HEALTH ANALYSER USING MACHINE LEARNING

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Abstract

Technology is being advanced day by day. As we are tech enthusiasts, we are always keen to learn the updated once. Technology is used to solve many problems in modern world, and introducing new features into the world.

Many remote areas are lack at hospitals, as doctors always have minute to minute cases. As doctors are busy at their cases, they are unable to attend or visit the remote areas where there is lack of transportation too. Due to these problems, people from remote areas are suffering fromdiseaseswhichareknownandunknown.Thismightalsospreadtheunknowndiseasesto animals and plantstoo.

Our project "Health Analyzer", predicts the disease from input symptoms said by the patient, predicts the disease with prescribed medicines. We designed this for remote areas, where people unable to visit hospitals in the city and due to lack of transportation too. So, we help them in detecting the disease and prevent it from early stage.

Key Words

Admin: login admin to the software and enter the patient details.
Patient: Patient gives his/her details and symptoms he/she suffers from.

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Introduction

Remote areas are where, they lack at many facilities. Shopping, groceries, Bakery & Cookies and most importantly Health Care Units – Hospitals, Treatment centers like Cancer Diagnostics. People in remote areas cannot effort to go to hospitals in urban or nearby city as well. As we consider doctors, they are busy with minute-to-minute cases and dealing complex operations where they cannot visit these remote areas and make treatment for them. People in remote areas are very superstitious believe in "Naatu-Vaidhyam – Herbal

Medicines", as if they get sick, some persons who make people fool and make them believe in saying "Herbal Medicines". Giving these medicines make people allergic reactions or may also leads to death.

Animal traces are more at remote areas as, there are chances of spreading new diseases from animal to human through air born or by eating them. These new diseases might spread to whole area and make effect of it.

So, we need to come up with a solution that might help them detecting the disease before it gets worse or serious and giving the treatment accordingly will definitely stop the spread of diseases and can detect new disease preventing it before it gets worse.We came up with a solution, in the form of project – using "Python" with helping hand

"Machine Learning" called "**Health Analyzer**".

Problem statement

It'sclearthattreatmentforpeopleinremoteareasisverydifficult.Peoplearealsosuperstitious   about their health conditions that they can be cleared using natural medicines like "NaatuVydhyam", but without knowledge on how it is used and worked, that leads to new disease arrival or may leads todeath.

So, it's difficult to cure if any delay in treatment. Doctors can't be visited to remote areas as they have many cases to make solve of them. People also can't be travelled with unhealthy conditions with no transportation facilities. So, neglecting this, might spread the dangerous diseases to who live there especially in community or society.

Motivation

Ourmotivationwascarriedthroughoutthewholeprojecttogainknowledgeandimproveskills neededtocompletethisproject.Themainsourcesforthisprojectarepreviousrelatedprojects, research thesis, books, journals and articles which are mostly obtained from onlinedatabases.
1. To detect diseases using MachineLearning.
2. Toreducecomputationalcomplexityandaimsatdiseasedetectionusingmultiplesymptoms.
3. To develop an automated system that detects the disease based onsymptoms.

Proposed system

In past years, even now the doctors are best at their evaluation of symptoms and saying the accurate diseases. But the doctors are not always available for all the needs. They can't even visit the places where there is lack of medical services, making time for the people will be difficult. We came up with the proposed system, where we built a tool which it evaluates the multiple symptoms and predicts the disease of person effected.

Implementation

Remote areas are where, they lack at many facilities shopping, groceries, and most importantly Health care unit Hospitals and treatment centres as cancer Diagnostics.

As we consider doctors, they are busy with minute-to-minute cases and dealing complex operations where they cannot visit these remote areas and make treatment for them. People in remote areas are very superstitious believe in "Naatu-Vaidhyam – Herbal Medicines", as if they get sick.

So, we need to come up with a solution that might help them detecting the disease before it gets worse or serious and giving the treatment accordingly will definitely stop the spreadof diseases and can detect new disease preventing it before it getsworse.

In this proposed system, we used a Machine Learning algorithm called Decision Tree. It is the best algorithm for multi options classification. Here we have taken different kinds of symptoms. We have used Decision Tree algorithm to classify these diseases, symptoms areused to given input through python scripts. If the value is >0, that means there is a disease. The p value ranges between 0 and 1.
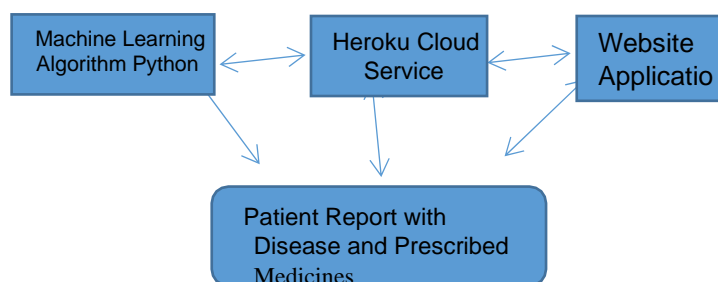

Mechanisms

In this section describes various approaches for detecting the diseases using multiple symptomsprocessingtechniqueIdentificationofthediseasesisthekeytopreventingthewrong predicting the disease and machine learning tries to predict the disease nearly but not accurately.Hence,symptomsprocessingisusedforthedetectionofdiseases.Diseasedetection involvesthestepslikesymptomswithdifferentphases.Thispaperdiscussedthemethodsused forthedetectionofdiseasesusingmultiplesymptoms.Thispaperdiscussedvarioustechniques   to

segment the diseases.

1. To visit the remote areas with medic team and collect the details of thepatients.

2. To collect the symptoms of the patients and determine the multiplesymptoms.

3. To determine predicted diseases. Following are some common symptoms ofdiseases.

Decision Tree Algorithm

There is a growing interest nowadays to process large amounts of data using the well-known decision tree learning algorithms. Building a decision tree as fast as possible against a large dataset without substantial decrease in accuracy and using as little memory as possible is essential.
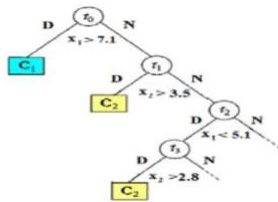
Here we have taken different kinds of symptoms. We have used Decision Tree algorithm to classify these diseases, symptoms are used to given input through python scripts. The array of symptomsisdefinedwithdefinedwitharrayofdiseases;thesearetrainedtoMachineLearning algorithm. It predicted result accuracy is 95%. Computer vision and machine - learning solutions offer great opportunities for the prediction of Diseases by usingsymptoms.

ANACONDA

Anaconda is a distribution of the Python and R programming languages for scientific computing(datascience,machinelearningapplications,large-scaledataprocessing,predictive analytics, etc.), that aims to simplify package management anddeployment.

Software
Admin login and enter Patient details and enter the Symptoms:

AfterAdminloginAdminenterthedetailsofthepatientandenterthesymptomsofthepatient. In this we go to the login form and login with the admin credentials with the user id and passwordifthepasswordiswrongthenitgivesthenotificationlikeentercorrectpasswordand userid.
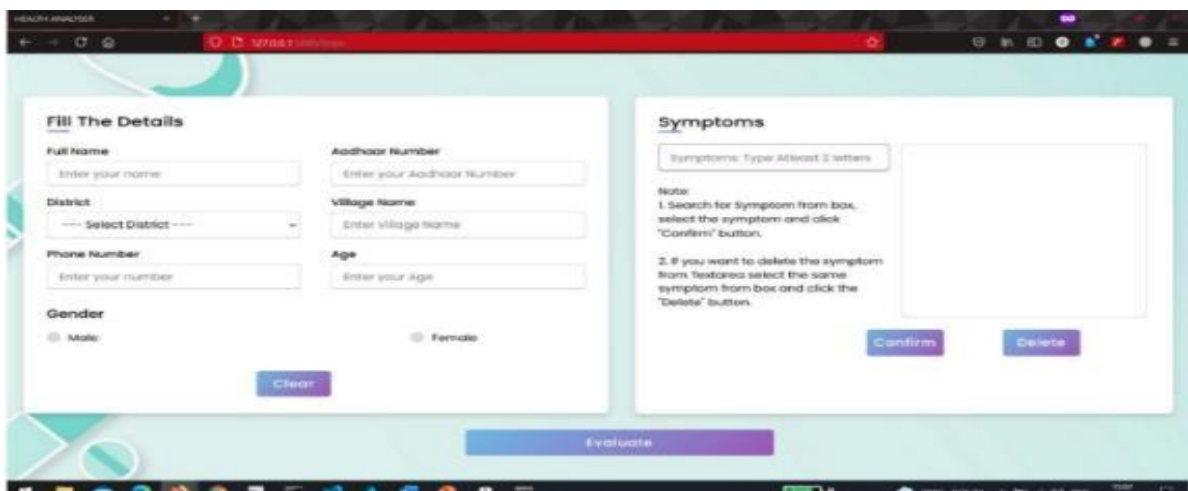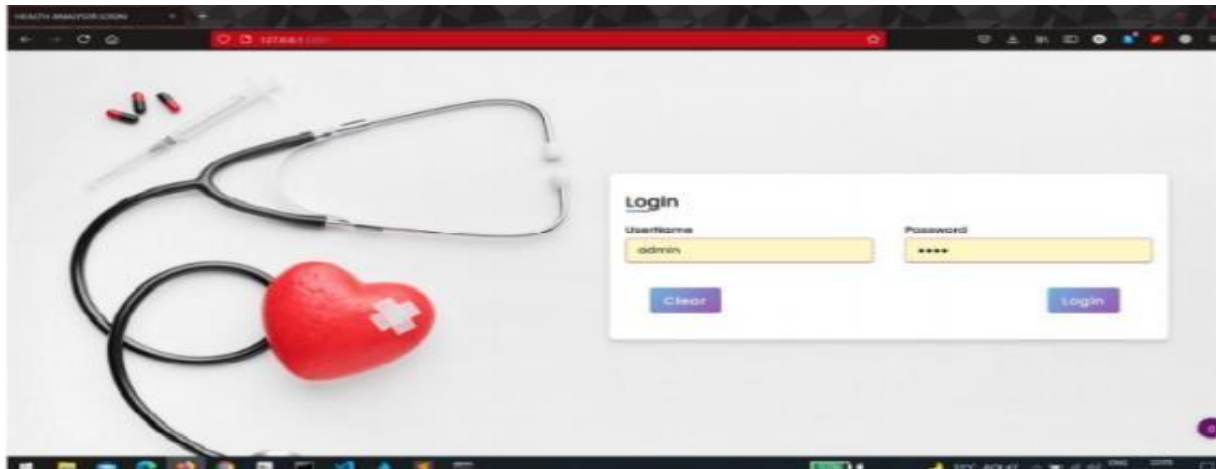
Displaying disease and give Prescribed medicine

TESTING STRATEGY

A strategy for system testing integrates system test cases and design techniques into a well-plannedseriesofstepsthatresultsinthesuccessfulconstructionofsoftware.Thetestingstrategymust   co-operate test planning, test case design, test execution, and the resultant data collection and evaluation. A strategy for software testing must accommodate low-level tests that are necessary to verifythatasmallsourcecodesegmenthasbeencorrectlyimplementedaswellashighlevelteststhat validate major system functions against user requirements. Software testing is a critical element of software quality assurance and represents the ultimate review of specification design and coding. Testing represents an interesting anomaly for the software. Thus, a series of testing are performed for the proposed system before the system is ready for user acceptancetesting.

TESTING

Testing is that the method of attempting to get each conceivable fault or weakness in an exceedingly work product.

ACCEPTANCE TESTING

UserAcceptanceTestingisacriticalphaseofanyprojectandrequiressignificantparticipation by the end user. It also ensures that the system meets the functional requirements. Test Results: All the test cases mentioned above passed successfully. No defectsencountered.

CONCLUSION

Health Analyzer, it is used to detect and predicts the diseases of patients from remote arears and long distant places where people live away from cities. The Health Tool prescribes themedicinesorneedtogotohospitalaccordingtoreport,generatedbythetool.This   toolwillbe for Government Health Care units, Private hospitals and Diagnosticcenters.
We conclude that commercial of health is necessary but it should be kept in mind that we all wanttolive.Minimumkeepingallthetreatmentwithintherangeofmiddlelowerclasshighly commercialization is required for the better health of our nation because HEALTH IS THE MOST VALUABLE then everything in life increasing awareness among the human body can reduce therisks.

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