 95% that is higher than that of the other algorithms. It is highly believed that the proposed system can reduce the risk of chronic diseases by diagnosing them earlier and also reduces the cost for diagnosis, treatment, and doctor consultation. The main objective of this project was to create a system that would predict more than one disease and do so with high accuracy. Because of this project the user doesn't need to traverse different websites which saves time as well. Diseases if predicted early can increase your life expectancy as well as save you from financial troubles. The advantage of the proposed system is predicting result with highest accuracy ,which lacks in many of the existing approaches. It is highly believed that the proposed system can reduce the risk of heart, diabetes, Parkinson's diseases by predicting them earlier.

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