A Project report on

MEDPREDICT CRYPTO PAY

A Dissertation submitted to JNTU Hyderabad in partial fulfillment of the academic requirements for the award of the degree.

Bachelor of Technology

in

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CERTIFICATE

This is to certify that the Major Project Phase I report entitled **"MEDPREDICT CRYPTO PAY"** being submitted by B. MANI CHANDRA (20H51A0506),B.SATHWIK (20H51A0559),K.SAI HARSHA (20H51A05C7) in partial fulfillment for the award of **Bachelor of Technology in Computer Science and Engineering** is a record of bonafide work carried out his/her under my guidance and supervision.

The results embodies in this project report have not been submitted to any other University or Institute for the award of any Degree.

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ABSTRACT

Med predict crypto pay is the system that is used to predict the diseases from the symptoms which are given by the patients. The system processes the symptoms provided by the user as input and it generates the probability of the disease. The probability of the disease is calculated by machine learning. User can select specific doctor and can pay the fees by using crpto currency with blockchain .Then the disease prediction will be forwaded to the doctor and the doctor analyses the probability of the disease based on the symptoms and provide the medical prescription to the patient. Through the fusion of machine learning and medical expertise, the system acts as a valuable tool for enhancing diagnostic procedures. Upon receiving the disease probabilities, doctors assess the data alongside their clinical insights to arrive at well-founded conclusions. This collaborative approach ensures that patients receive tailored medical prescriptions based on the projected disease outcomes.

CHAPTER 1
INTRODUCTION

CHAPTER 1

INTRODUCTION

1.1.Problem Statement

In contemporary healthcare, there is a need to enhance disease diagnosis and medical consultation processes. Many patients seek accurate and timely disease predictions, while healthcare providers require secure and transparent payment methods for their services. Combining the power of machine learning with medical expertise, "Med Predict Crypto Pay" aims to address these needs by offering a system that predicts diseases from patient symptoms, enables cryptocurrency-based payments, and fosters a collaborative approach to medical prescription. To securely pay the fee and to get prescription for the symtons and to securely transfer the information.

1.2.Research Objective

It is to develop an machine learning with medical expertise and utilizes blockchain technology for secure payment transactions. Specifically, the primary research objectives include:

Machine Learning Model Development: Develop and refine machine learning models that can accurately predict diseases from patient-reported symptoms, encompassing both textual descriptions and visual symptoms.

Secure Payments: Integrating blockchain and cryptocurrency technology to provide patients with a secure and transparent method of paying for medical service.

Cryptocurrency Integration: Explore the integration of various cryptocurrencies and blockchain technologies into the system, ensuring a seamless and user-friendly payment process for patients and healthcare providers.

1.3.Project Scope

The disease prediction system have 3 users such as doctor, patient and admin.

Each user of the system are authenticated by the system.

There is a role based access to the system.

The system allows the patient to give symptoms and according to those symptoms the system will predict a disease.

The system suggests doctors for predicted diseases.

The system allows online consultation for patients.

The system helps the patients to consult the doctor at their convenience by sitting at home.

CHAPTER 2
BACKGROUND WORK

CHAPTER 2

BACKGROUND WORK

2.1 Human Disease Prediction using Random Forest

2.1.1. Introduction

The proposed model is providing an enhanced and accurate model for predicting human diseases from the symptoms. The dataset from Kaggle is used, and the methods used to train the models are the Rainforest algorithm, LSTM algorithm and SVM algorithm to train our data.

The working model will be as follows:

1. The human will enter his/her symptoms.

2. The symptoms will then be inputted into our model.

3. The model will then yield the possible disease.

The novelty of the proposed work is that tweaking the Random forest model by using hyperparameters, improves the efficacy of the model. Hence, it is providing more accuracy.

2.1.2. Merits, Demerits and Challenges

Merits

In the database, the author has modified the symptoms (inputs) based on the following parameters:

1. Rarity: The rarer a symptom is, the more weight is given to it. Thus, the Random Forest Model predicts a disease more accurately according to the symptoms.

2. Location: Some diseases are only bound to happen in a particular geographic location.

3. Thus, the database is set in such a way that the algorithm discards all the diseases that are not present in the inputted location.

Demerits

1. Execution time: It requires huge execution time and space for the compilation of the decision trees.

2. Stability: It works better in a stable environment where the dataset is less noisy and subjected to be less dynamic.

3. Overfitting: It may lead to an overfitted model when provided with noise.

Challenges

No blockchain is used and no feedback from doctor.

2.1.3 Implementation

The random forest produces decision trees from multiple data using their average for regression and most of the voting for categorization. The research reported by Paul et al. used the Random Forest Algorithm as the main algorithm. The random forest algorithm is used to train the model with the dataset which contains a combination of symptoms and the corresponding diseases . The driving force behind using the random forest algorithm is that it has the capacity to handle data sets with continuous variables, as in regression, and categorical variables, as in classification. It produces superior results with regard to classification problems. The working method of the Random Forest is .

Step 1: Select arbitrary samples from a given data set or training set.

Step 2: This method will create a decision tree for every training data set.

Step 3: Using the decision tree's average, voting will be done.

Step 4: Lastly, select the predicted outcome that garnered the greatest support as the final prediction outcome.
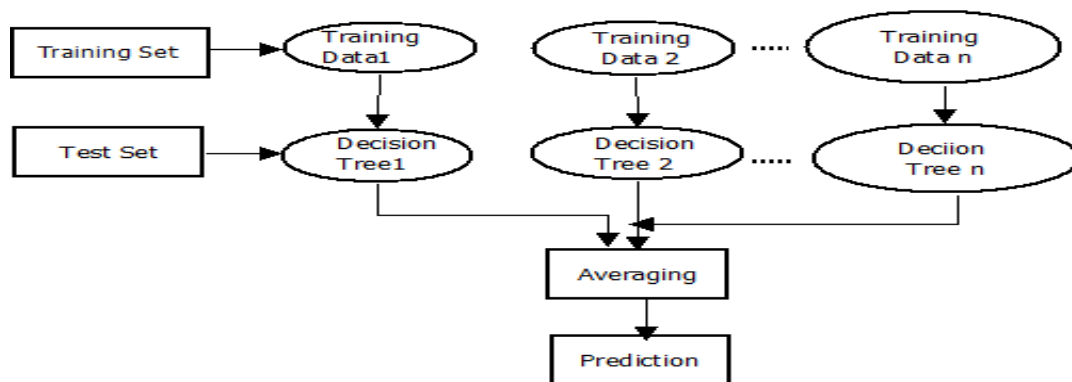
Figure 2.1.3. Methodology of Random Forest Algorithm

2.2 Online Doctor Management System Synopsis

2.2.1. Introduction

The establishment and improvement of doctor-patient interaction system is a very important requirement, especially now when the mobile communication technology is developing rapidly. The advantages of mobile web can be made full use of to make up the time and distance gap between doctors and patients and to provide fast and adequate medical services. Through the connection between mobile terminals and specific service, both doctors and patients are able to obtain required data to achieve a better interaction. Android is a Linux based open source operating system which is mainly used in portal devices with excellent performance thus making its market share growing. The platform, a services and database technology are all gradually maturing, so that we can develop a doctor- patient interaction system on Android platform to meet the needs of the patient and provide doctors more efficient and convenient means of communication with patients.

2.2.2 Merits, Demerits and Challenges

Merits

Doctor patient interaction system.

Demerits

No machine learning.

Challenges

Verifying the identity of patients and doctors is essential to prevent fraud and protect patient information.

2.2.3 Implementation

To make a truly online doctor system to have meet with online doctors, all manual process has been automated through this system. Patient have to fill online form by which id and password created and sended to their email and upon accepting data, automatic login to patient panel. Through this panel, patients can select the doctors and have appointment with them on their time from their own place. Patients will get all their reports and medicine prescriptions in their inbox by notification indication just after appointment session. There is no need of cash and a secure payment gateway has been used to pay the required fees using their account or debit or credit card.

2.3. Doctor Appointment Online Booking System

2.3.1 Introduction

The proposed work in this paper is an Online Hospital Management Application that uses an android platform that makes the task of making an appointment from the doctor easy and reliable for the users. Android based online doctor appointment application contains two modules. One module is the application designed for the patient that contains a login screen. The patient has to register himself before logging in to the application. After logging in, the patient can select a hospital and can view the hospital details. The patient has the option of selecting a doctor from the list of doctors and can view the doctor's details. The patient can request for an appointment on his/her preferred day/time. The selected day/time slot will be reserved and patient will receive the notification of the successfully added appointment. The patient can view the location of the hospital on map. In addition, the patient can contact to the hospital and the doctor by making a call or may send an email to the doctor. There are considerable online scheduling tools in the internet, a few of which are trait loaded, simple to setup and economical For practitioners, online appointment reservation and scheduling delivers a lot of merit added benefits and services, like captivating the patient, composing the patient to feel welcomed, and being capable to save patients' details safely for future information. But the most admirable and useful preference is that online appointment reservation and scheduling is remarkably in expensive .Both doctors and patients can access the portal through their unique ID's.

2.3.2 Merits, Demerits and Challenges

Merits

Doctor appointment allotting

Demerits

No blockchain

Challenges

Waiting time simply means a period of time which one must wait in order for a specific action to occur, after that action is requested or mandated . Patients' waiting time has been defined as the length of time from when the patient entered the outpatient clinic to the time the patient actually received his or her prescription.

2.3.3 Implementation

The proposed system consists of two panels: Doctor and Patient. The users will first have to download the application and install it in their mobile devices. Once installed, this application will remain into the device permanently until the user deletes it or uninstalls it. The patient will have to register into the application for the first time. On registering, the patient will receive a username and password. The patient can use this username and password for logging into the app each time he uses it. After logging in, the patient will have to select a filtration type. The filtration is done on two bases: Area wise and Specialty wise. After selecting the filtration type, the doctors list will be displayed. The patient can select any particular doctor and view his profile. Also the patient can view the doctor's schedule and look for an appointment according to his convenience. The patient will then send a request for appointment. The doctor can either accept the appointment or reject it. The database will get updated accordingly and the patient will get a confirmation message. The add-on to this system is that the patient will receive a notification 2 hours before the actual appointment. This will be very useful in case the patient tends to forget the appointment. The duration a patient waits from the given time of their schedule to the time that they must actually receive the service is known as direct waiting time. The patients use this technique and waste much waiting time just by standing in queue at the registration counter to make sure a successful registration of the appointment has been made with a certain doctor.

CHAPTER 3
RESULTS AND DISCUSSION

CHAPTER 3

RESULTS AND DISCUSSION

3.1 Performance metrics

Author	Project	Advantages	Limitations	Accuracy	ML	BC	Payments
K. Gaurav *et.al*	Human Disease Prediction using Random Forest	The dataset is suitable for Random Forest	Can be improved if time series dataset is provided	97%	✔	✘	✘
Stitt FW *et.al*	Online Doctor Management System Synopsis	Doctor patient interaction system.	Verifying the identity of patients and doctors is essential to prevent fraud and protect patient information.	96%	✘	✘	✔
Akinode John Lekan *et.al*	Doctor Appointment Online Booking System	Doctor appointment allotting	High Waiting time	90%	✘	✔	✘

Table 3.1 Performance Comparison

CHAPTER 4
CONCLUSION

CHAPTER 4

CONCLUSION

Through this system, we aim to enhance the accuracy and efficiency of disease prediction by reducing the reliance solely on human expertise, minimizing the risk of misdiagnosis, and providing timely insights into potential health concerns.

The patient can pay the money securely with the help of blockchain and doctor can go through the prediction of disease and can provide medicine.

REFERENCES

REFERENCES

[1]. Kumar, A., Bharti, R., Gupta, D. and Saha, A.K., "Improvement in boosting method by using rustboost technique for class imbalanced data", in Recent Developments in Machine Learning and Data Analytics: IC3 2018, Springer., (2019), 51-66.

[2]. Stitt, F.W., 1993. The Problem-Oriented Medical Synopsis: a patient-centered clinical information system. In *Proceedings of the Annual Symposium on Computer Application in Medical Care* (p. 88). American Medical Informatics Association.

[3]. Akinode, J.L. and Oloruntoba, S.A., 2017. Design and implementation of a patient appointment and scheduling system. *Department of Computer Science, Federal Polytechnic Ilaro Nigeria*.

GitHub Link
1.