# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

**Project Report**

**on**

# Disease Detection through Machine Learning

A project report submitted in partial fulfillment of the requirement for the degree of

**BACHELOR OF TECHNOLOGY**

in

**INFORMATION TECHNOLOGY**


Submitted by:

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**Project-160801**


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Submitted to:

**DEPARTMENT OF INFORMATION TECHNOLOGY**

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE

GWALIOR - 474005

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# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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## CERTIFICATE

This is certified that **SHAANTANU AGARWAL** (0901IT181053) has submitted the project report titled **Disease detection through Machine Learning** under the mentorship of **Prof. Abhilash Sonker**, in partial fulfillment of the requirement for the award of degree of Bachelor of Technology in **Information Technology** from Madhav Institute of Technology and Science, Gwalior.

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13-6-22

**Dr. Akhilesh Tiwari**
Professor and Head,
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# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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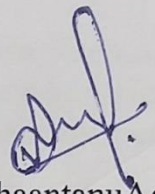
## DECLARATION

I hereby declare that the work being presented in this project report, for the partial fulfillment of requirement for the award of the degree of Bachelor of Technology in Information Technology at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of **Prof. Abhilash Sonker**, Asst. Professor, Department of Information Technology I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.



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# ABSTRACT

One of the most significant subjects of society is human healthcare. It is looking for the best one and robust disease diagnosis to get the care they need as soon as possible. Other fields, such as statistics and computer science, are needed for the health aspect of searching since this recognition is often complicated. The task of following new approaches is challenging these disciplines, moving beyond the conventional ones. The actual number of new techniques makes it possible to provide a broad overview that avoids particular aspects. We suggest a systematic analysis of human diseases related to machine learning. This project concentrates on existing techniques related to machine learning growth applied to the diagnosis of human illnesses in the medical field to discover exciting trends, make unimportant predictions, and help decision-making. This project analyzes unique machine learning algorithms used for health care applications to create adequate decision support. This project intends to reduce the research gap in creating a realistic decision support system for medical applications.

# सार :

समाज के सबसे महत्वपूर्ण विषयों में से एक मानव स्वास्थ्य देखभाल है। यह सबसे अच्छे की तलाश में है और उन्हें जल्द से जल्द आवश्यक देखभाल प्राप्त करने के लिए मजबूत रोग निदान। अन्य क्षेत्र, जैसे सांख्यिकी और कंप्यूटर विज्ञान, खोज के स्वास्थ्य पहलू के लिए आवश्यक हैं क्योंकि यह मान्यता अक्सर होती है उलझा हुआ। नए दृष्टिकोणों का पालन करने का कार्य इन विषयों को चुनौती दे रहा है, जो से आगे बढ़ रहा है पारंपरिक वाले। नई तकनीकों की वास्तविक संख्या एक व्यापक अवलोकन प्रदान करना संभव बनाती है जो विशेष पहलुओं से बचा जाता है। हम मशीन से संबंधित मानव रोगों के एक व्यवस्थित विश्लेषण का सुझाव देते हैं सीख रहा हूँ। यह परियोजना लागू मशीन लर्निंग ग्रोथ से संबंधित मौजूदा तकनीकों पर केंद्रित है चिकित्सा क्षेत्र में मानव रोगों के निदान के लिए रोमांचक प्रवृत्तियों की खोज करना, महत्वहीन बनाना भविष्यवाणियाँ, और निर्णय लेने में मदद करती हैं। यह परियोजना अद्वितीय मशीन लर्निंग एल्गोरिदम का विश्लेषण करती है पर्याप्त निर्णय समर्थन बनाने के लिए स्वास्थ्य देखभाल अनुप्रयोगों के लिए उपयोग किया जाता है। यह परियोजना कम करने का इरादा रखती है चिकित्सा अनुप्रयोगों के लिए एक यथार्थवादी निर्णय समर्थन प्रणाली बनाने में अनुसंधान अंतर।

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# Chapter 1.Introduction

Disease Prediction using Machine Learning is a system which predicts the disease based on the information provided by the user. It also predicts the disease of the patient or the user based on the information or the symptoms he/she enter into the system and provides the accurate results based on that information. If the patient is not much serious and the user just wants to know the type of disease, he/she has been through. It is a system which provides the user the tips and tricks to maintain the health system of the user and it provides a way to find out the disease using this prediction. Now a day's health industry plays major role in curingthe diseases of the patients so this is also some kind of help for the health industryto tell the user and also it is useful for the user in case he/she doesn't want to go to the hospital or any other clinics, so just by entering the symptoms
and all other useful information the user can get to know the disease he/she is suffering from and the health industry can also get benefit from this system by justasking the symptoms from the user and entering in the system and in just few seconds they can tell the exact and up to some extent the accurate diseases.

## 1.1 Overview

Now a day's doctors are adopting many scientific technologies and methodology for both identification and diagnosing not only common disease, but also many fatal diseases. The successful treatment is always attributed by right and accurate diagnosis. Doctors may sometimes fail to take accurate decisions while diagnosing the disease of a patient, therefore disease prediction systems which use machine learning algorithms assist in such cases to get accurate results. The project disease prediction using machine learning is developed to overcome general disease in earlier stages as we all know in competitive environment of economic development the mankind has involved so much that he/she is not concerned about health according to research there are 40% peoples how ignores about general disease which leads to harmful disease later. The main reason of ignorance is laziness to consult a doctor and time concern the peoples have involved themselves so much that they have no time to take an appointment and consult the doctor which later results into fatal disease.

## 1.2 Background and Motivation

So the problem here is that many people goes to hospitals or clinic to know how istheir health and how much they are improving in the given days, but they have to travel to get to know there answers and sometimes the patients may or may not get the results based on various factors such as doctor might be on leave or some whether problem so he might not have come to the hospital and many more reasons will be there so to avoid all those reasons and confusion we are making a project which will help all those person's and all the patients who are in need to know the condition of their health, and at sometimes if the person has been observing few symptoms and he/she is not sure about the disease he/she is encountered with so this will lead to various diseases in future. So, to avoid that and get to know the disease in early stages of the symptoms this disease prediction will help a lot to the various people's ranging from children to teenagers to adults and also the senior citizens.

Fig 1.1

## 1.3 Problem Statement and Objectives

Now a days in Health Industry there are various problems related to machines or devices which will give wrong or unaccepted results, so to avoid those results andget the correct and desired results we are building a program or project which willgive the accurate predictions based on information provided by the user and also based on the datasets that are available in that machine. The health industry in information yet and knowledge poor and this industry is very vast industry whichhas lot of work to be done. So, with the help of all those algorithms, techniques and methodologies we have done this project which will help the peoples who are in the need.

The objective of making this project called "Disease Prediction Using Machine Learning" is to predict the

accurate disease of the patient using all their general information's and also the symptoms. Using this information, there we will compare with our previous datasets of the patients and predicts the disease of the patient he/she is been through. If this Prediction is done at the early stages of the disease with the help of this project and all other necessary measure the disease can be cured and in general this prediction system can also be very useful in health industry. If health industry adopts this project, then the work of the doctors can be reduced and they can easily predict the disease of the patient.

The general purpose of this Disease prediction is to provide prediction for the various and generally occurring diseases that when unchecked and sometimes ignored can turns into fatal disease and cause lot of problem to the patient and as well as their family members.

This system will predict the most possible disease based on the symptoms. The health industry in information yet and knowledge poor and this industry is very vast industry which has lot of work to be done. So, with the help of all those algorithms, techniques and methodologies we have done this project which will help the peoples who are in the need.

## 1.4 Scope of the Project

The scope of Disease Prediction Using Machine Learning are as follows:

- This Project will predict the diseases of the patients based on the symptoms andother general information using the datasets.
- With the help of Disease prediction, it can predict the disease of the patient and can solve various problems and prevents from various aspects.
- It provides security for the system so that no one can break into that and no onecan make any changes in the system.
- The disease is predicted using the algorithms and the user has to enter the symptoms from the given drop-down menu, in order to get correct accuracy, theuser has to enter all the symptoms.
- Here we can easily prepare the data and transform that data into algorithm, whichwill reduce the overall work of the project.
- Once user open the system to login user needs to register by clicking onregister/signup button.
- After which user needs to provide some basic details of signup and then thedetails of user are saved in system.

## 1.5 Report Structure

The project Disease Prediction System is primarily concerned with the MachineLearning and whole project report is categorized into five chapters.

Chapter 1: Introduction- introduces the background of the problem followed by rationale for the project undertaken. The chapter describes the objectives, scope and applications of the project. Further, the chapter gives the details of team members and their contribution in development of project which is then subsequently ended with report outline.

Chapter 2: Review of Literature- explores the work done in the area of Project undertaken and discusses the limitations of existing system and highlights the issues and challenges of project area. The chapter finally ends up with the requirement identification for present project work based on findings drawn fromreviewed literature and end user interactions.

Chapter 3: Proposed System - starts with the project proposal based on requirement identified, followed by benefits of the project. The chapter also illustrate software engineering paradigm used along with different design representation. The chapter also includes block diagram and details of majormodules of the project. Chapter also gives insights of different type of feasibility study carried out for the project undertaken. Later it gives details of the different deployment requirements for the developed project.

Chapter 4: Implementation - includes the details of different Technology/ Techniques/ Tools/ Programming Languages used in developing the Project. The chapter also includes the different user interface designed in project along with their functionality. Further it discuss the experiment results along with testing of the project. The chapter ends with evaluation of project on different parameters like accuracy and efficiency.

Chapter 5: Conclusion - Concludes with objective wise analysis of results and limitation of present work which is then followed by suggestions and recommendations for further improvement.

# Chapter 2. Review of Literature

Disease prediction using patient health data by applying data mining and machine learning techniques is ongoing struggle for the past decades. Machine learning has made easier to identify different diseases and diagnosis correctly. Predictive analysis with the help of efficient multiple machine learning algorithms helps to predict the disease more correctly and help treat patients. The healthcare industry produces large amounts of healthcare data daily that can be used to extract information for predicting disease that can happen to a patient in future while using the treatment history and health data. This hidden information in the healthcare data will be later used for affective creation of dataset. Also, these areas need improvement by using the informative data in healthcare.

## 2.1 Preliminary Investigation

### Current System

- The current system of predicting the disease is to first go to doctor with thesymptoms and wait for the reports and then medications will be started.
- This is not only time consuming but also this time can be life-threatening.Can often lead to delay in treatments.
- Even the most experienced doctor can lead to misdiagnosis. Afterall “We allare human”.

## 2.2 Limitation of Current System

- Clinical decisions are often made based on doctor’s intuition and experiencerather than on the knowledge rich data hidden in the database.
- There are many ways that a medical misdiagnosis can present itself. Whether a doctor is at fault, or hospital staff, a misdiagnosis of serious illness can havevery extreme and harmful effects.
- The National Patients Safety Foundation cites that 42% of medical patient feel they have experienced a medical error or misdiagnosis. Patient safety is sometimes negligently given a back seat for other concern such as the cost ofmedical tests, drugs and operations.

## 2.3 Requirement Identification and Analysis for Project

Significant work has been done in the field of Disease Prediction however, it is not easy to achieve desired results. The review of literature leads to draw certain majorfindings which are as under:

- The work presented in [1] focuses on disease prediction from clinical data provided by New York - Presbyterian Hospital. As these are clinical data, automated disease prediction is relatively different and easier than predicting from user text input. It is observed that input from common user contains a smaller number of clinical terms. That means, matching the symptom names from user text input with system database has much more complexity.
- [2] uses jargon-laden interface (I.e., users need to navigate through a longlist of symptoms). From user's point of view, it is a cumbersome task and the process is time consuming as well. Moreover, if a certain symptom is not found by the users, they are compelled to skip that symptom which is not desired at all.
- authors in [3] focus on predicting coronary heart diseases by mining text. There are also quite a number of researches works that have been done in recent years on healthcare forums.
- [4] is such a work where natural language processing is used to rate and analyse user comments in order to predict diseases and extract rare side effects of drugs. This International Journal of Computer Applications (0975 – 8887) Volume 133 – No.15, January 2016 25 system took into ac-count suggestions provided by different users on comment sections in diseaseanalysis.
- Authors, in this paper [7] has proposed in to the concept is machine learningbased disease prediction using the big data for overcome the machine learning drawbacks. The smooth progress of big data is moves in the biomedical and healthcare communities in hospital for accurate results in anyexperiment result. This concept is (a) reduces the incomplete data and (b) effective disease prediction.
- Authors, presents the survey paper [5] for "prediction of disease using machine learning over big data". Can develop the medical specialty basis thisconcept is applied to produce the medical data in to mass medical data, whichmeans the data which is enlarged. The goal of this concept is targeted the simplest data is stored into the space of medical massive data analysis, called"medical data analysis in massive collection". It produces the accuracy and itreaches the 4.8% speed faster the CNN-UDRP. It only focuses these three data,
  (a) structured data, (b) text data, (c) structured and text data. In this proposed system is improves the medical data-oriented term
- Concept presented by author, this paper [6] delivered theme is, "personalized disease prediction care from harm using big data", for healthcare analysis. This concept describes the medical field is a

rich data industry because it holds the healthcare records, also. The daily treatment records are increasedin every day that is it includes number of transactions, and the patient information is stored and retrieved from the database. The medical treatment records are every day updated one, because every day improves the patient health improvements based on treatment. It gives the correct solutions for different types of diseases.

- Paper [8] gives the survey for Personalized Clinical Decision Support System Using Effective Data Mining Algorithms. This paper effectively designed a framework which is called A-CDSS (adaptive clinical decision support system).This framework manage and solved many research issues such as feature selection, classification issues like class Inequality and accuracy problems and finally the decision selection based on the diagnosed result. This paper result shows achieve the higher accuracy and effective clinical decision support system.
- Author Senthil Kumar proposed [9] Bio Search engine with effective data mining machine learning algorithm with less energy for query processing. This proposed approach contains predictive data caching techniques which gives for fast and effective data retrieval. This system also integrates with auto query incremental algorithm to ease the search. Finally retrieved data are ranked and summarized using RII result shows to the user view
- The paper [10] author has presented the data mining concept for Clinical Datasets Using Weighted Genetic PCA Methods. Diagnosis and detection of diseases from patient electronic health records are very dynamic in nature and achieving that is a very promising area of research. So this paper implements a new weighted Genetic based algorithm with the use of effectiveweighted features from the PCA. The system finds the type2 Diabetes and Heart disease Classification using WGA technique. The system developed with the intension of high accuracy and less training overhead.
- The paper [11] author has presented Identification of Diabetes Risk Using Machine Learning Approaches. With the numerous sizes in digital Healthcare data processes, the classification and prediction based on the statistical data is very tough. This survey discusses several machine learning approaches such as supervised learning, clustering and regression for Diabetes Risk this paper shows the advantages and disadvantages of several traditional classification algorithms based on different techniques.
- In the paper [12] author has presented the concept is Feature Selection Methods Feature Selection Methods. The problem of feature selection, or choosing the most relevant features out of what can be an incredibly large set of data, is particularly important for accurate text categorization. So that this paper extracts a feature vector for each new document by using feature weighting and feature selection algorithms for enhancing the text classification accuracy. After that we train our classifier by Naïve Bayesian (NB) and support vector machine (KNN) algorithms. In Experiments, although

both algorithms are show acceptable good results for textclassification.

- The authors Marija Sultana, Afrin Haider and Md.Shorif Uddin [13], have analyzed algorithms such as K-star, J48, SMO, Bayes Net and Multilayer Perceptron Network using WEKA tools for heart disease prediction dataset. The performance of these datamining techniques in acquired by combination of results of measures such as predictive accuracy, ROC curve and AUC value.The result obtained is the SMO and Bayes network show more optimum result than their other mentioned counterparts.

- In this project, the authors Girija D.K, Dr. M.S. Shashidhara and M.Giri [14], make use of Neural networks to make predictions regarding presence of uterine fibroid disease. The experimental results show an accuracy of 98% using the Multilayer perceptron neural network and data mining. This project focuses on the most common form of cancer present in women i.e. Breast Cancer and its recurrence

- [15]Does the estimate of lung cancer using the double dispensation system. The image dispensation system is familiarized into the double for early prophecy. The challenging in this progression is recognition of tiny nodes which comprehends early cancer finding. The unstipulated knobs in lungs can be spotted using ridge recognition algorithm.

- [16] It proposed a system that integrates different datum such as gene information, DNA methylation, and miRNA. In this paper, the model has combined multiple kernel learning methods and dimensionality reduction.

- [17] On the available data mining algorithms to classify the data and extract the knowledge from it. It discusses about the difficulties in classification, segmentation, extraction and selection. It compares the different algorithms like Support Vector Machine, Naïve Bayesian classification, Rough set theory,Decision Tree

- The paper “An approach to devise an Interactive software solution for smarthealth prediction using data mining” [18] aims in developing a computerized system to check and maintain your health by knowing the symptoms. It has asymptom checker. Only the limitation of this paper is it suggests only the award winning doctors and not the nearby doctors to the patient.

- The paper “Predicting Disease by Using Data Mining Based on Healthcare Information System” [19] applies the information mining process to predict high blood pressure from patient medical records with eight alternative diseases. The data was extracted from a true world health care system info containing medical records.

- Ashir Javeed, Shijie Zhou et al. (2017) designed “An Intelligent Learning System based on Random Search Algorithm and Optimized Random Forest Model for Improved Heart Disease Detection”.[20] This paper uses random search algorithm (RSA) for factor selection and random forest model for

diagnosing the cardiovascular disease. This model is principally optimized for using grid search algorithmic program.

### 2.3.1 Conclusion

This chapter reviews the literature surveys that have been done during the research work. The related work that has been proposed by manyresearchers has been discussed. The research papers related to object detection and recognition of objects from 1985 to 2019 have been shown which discussed about different methods and algorithm to predict disease.

# Chapter 3. Proposed System

## 3.1 The Proposal

The proposed system of disease prediction using machine learning is that we haveused many techniques and algorithms and all other various tools to build a system which predicts the disease of the patient using the symptoms and by taking those symptoms weare comparing with the system's dataset that is previously available. By taking those datasets and comparing with the patient's disease we will predict the accurate percentage disease of the patient. The dataset and symptoms go to theprediction model of the system where the data is pre-processed for the future references and then the feature selection is done by the user where he will enter the various symptoms. Then the classification of those data is done with the help of algorithms and techniques such as Decision Tree etc. Then the data goes in the recommendation model, there it shows the risk analysis that is involved in the system and it also provides the probability estimation of the system such that it shows the various probability like how the system behaves when there are n number of predictions are done and it also does the recommendations for the patients from their final result and also from their symptoms like it can show whatto use and what not to use from the given datasets and the final results. Here we have combined the overall structure and unstructured form of data for the overall risk analysis that is required for doing the prediction of the disease. Using the structured analysis, we can identify the chronic types of disease in a particular region and particular community. In unstructured analysis we select the features automatically with the help of algorithms and techniques. This system takes symptoms from the user and predicts the disease accordingly based on the symptoms that it takes and also from the previous datasets, it also helps in continuous evaluation of viral diseases, heart rate, blood pressure, sugar level and much more which is in the system and along with other external symptoms its predicts the appropriate and accurate disease

## 3.2 Benefits of the Proposed System

Current system had a lot of challenges that are overcome by this system:

- This Project will predict the diseases of the patients based on the symptoms and other general information using the datasets.
- This is done based on the previous datasets of the hospitals so after comparing it can provide up to 80% of accurate results, and the project is still developing furtherto get the 100% accurate results.
- With the help of Disease prediction, it can predict the disease of the patient and can solve various

problems and prevents from various aspects.

- It provides security for the system so that no one can break into that and no onecan make any changes in the system
- The disease is predicted using the algorithm and the user has to enter the symptoms from the given drop-down menu, in order to get correct accuracy, theuser has to enter all the symptoms.
- Here we can easily prepare the data and transform that data into algorithm, which will reduce the overall work of the project.
- To make user more application friendly rather than discussing with others for their disease
- It provides the necessary options to choose from the types and attributes.
- Here the user has to register first, in order to use the prediction and then login to the system using the credentials such as username and password.
- After which user needs to provide some basic details of signup and thenthe details of user are saved in system

## 3.3 Block Diagram

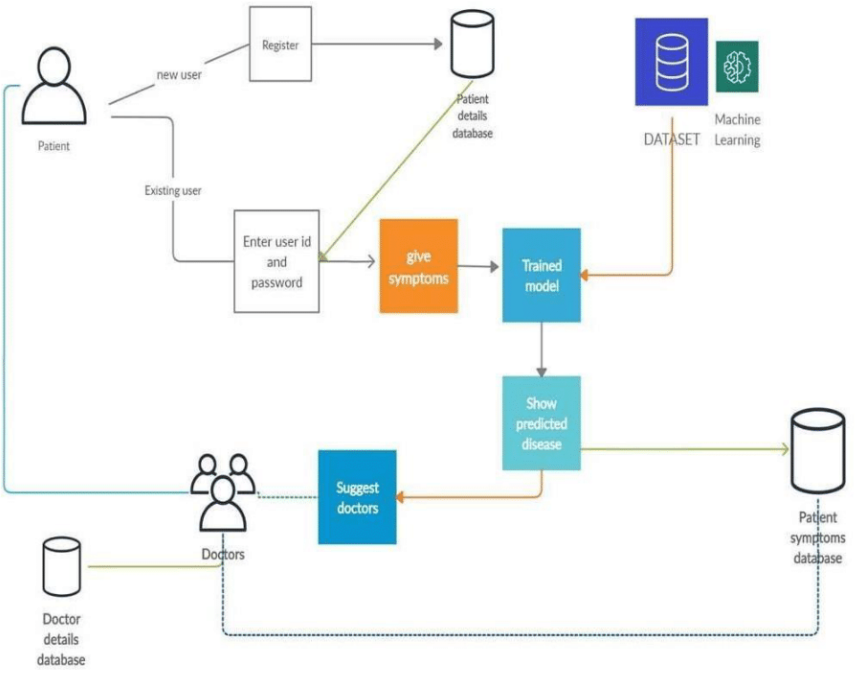



**Fig 3.1 – Block Diagram**

## 3.4 Sequence diagram

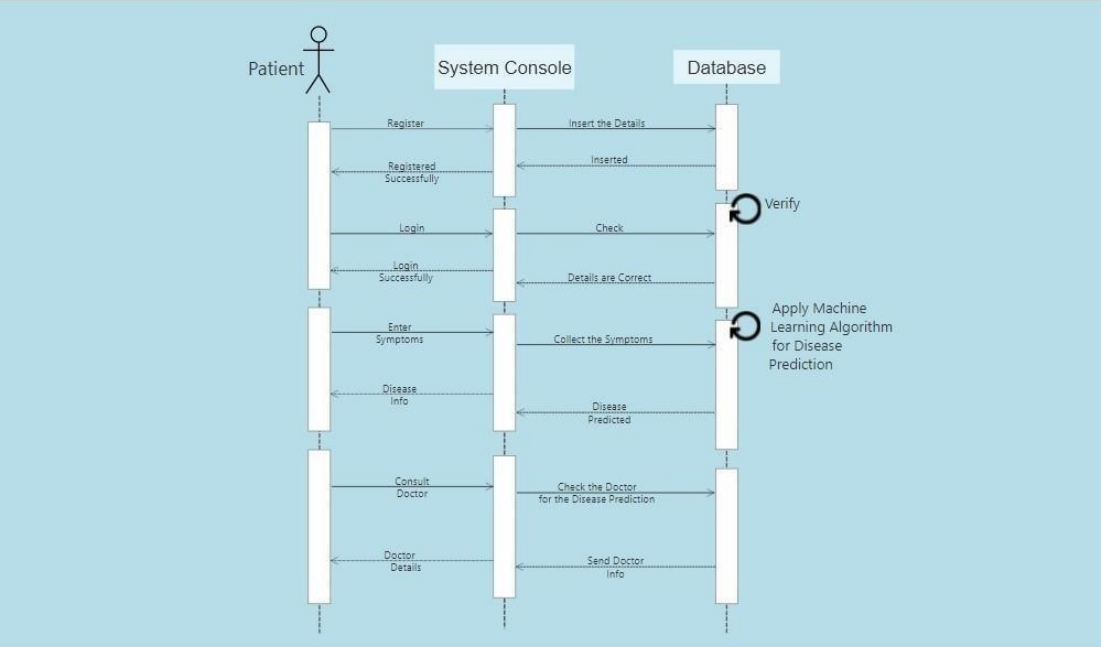



**Fig 3.2 – Sequence Diagram**

## 3.5 Feasibility Study

A feasibility study is an analysis of how successfully a system can be implemented, accounting for factors that affect it such as economic, technical and operational factors to determine its potential positive and negative outcomes before investing a considerable amount of time and money into it.

### ✓ Technical

For any disease prediction system, there is need for a system which predicts disease, for that we need a system that predicts the disease on the basis of symptoms and also guide us on what to do next

For making the system feasible we need to enter symptoms which are somehow related and connected with one particular disease then the systemis feasible.

### ✓ Economical

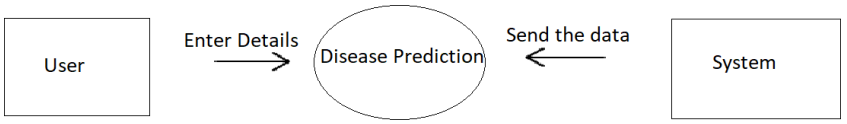
For any disease prediction system, we don't need any extra equipment this system van be built on i3 processor and work on it

### ✓ Operational

Our main motto of our system is to predict the disease so that the user does not need to frequently visit doctor and can directly get guidance from doctorat home.

The system is able to do that accurately and efficiently making the system operationally feasible.

## 3.6 Data Flow Diagrams




Level 0
Data Flow Diagram

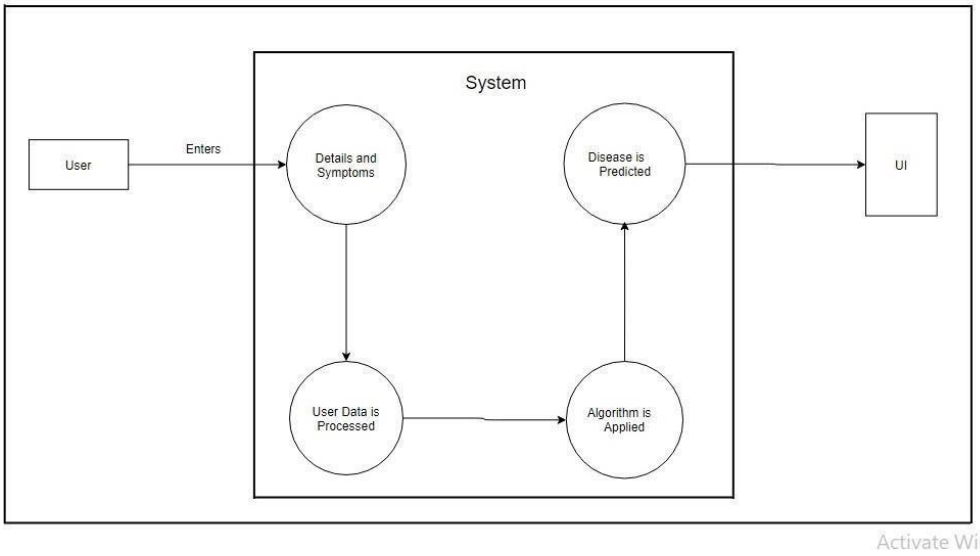



**Fig 3.1 – DFD**

## 3.7 Deployment Requirements

There are various requirements (hardware, software and services) tosuccessfully deploy the system. These are mentioned below :

### 3.7.1 **Hardware:**

- minimum 4gb ram
- i3 processor

### 3.7.2 Software:

- Python
- Django
- PyCharm
- Html CSS
- Java script
- visual studio 2019
- PostgreSQL for database

# Chapter 4 . Implementation

## 4.1 Technique Used

### 4.1.1 Machine- Learning

Tom Mitchell states machine learning as “A computer program is said to learn from experience and from some tasks and some performance on, as measured by, improves with experience”. Machine Learning is combination of correlations and relationships, most machine learning algorithms in existence are concerned with finding and/or exploiting relationship between datasets. Once Machine Learning Algorithms can pinpoint on certain correlations, the model can either use these relationships to predict future observations or generalize the data to reveal interesting patterns. In Machine Learning there are various types of algorithms such as Regression, Linear Regression, Logistic Regression, Naive Bayes Classifier, Bayes theorem, KNN (K-Nearest Neighbor Classifier), Decision Tress, Entropy, ID3, SVM (Support Vector Machines), K- means Algorithm, Random Forest and etc.,

The name machine learning was coined in 1959 by Arthur Samuel. Machine learning explores the study and construction of algorithms that can learn from and make predictions on data Machine learning is closely related to (and often overlaps with) computational statistics, which also focuses on prediction-making through the use of computers. It has strong ties to mathematical optimization, which delivers methods, theory and application domains to the field. Machine learning is sometimes conflated with data mining, where the latter subfield focuses more on exploratory data analysis and is known as unsupervised learning.

Within the field of data analytics, machine learning is a method used to devise complex models and algorithms that lend themselves to prediction; in commercial use, this is known as predictive analytics. These analytical models allow researchers, data scientists,engineers, and analysts to "produce reliable, repeatable decisions and results" and uncover "hidden insights" through learning from historical relationships and trends in the data.

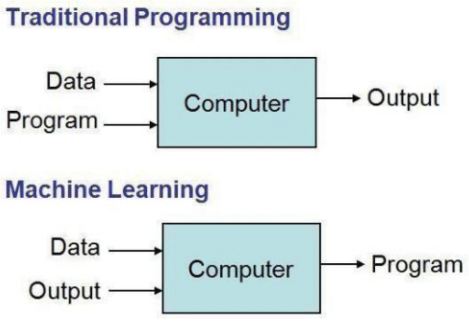
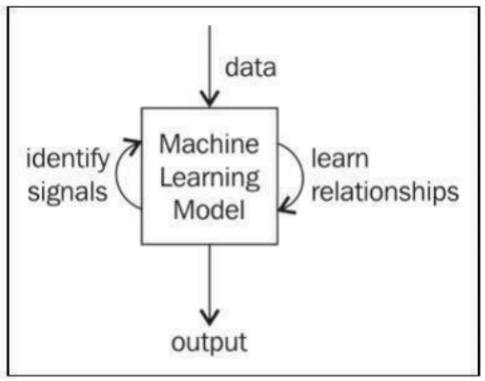



Fig- 4.1 – Machine Learning vs Traditional Programming




An overview of machine learning models

**Fig- 4.2- Machine Learning model**

## 4.2 Tools Used

### 4.2.1 Scikit Learn

Scikit-learn (Sklearn) is the most useful and robust library for machine learningin Python. It provides a selection of efficient tools for machine learning and statistical modeling including classification, regression, clustering and dimensionality reduction via a consistence interface in Python. This library, which is largely written in Python, is built upon NumPy, SciPy and Matplotlib.Scikit-learn is a community effort and anyone can contribute to it Rather than focusing on loading, manipulating and summarising data, Scikit- learn library is focused on modeling the data. Some of the most popular groups of models provided by Sklearn are as follows −Supervised Learning algorithms Almost all the popular supervised learning algorithms, like Linear Regression, Support Vector Machine (SVM), Decision Tree etc., are the part of scikit- learn.Unsupervised Learning algorithms − On the other hand, it also has all thepopular unsupervised learning algorithms from clustering, factor analysis, PCA(Principal Component Analysis) to unsupervised neural networks.

Clustering − This model is used for grouping unlabeled data.

Cross Validation − It is used to check the accuracy of supervised models on unseen data.

Dimensionality Reduction − It is used for reducing the number of attributes in data which can be further used for summarisation, visualisation and feature selection.

Ensemble methods − As name suggest, it is used for combining the predictions of multiple supervised models.

Feature extraction − It is used to extract the features from data to define theattributes in image and text data.

Feature selection − It is used to identify useful attributes to create supervisedmodels.

Open Source − It is open source library and also commercially usable under BSDlicense.

## 4.3 Language Used

Python language is used in the system due to the following Characteristics:

- **Simple :**

Python is a simple and minimalistic language. Reading a good Python program feels almost like reading English (but very strict English!). This pseudo-code nature of Python is one of its greatest strengths. It allows you to concentrate on the solution to the problem rather than the syntax i.e. the language itself.

- **Free and Open Source :**

Python is an example of a FLOSS (Free/Libre and Open Source Software). In simple terms, you can freely distribute copies of this software, read the software's source code, make changes to it, use pieces of it in new free programs, and that you know you can do these things. FLOSS is based on the concept of a community which shares knowledge. This is one of the reasons why Python is so good - it has been created and improved by a community who just want to see a better Python.

- **Object Oriented :**

Python supports procedure-oriented programming as well as object- oriented programming. In procedure-oriented languages, the program is built around procedures or functions which are nothing but reusablepieces of programs. In object-oriented languages, the program is built around objects which combine data and functionality. Python has a very powerful but simple way of doing object-oriented programming, especially, when compared to languages like C++ or Java.

- **Extensive Libraries :**

The Python Standard Library is huge indeed. It can help you do various things involving regular expressions, documentation generation, unit testing, threading, databases, web browsers, CGI, ftp, email ,XML, XML- RPC, HTML, WAV files, cryptography, GUI(graphical user interfaces) using Tk.

## 4.4 Screenshots

**HomePage:**

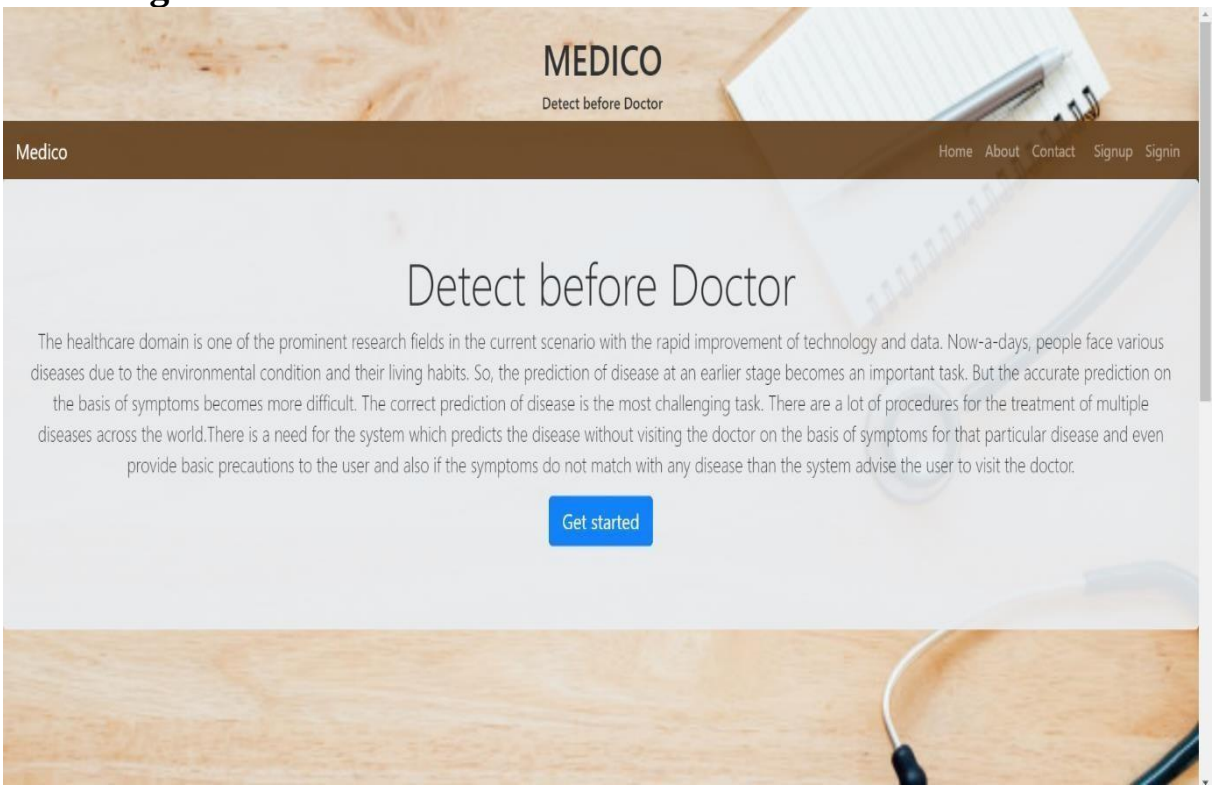



Fig 4.3 – screenshot 1

## Login Modal

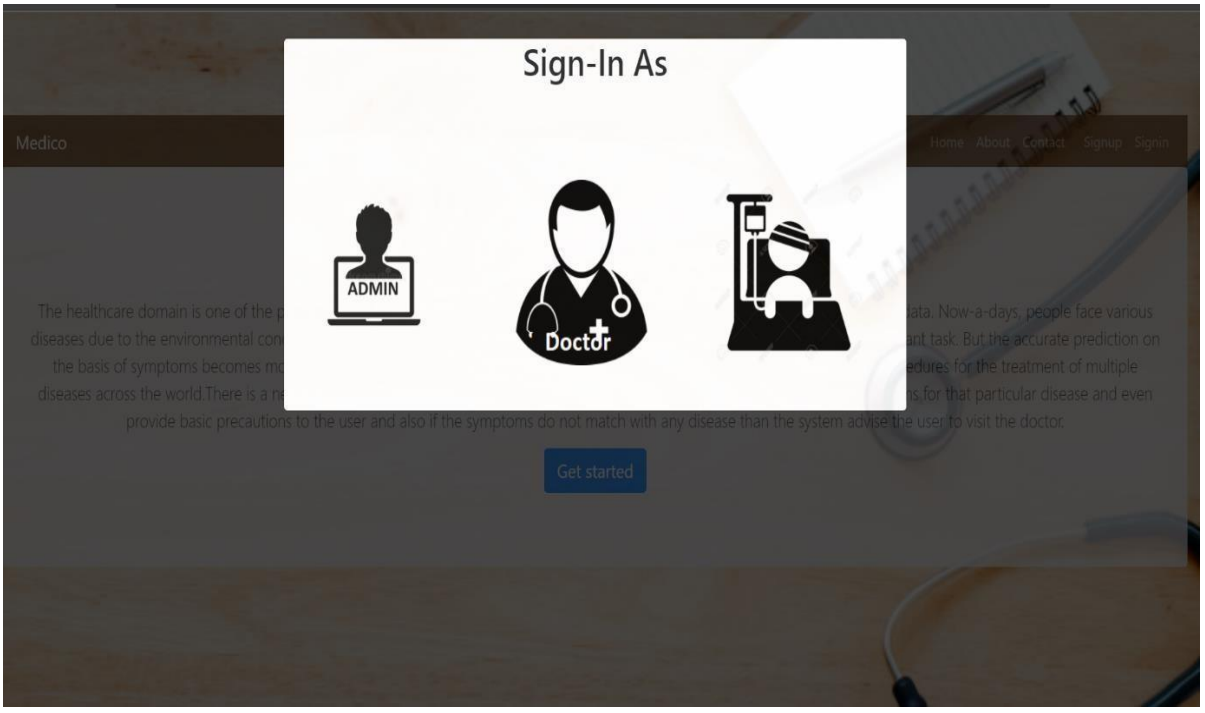
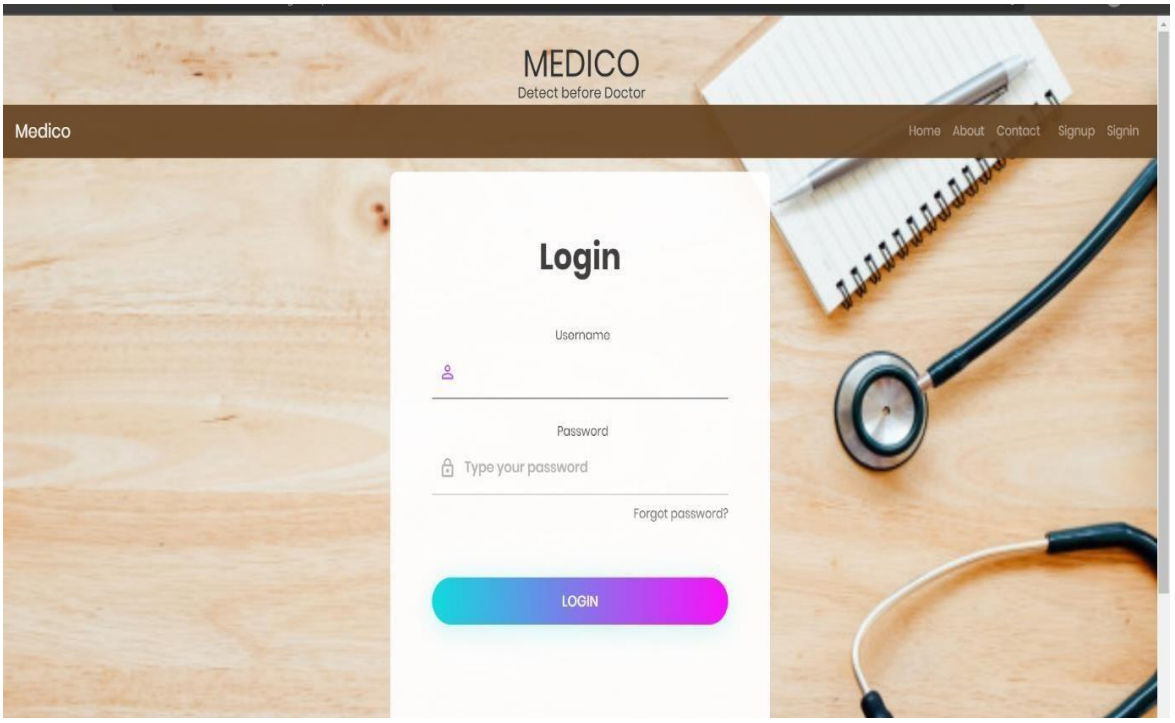
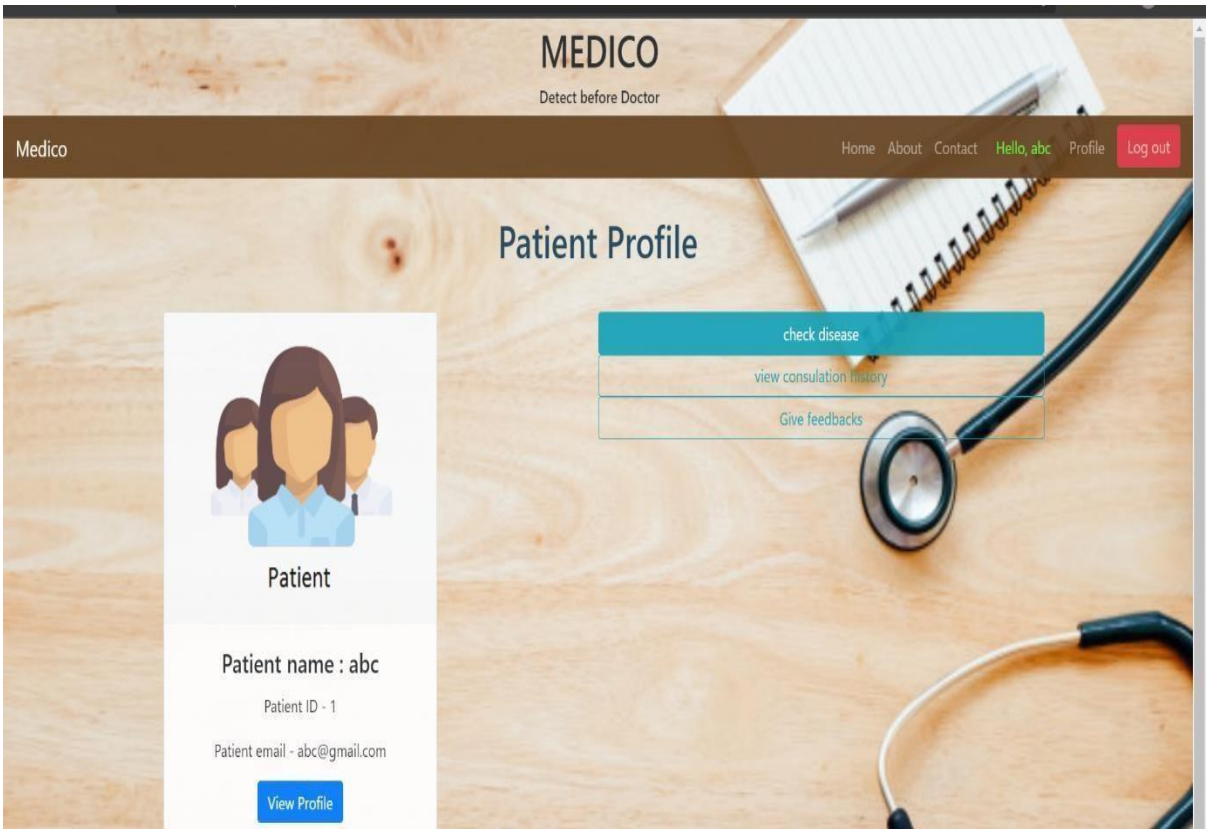


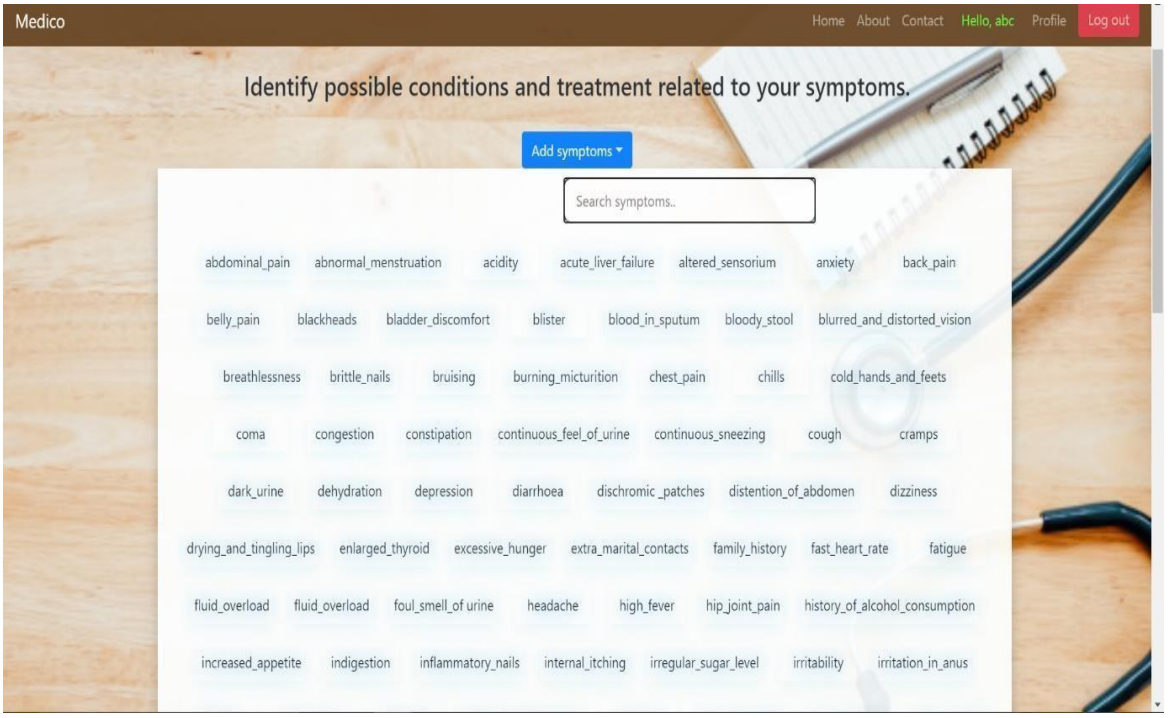

Fig -4.4 – screenshot 2

## Patient Login:

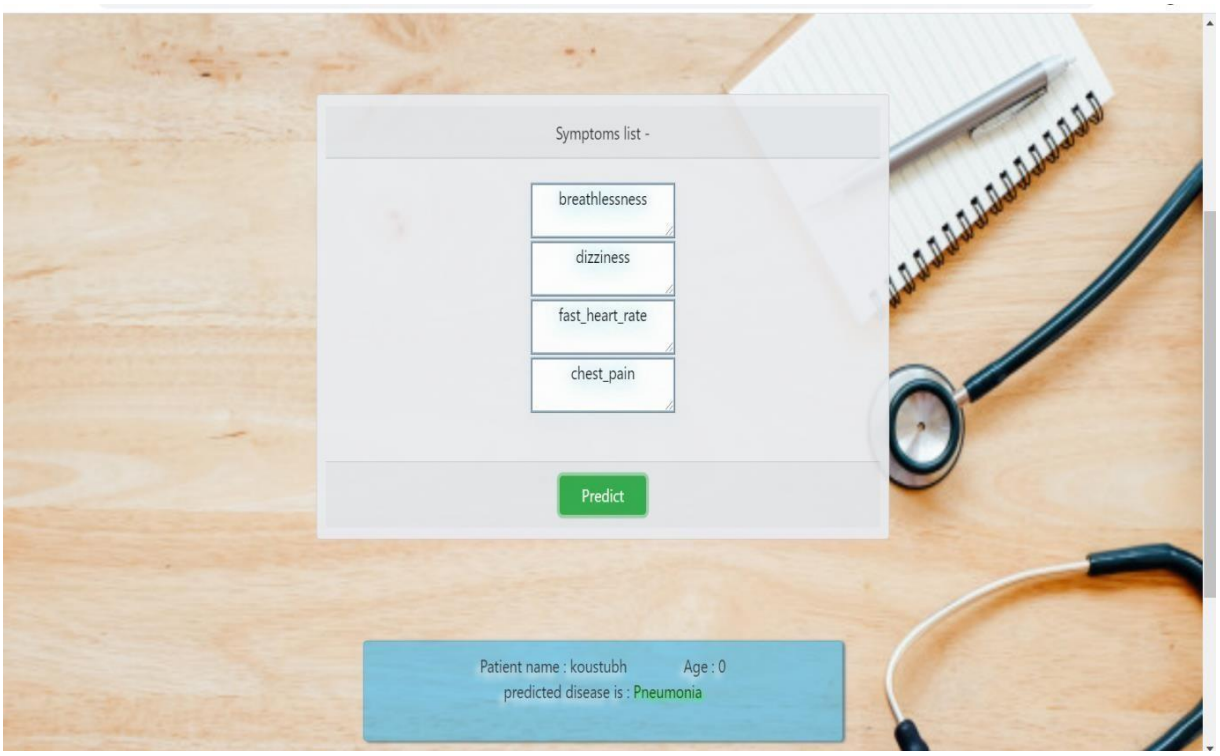





## Check Disease: enter symptoms:

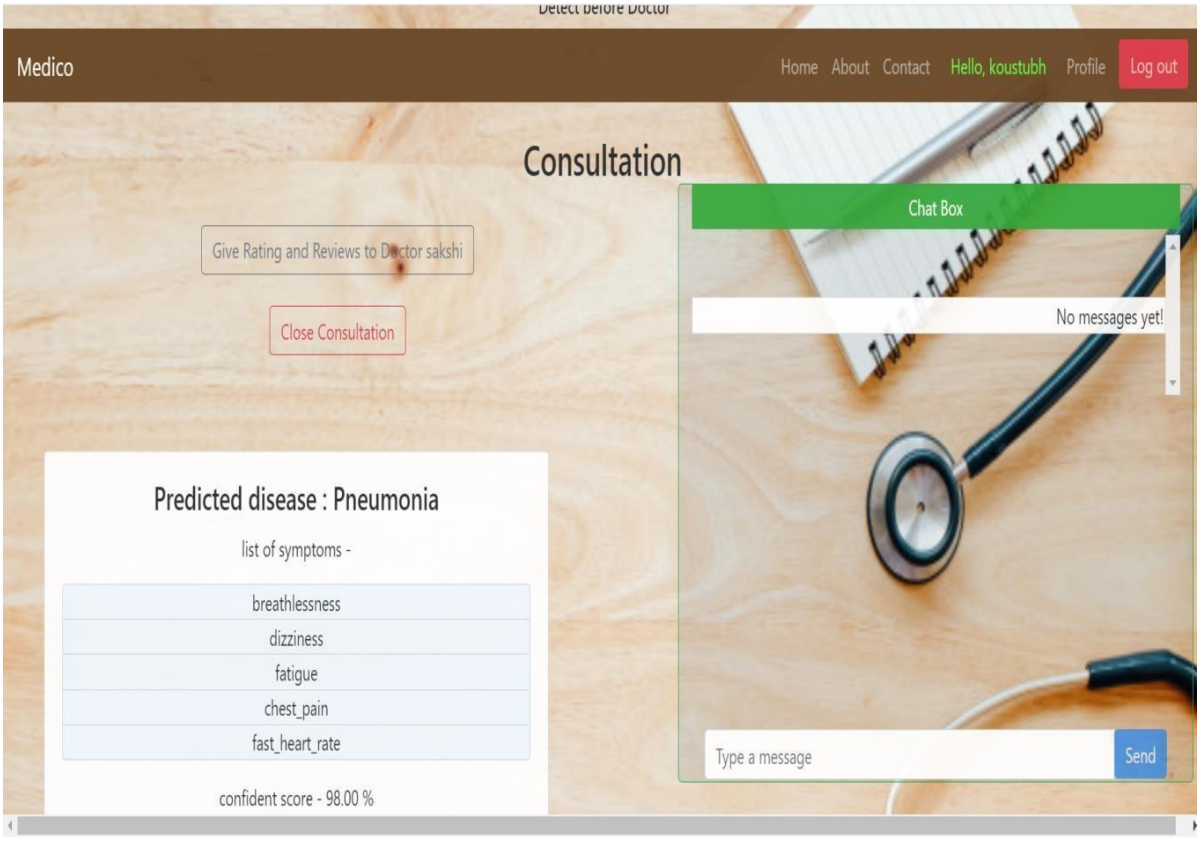


## Predictions:

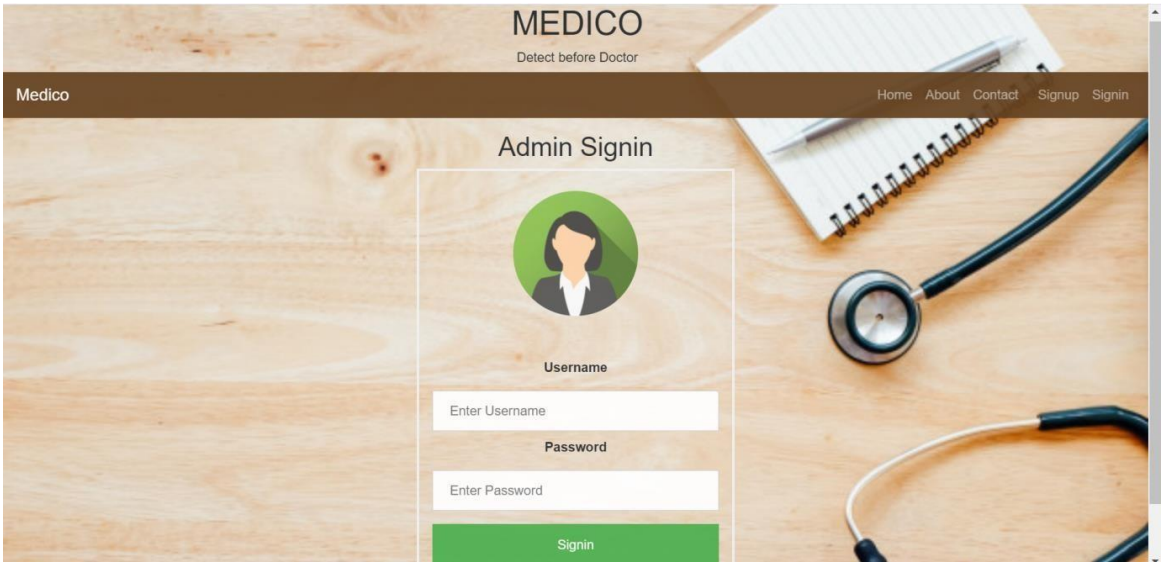


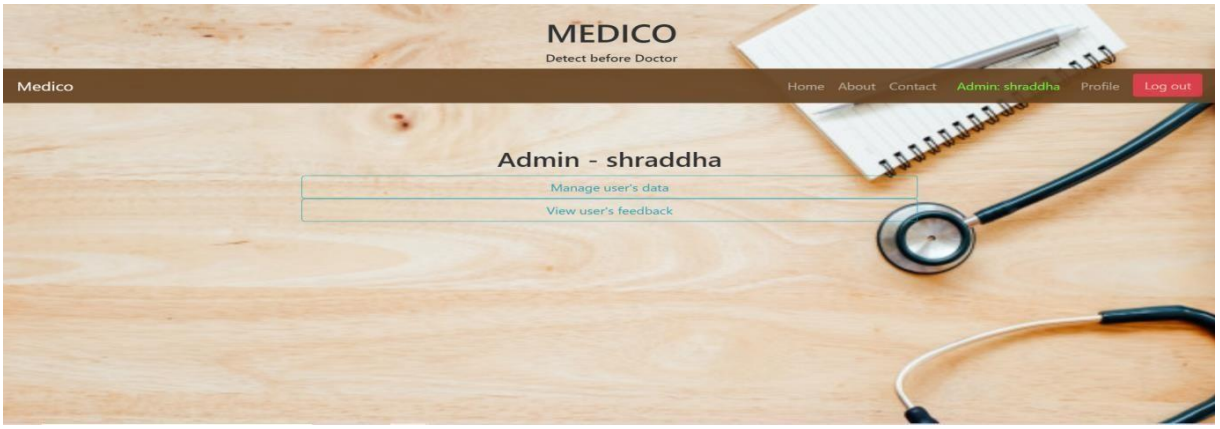

## Consult Doctor:

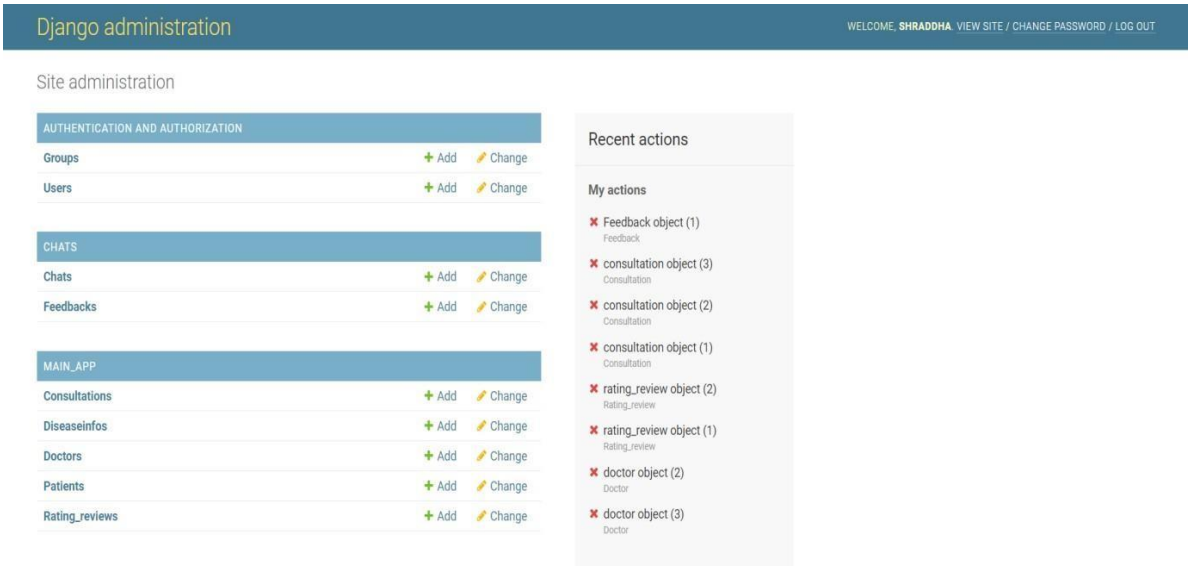
## Consultation UI:




## Admin modal:

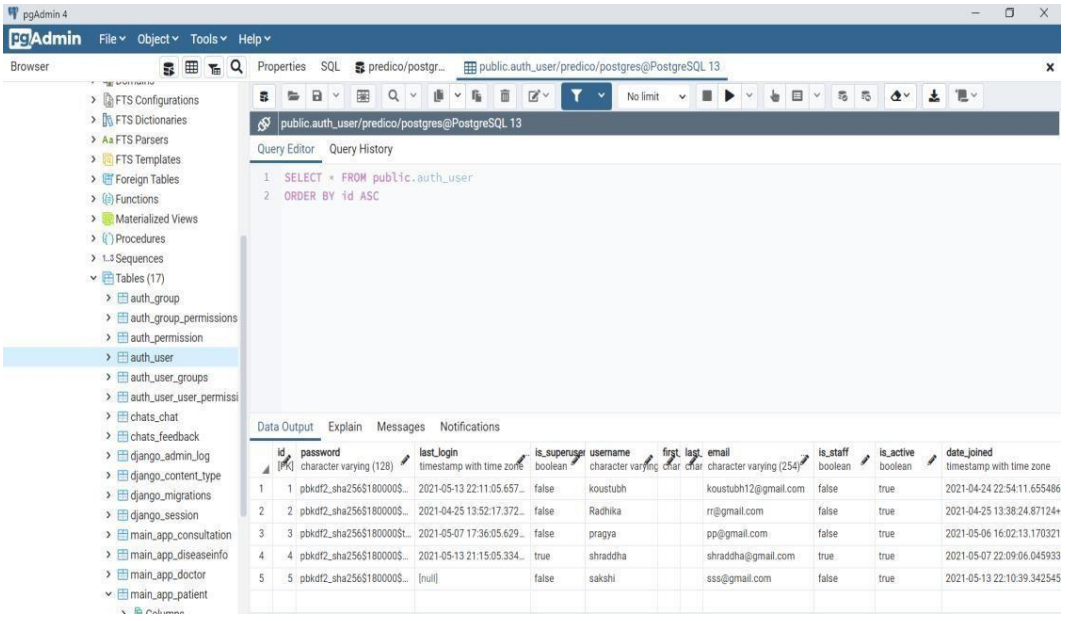




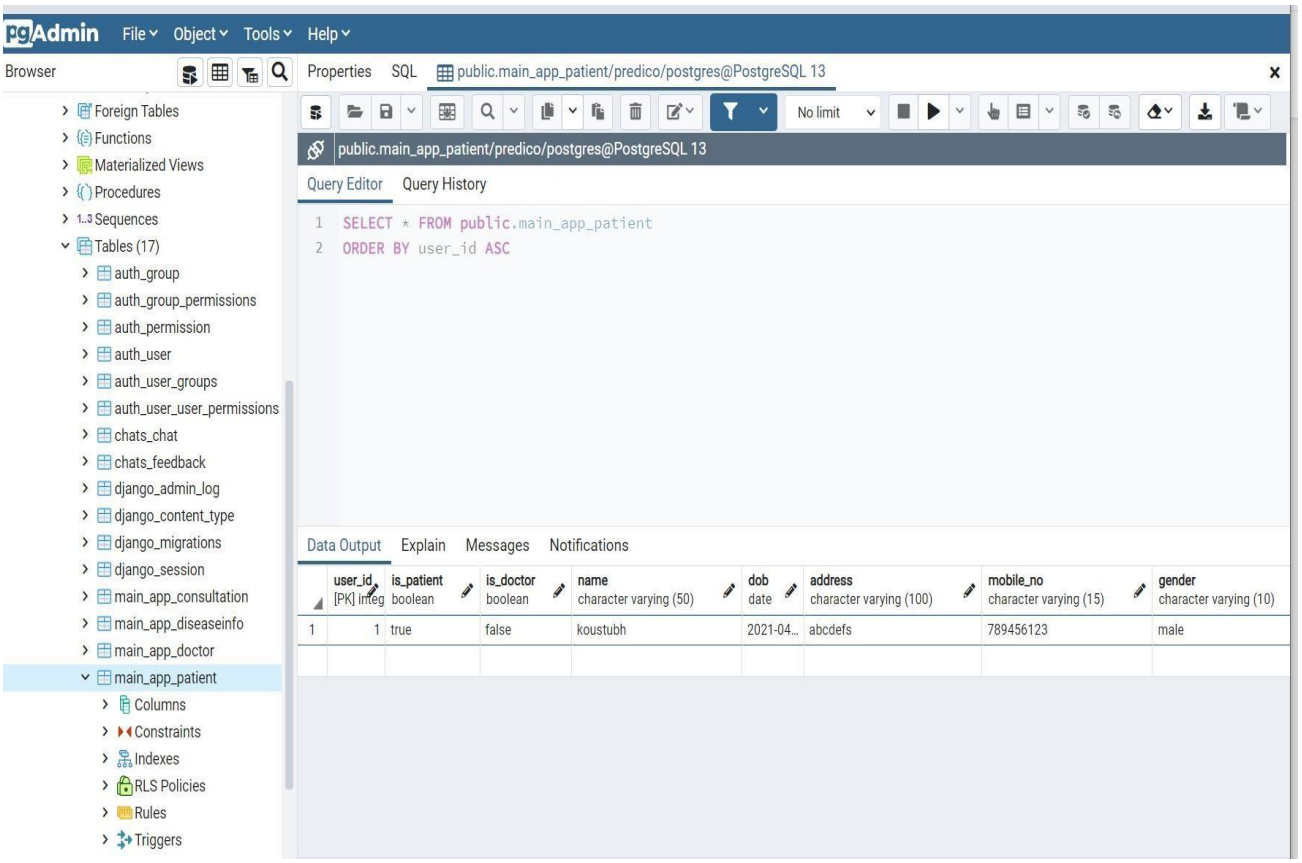




# 4.6 Database:

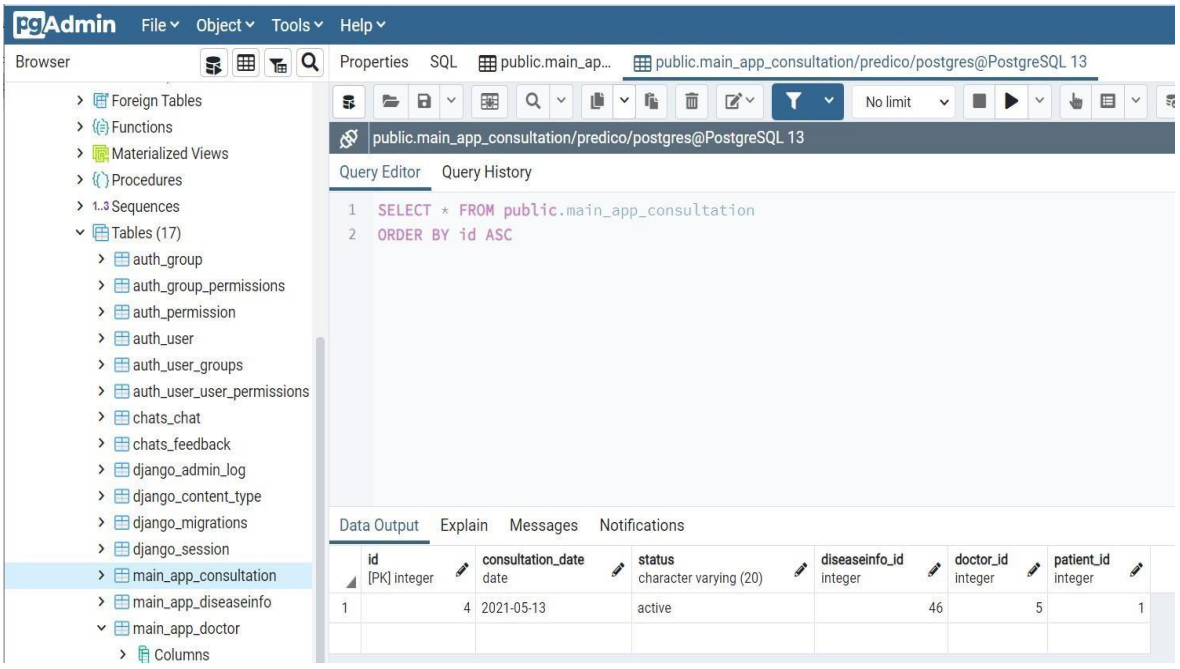
## Users Table:



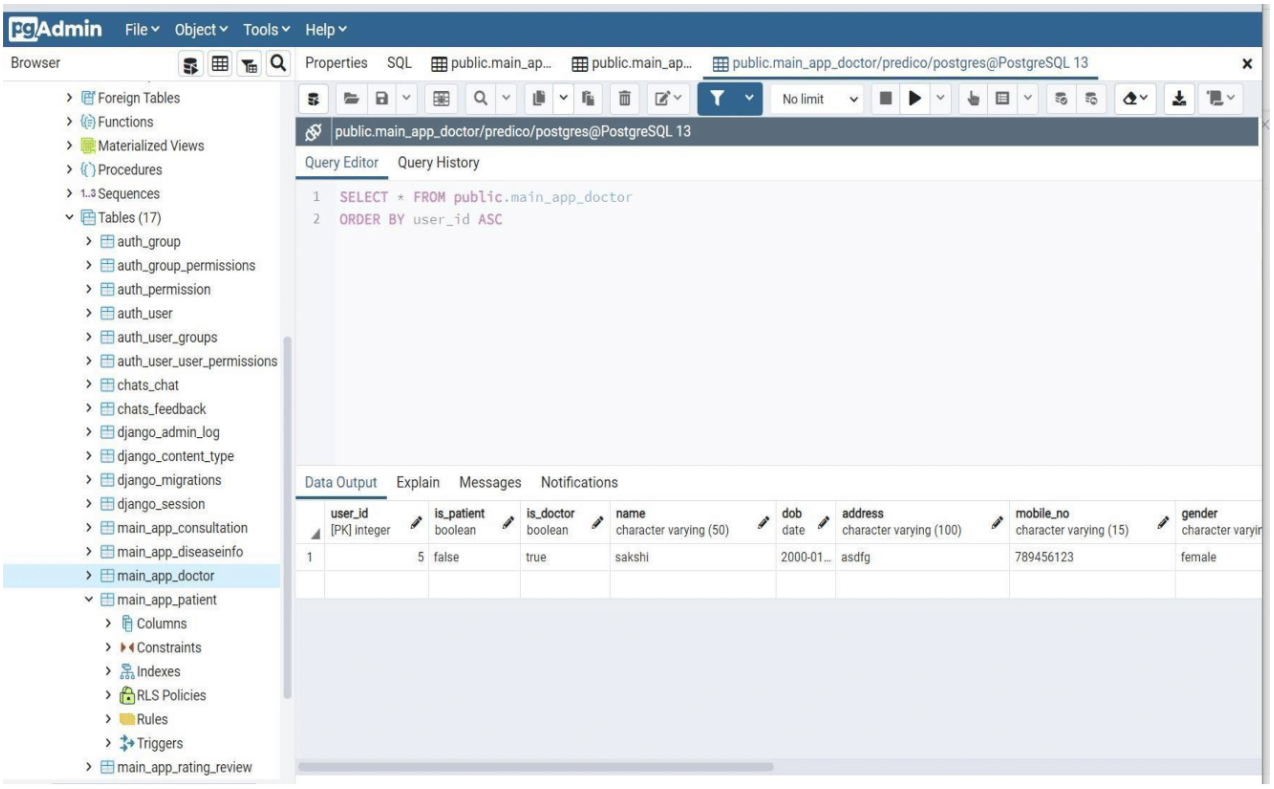
# Patient table:




# Consultation table:



## Doctor table:




### 4.7 Testing

Testing is the process of evaluation of a system to detect differences between given input and expected output and also to assess the feature of the system. Testing assesses the quality of the product. It is a process that is done during the development process. .

## Strategy Used

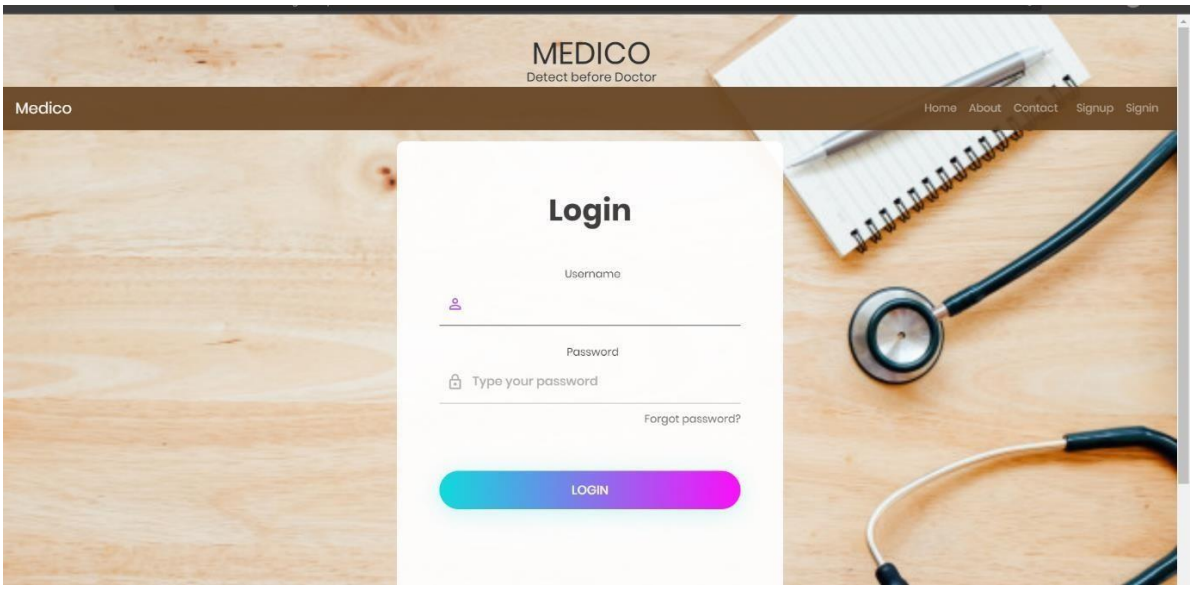
Tests can be conducted based on two approaches –

- Functionality testing
- Implementation testing

The texting method used here is Black Box Testing. It is carried out to test functionality of the program. It is also called 'Behavioural' testing. The tester inthis case, has a set of input values and respective desired results. On providing input, if the output matches with the desired results, the program is tested 'ok',and problematic otherwise.

## Test Case and Analysis

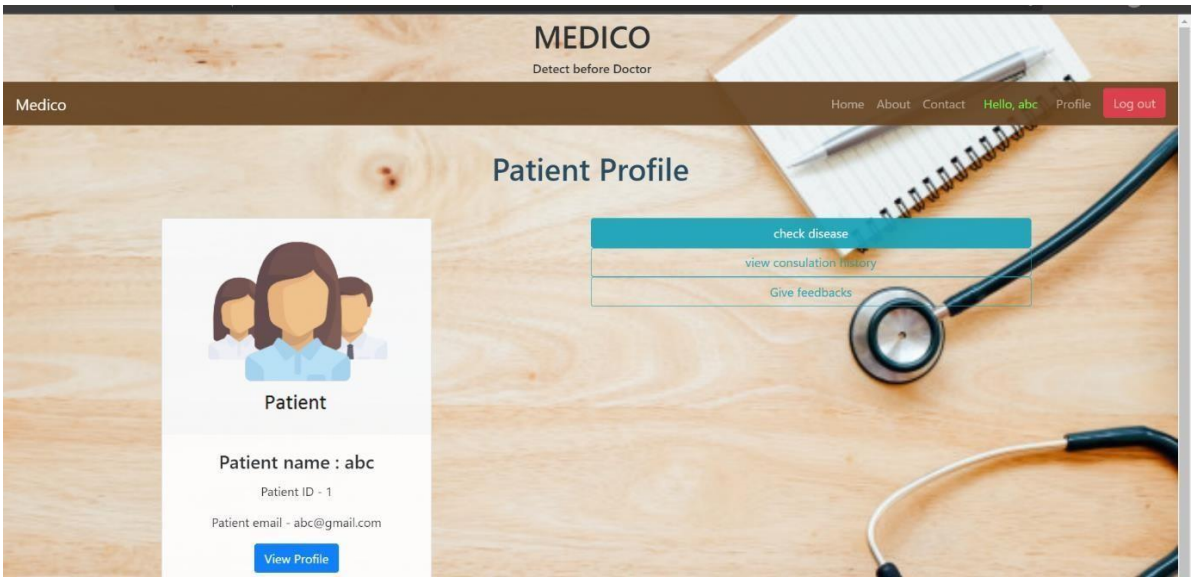
Fig- 4.5- test case 1 output




**TEST CASE: 1**

| | |
|---|---|
| Test Case<br><br>Summary | It will check whether the patient can log in or not |
| Test<br><br>Procedure | Log in using id and password |
| Expected Result | The patient log in and can see his profile |
| Actual Result | The patient log in and see his profile |
| Status | Pass |

Fig-4.6- test case 1 output




**TEST CASE: 2**

| | |
|---|---|
| Test Case Summary | We will check whether the disease is predicted or notwith accuracy>=90. |
| Test Procedure | Enter the symptoms from the list. |
| Expected Result | The disease must be predicted on the basis ofsymptoms accurately. |
| Actual Result | The disease is predicted accurately |
| Status | Pass |

**Table 4 : Test Case 3**

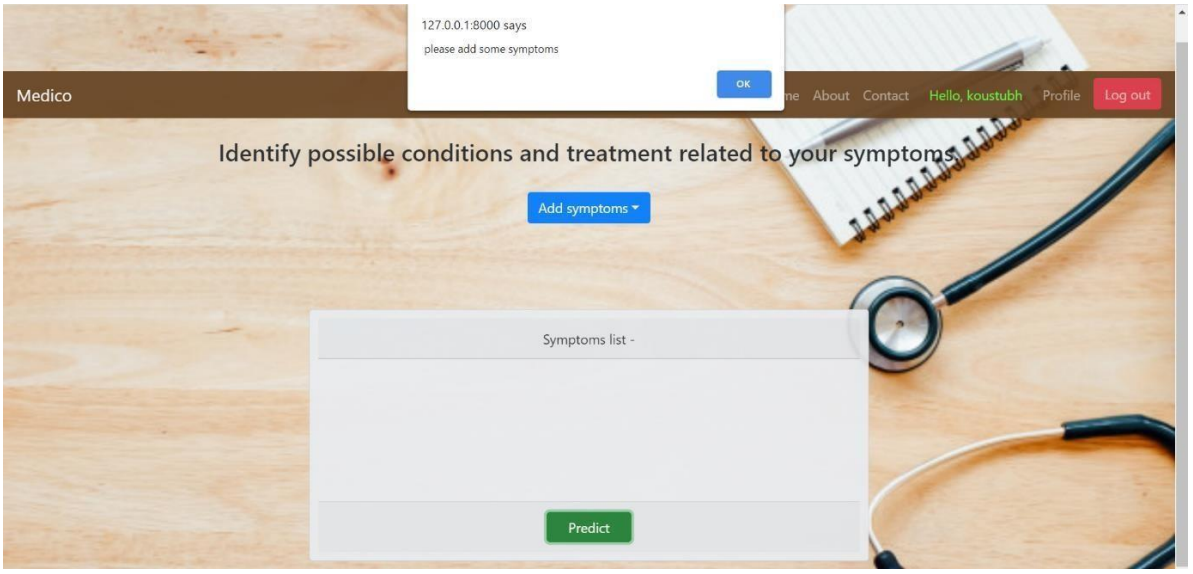



Fig 4.7– test case 3 output

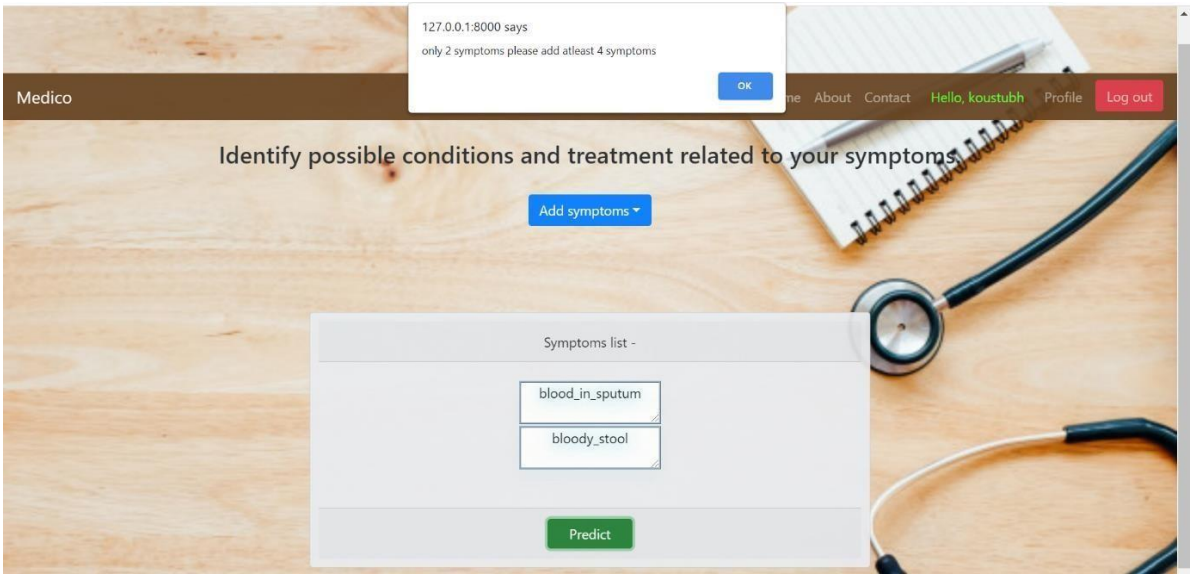
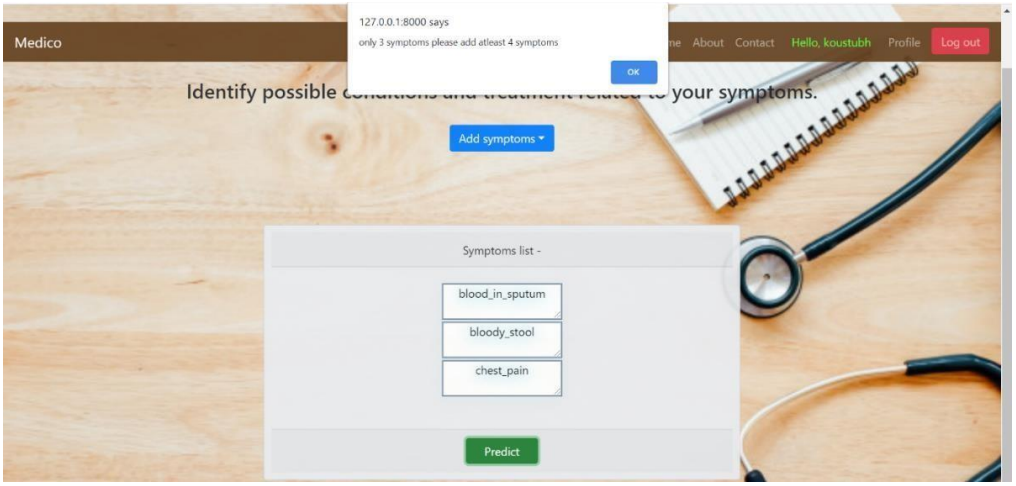



Fig 4.8– test case 3 output



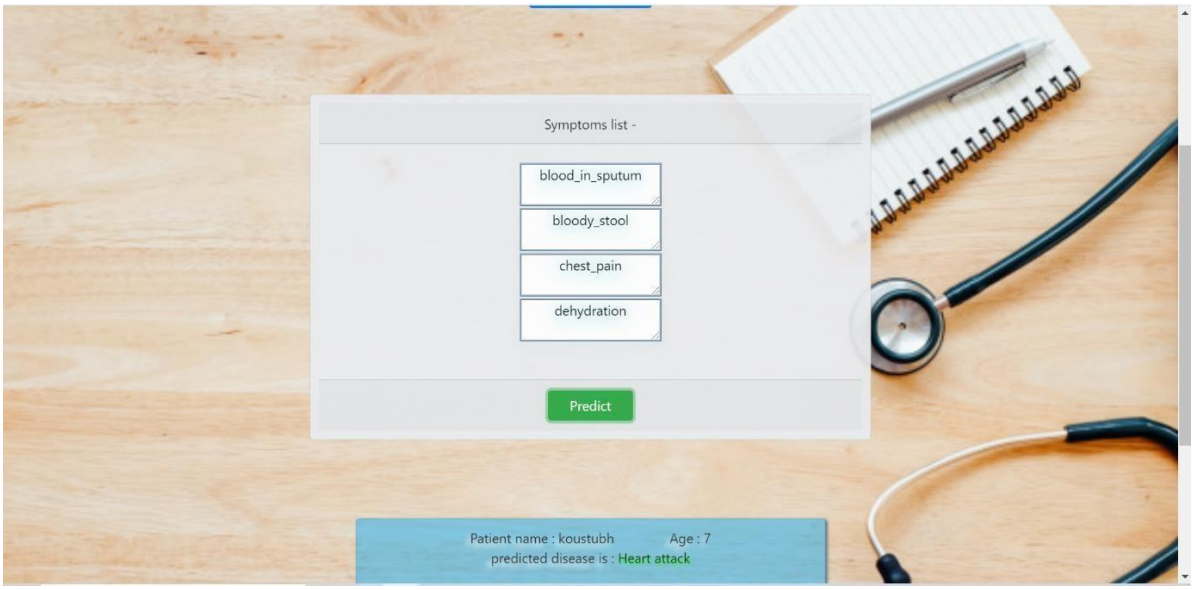



Fig 4.10– test case 3 output

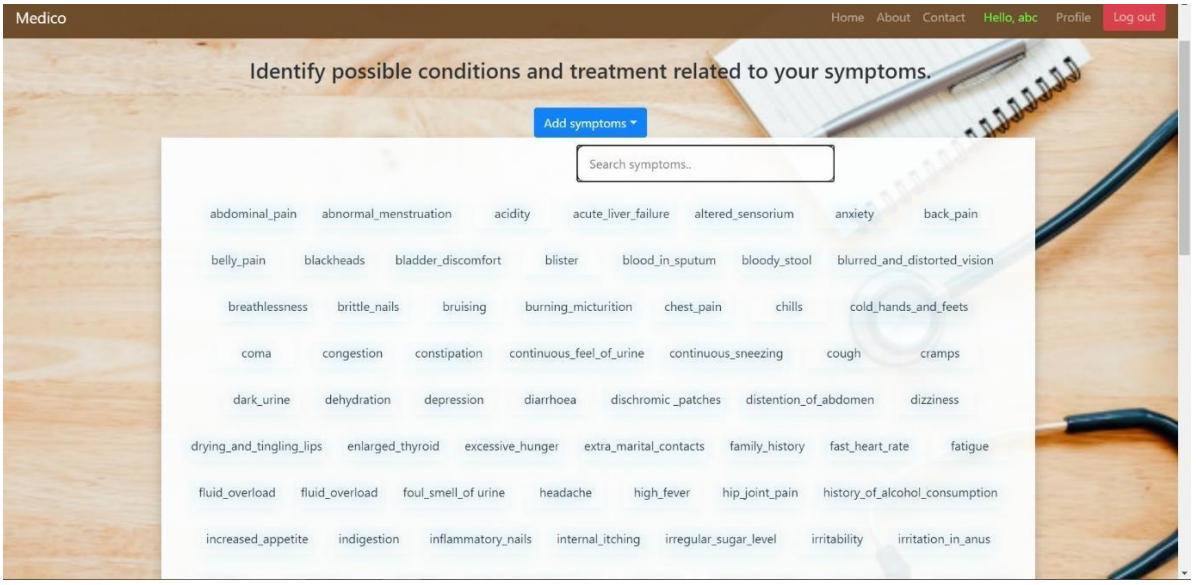
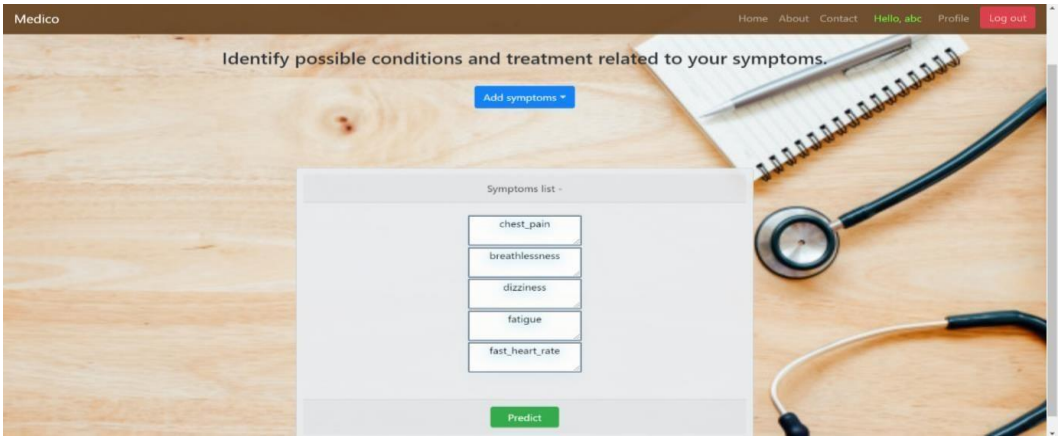



Fig 4.11– test case 3 output



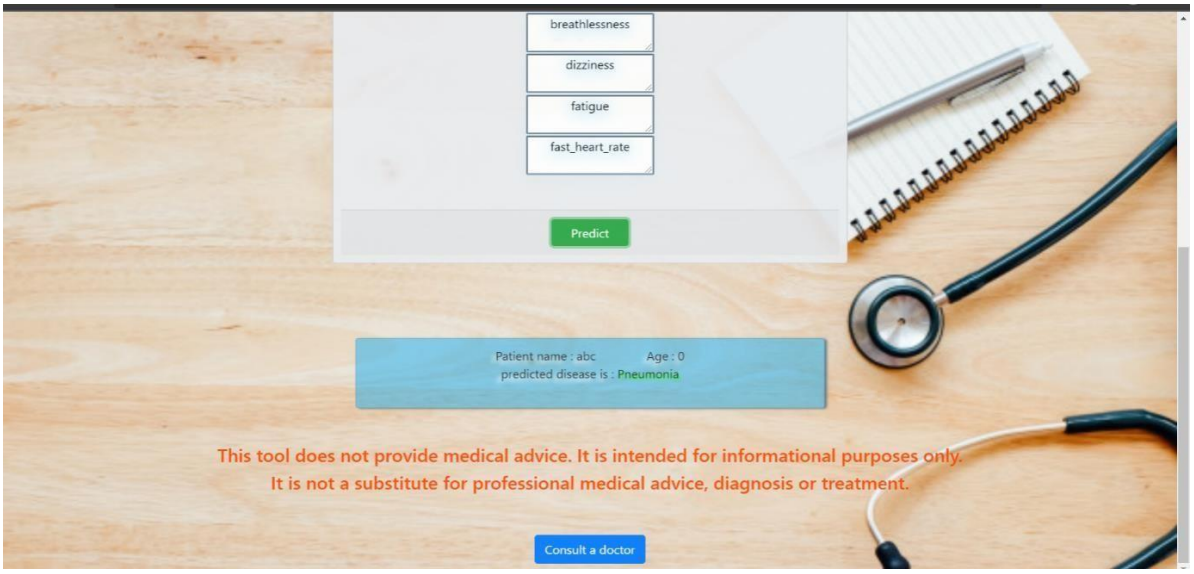



Fig-4.13 test case 3 output

# Chapter 5 . Conclusion

This project Disease prediction using machine learning is very much useful ineveryone's day to day life and it is mainly more important for the healthcare sector, because they are the one that daily uses these systems to predictthe diseases of the patients based on their general information and there symptoms that they are been through. Now a day's health industry plays major role in curing thediseases of the patients so this is also some kind of help for the health industry to tell and also it is useful for the user in case he/she doesn't want to go to the hospital or any other clinics, so just by entering the symptoms and all other useful information the user can get to know the disease he/she is suffering from and the health industry can also get benefit from this system by just asking the symptoms from the user and entering in the system and in just few seconds they can tell the exact and up to someextent the accurate diseases. If health industry adopts this project then the work of the doctors can be reduced and they can easily predict the disease of the patient. The prediction is to provide prediction for the various and generally occurring diseases t hat when unchecked and sometimes ignored can turns into fatal disease and causelot of problem to the patient and as well as their family members.

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10. Kumar, B. Senthil. "Data Mining Methods and Techniques for Clinical Decision Support Systems." Journal of Network Communications and Emerging Technologies (JNCET) www. jncet. org 7.8 (2017).

11.. Sreejith, B. Senthil. "Identification of Diabetes Risk Using Machine Learning Approaches." Journal of Network Communications and Emerging Technologies(JNCET) www. jncet. org 7.8 (2017).

# Source Code

```
{% extends "basic.html" %}
{% load static %}


  {% block head %}


{% endblock %}




{% block body %}



<div class="jumbotron">
    <h1 class="display-4">Detect before Doctor...</h1>
    <p class="lead">
        The healthcare domain is one of the prominent research fields in the current scenario with the rapid improvement of technology and data. Now-a-days, people face various diseases due to the environmental condition and their living habits. So, the prediction of disease at an earlier stage becomes an important task. But the accurate prediction on the basis of symptoms becomes more difficult. The correct prediction of disease is the most challenging task. There are a lot of procedures for the treatment of multiple diseases across the world.
          There is a need for the system which predicts the disease without visiting the doctor on the basis of symptoms for that particular disease and even provide basic precautions to the user and also if the symptoms do not match with any disease than the system advise the user to visit the doctor.




    {% if user.is_authenticated %}
```

```
    {% else %}

    <p class="lead">
    <button type="button" class="btn btn-primary btn-lg" data-toggle="modal" data-
target=".bd-example-modal-lg">Get started</button>
    </p>


</div>

<br><br><br>
<div class="container mt-5 mb-3" style="width:fit-content;">
    <center>
      <h1>Sign-In  As</h1>
      </center>


    <form>
        <div class="container mt-5 mb-5">
     <div class="row">
        <div class="col">
           <a href="{% url 'sign_in_admin' %}">
    <img  alt="admin" src="{% static 'homepage/admin1.jpg' %}"  class="img">
    </a>
        </div>

        <div class="col">
    <a href="{% url 'sign_in_doctor' %}">
    <img  alt="doctor" src="{% static 'homepage/doctor1 .png' %}"  class="img">
    </a>
        </div>

        <div class="col">
    <a href="{% url 'sign_in_patient' %}">
    <img  alt="patient" src="{% static 'homepage/pp1.jpg' %}"  class="img">
    </a>
        </div>
      </div>
      </div>
    </form>
</div>
```

```
   {% endif %}

<br><br>



<!-- Large modal -->

<div class="modal fade bd-example-modal-lg" tabindex="-1" role="dialog" aria-
labelledby="myLargeModalLabel" aria-hidden="true">
  <div class="modal-dialog modal-lg">
    <div class="modal-content">

<center>
  <h1>Sign-In  As</h1>
  </center>
<br><br>

<center>
<form>
    <div class="container mt-5 mb-5">
 <div class="row">
    <div class="col">
      <a href="{% url 'sign_in_admin' %}">
<img  alt="admin" src="{% static 'homepage/admin1.jpg' %}"  class="img">
</a>
    </div>

    <div class="col">
<a href="{% url 'sign_in_doctor' %}">
<img  alt="doctor" src="{% static 'homepage/doctor1 .png' %}"  class="img">
</a>
    </div>

    <div class="col">
<a href="{% url 'sign_in_patient' %}">
```

```
<img  alt="patient" src="{% static 'homepage/pp1.jpg' %}"  class="img">
</a>
   </div>
  </div>
  </div>
</form>
</center>

   </div>
  </div>
</div>









<!-- Large modal -->

<div class="modal fade bd-example-modal-lg2" tabindex="-1" role="dialog" aria-
labelledby="myLargeModalLabel" aria-hidden="true">
  <div class="modal-dialog modal-lg">
    <div class="modal-content">

<center>
  <h1>Sign-Up  As</h1>
  </center>
<br><br>

<center>
<form>
   <div class="container mt-5 mb-5 ml-5 mr-5">
 <div class="row">

   <div class="col">
<a href="{% url 'signup_doctor' %}">
<img  alt="doctor" src="{% static 'homepage/doctor1 .png' %}"  class="img">
</a>
   </div>
```

```
    <div class="col">
<a href="{% url 'signup_patient' %}">
<img  alt="patient" src="{% static 'homepage/pp1.jpg' %}"  class="img">
</a>
    </div>
  </div>
  </div>
</form>
</center>

    </div>
  </div>
</div>




<br><br><br><br>
<!--<center><h2>Our Doctors</h2></center>-->
<!--<div class="row mt-5 mb-5">-->
<!--    <div class="col">-->
<!--        <div class="card">-->
<!--            <div class="card-body text-center">-->
<!--                <h5 class="card-title">Dr. MANISH BANSAL </h5>-->
<!--                <img  alt="admin" src="{% static 'homepage/c31.jpg' %}" width="200"
height="150" class="rounded">-->
<!--                <p class="card-text">H.No-1283, Ward No-14, New Anaz Mandi Road,
P.O-Radaur, Distt. Yamuna Nagar - 135133, (Haryana).</p>-->
<!--                -->
<!--            </div>-->
<!--        </div>-->
<!--    </div>-->
<!--    <div class="col">-->
<!--        <div class="card">-->
<!--            <div class="card-body text-center">-->
<!--                <h5 class="card-title">Dr. BANSAL JATINDER PAUL </h5>-->
<!--                <img  alt="admin" src="{% static 'homepage/c41.jpg' %}" width="200"
height="150" class="rounded">-->
<!--                <p class="card-text">Om Niwas Khai Basti, Khai Road, Lehragaga-148031,
Distt. Sangrur, Punjab.</p>-->
```

```
<!--              -->
<!--          </div>-->
<!--      </div>-->
<!--   </div>-->
<!--   <div class="col">-->
<!--       <div class="card">-->
<!--           <div class="card-body text-center">-->
<!--               <h5 class="card-title">DR. RADHIKA SWAROOP</h5>-->
<!--               <img  alt="admin" src="{% static 'homepage/s72.jpg' %}" width="200"
height="150" class="rounded">-->
<!--               <p class="card-text">Swaroop Hospital, 1, Hawa Sarak, Civil Lines, #
Jaipur-302 019.</p>-->
<!--              -->
<!--          </div>-->
<!--      </div>-->
<!--   </div>-->
<!--</div>-->


<br><br><br><br>









   <div id="footer" class="card bg-dark text-white">
     <div class="card-body">
       Contact-

   <ul >

     <li >
```

```
      <h5 class="mb-1">Email: medico@gmail.com</h5>
    </li>
    <li >
      <h5 class="mb-1">Contact no. 8962705960</h5>
    </li>
    <li >
      <h5 class="mb-1">Address: Acropolis, Indore</h5>
<!--       <div class="footer-copyright text-center">© 2020 Copyright:-->
<!--         <a href="#"> Predico.com</a>-->
<!--       </div>-->
    </li>

  </ul>
 </div>
 </div>









</div>



   <!-- Optional JavaScript -->
   <!-- jQuery first, then Popper.js, then Bootstrap JS -->
   <script src="https://code.jquery.com/jquery-3.3.1.slim.min.js" integrity="sha384-
q8i/X+965DzO0rT7abK41JStQIAqVgRVzpbzo5smXKp4YfRvH+8abtTE1Pi6jizo"
crossorigin="anonymous"></script>
   <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.7/umd/popper.min.js"
integrity="sha384-
UO2eT0CpHqdSJQ6hJty5KVphtPhzWj9WO1clHTMGa3JDZwrnQq4sF86dIHNDz0W1"
crossorigin="anonymous"></script>
   <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/js/bootstrap.min.js"
integrity="sha384-
JjSmVgyd0p3pXB1rRibZUAYoIIy6OrQ6VrjIEaFf/nJGzIxFDsf4x0xIM+B07jRM"
crossorigin="anonymous"></script>
```

```
{% endblock %}
```

```
{% load static %}

<!doctype html>
<html lang="en">
  <head>
    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <meta http-equiv="X-UA-Compatible" content="ie=edge">


    <script
  src="https://code.jquery.com/jquery-3.4.1.js"
  integrity="sha256-WpOohJOqMqqyKL9FccASB9O0KwACQJpFTUBLTYOVvVU="
  crossorigin="anonymous"></script>

    <!-- Bootstrap CSS -->

    <script src="{% static 'jquery.js' %}"></script>
    <link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css"
integrity="sha384-
ggOyROiXCbMQv3Xipma34MD+dH/1fQ784/j6cY/iJTQUOhcWr7x9JvoRxT2MZw1T"
crossorigin="anonymous">
    <link rel="stylesheet" href="{% static 'homepage/bootstrap/css/bootstrap.min.css' %}">

    <title>medico</title>

    <link rel="stylesheet" href="{% static 'homepage/bootstrap/css/bootstrap.min.css' %}">
    <link rel="stylesheet" href="{% static 'homepage/css.css' %}">
```

```
<style>

 .img {
  position: relative;
  float: left;
  width: 200px;
  height: 200px;
  background-position: 100% 100%;
  background-repeat:   no-repeat;
  background-size:     cover;
}


 body{

 background-image: url( "{% static 'homepage/new4.jpg' %}");
 background-attachment: fixed;
 opacity: 0.93;
 background-repeat: no-repeat;

 background-size:cover;

 }


</style>



  {% block head %}



  {% endblock %}



 </head>
```

```
<body>



    <div class="text-center">

        <div class="page-header mt-1 mb-1 ml-1 ">
        <h1>MEDICO</h1>
        <h6>Detect before Doctor </h6>
       </div>


        <nav class="navbar navbar-expand-lg navbar-dark" style="background-color:
#654321;">
            <a class="navbar-brand" href="{% url 'home' %}">Medico </a>
            <button class="navbar-toggler" type="button" data-toggle="collapse" data-
target="#navbarSupportedContent">
        <span class="navbar-toggler-icon"></span>
            </button>
            <div class="collapse navbar-collapse" id="navbarSupportedContent">
                <ul class="navbar-nav ml-auto">
                    <li class="nav-item">
                        <a class="nav-link" href="{% url 'home' %}">Home</a>
                    </li>
                    <li class="nav-item">
                        <a class="nav-link" href="{% url 'home' %}">About</a>
                    </li>
                    <li class="nav-item">
                        <a class="nav-link" href="{% url 'home' %}">Contact</a>
                    </li>



                {% if user.is_authenticated %}

                  {% if user.patient %}

                  <li class="nav-item ml-2">
                  <li class="nav-link" href="{% url 'patient_ui' %}" style="color: rgb(91, 252,
```

```
50);">Hello, {{user.patient.name}}</li>
                    </li>
                    <li class="nav-item ml-2">
                        <a class="nav-link" href="{% url 'patient_ui' %}">Profile</a>
                        </li>

                    {% endif %}

                    {% if user.doctor  %}

                    <li class="nav-item ml-2">
                      <li class="nav-link" href="{% url 'doctor_ui' %}" style="color: rgb(91, 252,
50);">Hello, Dr. {{user.doctor.name}}</li>
                      </li>
                      <li class="nav-item ml-2">
                          <a class="nav-link" href="{% url 'doctor_ui' %}">Profile</a>
                          </li>


                    {% endif %}

                    {% if user.is_superuser  %}

                    <li class="nav-item ml-2">
                      <li class="nav-link" href="{% url 'admin_ui' %}" style="color: rgb(91, 252,
50);">Admin: {{user.username}}</li>
                      </li>
                      <li class="nav-item ml-2">
                          <a class="nav-link" href="{% url 'admin_ui' %}">Profile</a>
                          </li>


                    {% endif %}

                    <li class="nav-item ml-2">
      <button class="btn btn-danger btn-xs" data-toggle="modal" data-target="#logout-
modal" style="color: rgb(247, 190, 188);">Log out</button>

                    </li>
```

```
                <!-- Small modal -->

    <div class="modal fade" id="logout-modal" tabindex="-1" role="dialog" aria-
hidden="true">
      <div class="modal-dialog modal-sm">
        <div class="modal-content">
          <div class="modal-header"><h4>Logout <i class="fa fa-lock"></i></h4></div>
          <div class="modal-body"><i class="fa fa-question-circle"></i><span style="color:
rgb(42, 187, 6);">{{user.patient.name}}</span>, Are you sure you want to log-off?</div>
          <div class="modal-footer"><a href="{% url 'logout' %}" class="btn btn-primary btn-
block">Logout</a></div>
        </div>
      </div>
    </div>

                {% else %}

                <li class="nav-item ml-2">
                    <a class="nav-link" data-toggle="modal" data-target=".bd-example-
modal-lg2">Signup</a>
                </li>
                <li class="nav-item ml-">
                    <a class="nav-link" data-toggle="modal" data-target=".bd-example-
modal-lg">Signin</a>
                </li>

                {% endif %}

            </ul>
          </div>
        </nav>




<!-- Large modal -->

<div class="modal fade bd-example-modal-lg" tabindex="-1" role="dialog" aria-
```

```
labelledby="myLargeModalLabel" aria-hidden="true">
  <div class="modal-dialog modal-lg">
    <div class="modal-content">

<center>
  <h1>Sign-In  As</h1>
  </center>
<br><br>

<center>
<form>
    <div class="container mt-5 mb-5">
 <div class="row">
    <div class="col">
      <a href="{% url 'sign_in_admin' %}">
<img  alt="admin" src="{% static 'homepage/admin1.jpg' %}"  class="img">
</a>
    </div>

    <div class="col">
<a href="{% url 'sign_in_doctor' %}">
<img  alt="doctor" src="{% static 'homepage/doctor1 .png' %}"  class="img">
</a>
    </div>

    <div class="col">
<a href="{% url 'sign_in_patient' %}">
<img  alt="patient" src="{% static 'homepage/pp1.jpg' %}"  class="img">
</a>
    </div>
  </div>
  </div>
</form>
</center>

    </div>
  </div>
</div>
```

```
 {% block body %}

 {% endblock %}




</div>



  <!-- Optional JavaScript -->
   <!-- jQuery first, then Popper.js, then Bootstrap JS -->

   <script src="https://code.jquery.com/jquery-3.4.1.js"integrity="sha256-
WpOohJOqMqqyKL9FccASB9O0KwACQJpFTUBLTYOVvVU="crossorigin="anonymous"></scrip
t>
   <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.7/umd/popper.min.js"
integrity="sha384-
UO2eT0CpHqdSJQ6hJty5KVphtPhzWj9WO1clHTMGa3JDZwrnQq4sF86dIHNDz0W1"
crossorigin="anonymous"></script>
   <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/js/bootstrap.min.js"
integrity="sha384-
JjSmVgyd0p3pXB1rRibZUAYoIIy6OrQ6VrjIEaFf/nJGzIxFDsf4x0xIM+B07jRM"
crossorigin="anonymous"></script>



</body>
</html>
```

```
{% extends "basic.html" %}
{% load static %}


   {% block head %}

   <link rel="stylesheet" type="text/css" href="{% static 'patient/checkdisease/dps.css' %}">
```

```
<script>

  /* When the user clicks on the button,
toggle between hiding and showing the dropdown content */
function Functionshow() {

  document.getElementById("searchbar").value = '';
  document.getElementById("myDropdown").classList.toggle("show");
  search_symptoms();

}


// Close the dropdown menu if the user clicks outside of it
window.onclick = function(event) {
  if (!event.target.matches('.btn')) {
    if (!event.target.matches('.searchbardiv')){
      if (!event.target.matches('.searchbar')){

    var dropdowns = document.getElementsByClassName("drop-content");
    var i;
    for (i = 0; i < dropdowns.length; i++) {

      var openDropdown = dropdowns[i];
      if (openDropdown.classList.contains('show')) {
        openDropdown.classList.remove('show');
      }
    }
  }
}
}
}

  function Functionsymptoms(name) {
    var newItem = document.createElement("TEXTAREA");
    newItem.innerText = name;
    newItem.setAttribute("id","symptoms");

    newItem.setAttribute("class","symptoms");
```

```
    document.getElementById("sympbox").appendChild(newItem);

  }


  //var elements = document.getElementsByClassName("symptoms");


  function search_symptoms() {
    let input = document.getElementById('searchbar').value
    input=input.toLowerCase();
    let x = document.getElementsByClassName('dropdown-item');

    for (i = 0; i < x.length; i++) {
        if (!x[i].innerHTML.toLowerCase().includes(input)) {
            x[i].style.display="none";
        }
        else {
            x[i].style.display="inline-block";
        }
    }
}


$(document).ready( function(){


$("#predict").click(function () {
  event.preventDefault();

  var symptoms = document.getElementsByClassName("symptoms");
  var noofsym = symptoms.length;
  var symlist=[];

  if(noofsym == 0){
     alert(" please add some symptoms ");
  }

  else {

  for(i=0;i<symptoms.length;i++){
```

```
  symlist[i]=symptoms[i].value;
}



$("#resultdiv").show("slow");
$('html,body').animate({
  scrollTop: $("#resultdiv").offset().top},
  'slow');




$.ajax({
    url: 'checkdisease',
    type: "POST",
    data: { "noofsym" : noofsym,
            "symptoms" :symlist,
            csrfmiddlewaretoken : $('input[name=csrfmiddlewaretoken]').val()
    },
    dataType: 'json',

    success: function (data) {
      document.getElementById('diseasefield').innerText = data["predicteddisease"];
      document.getElementById('percentage').innerText = data["confidencescore"]+"%";
      percent=data["confidencescore"];
      disease=data["predicteddisease"];

      $('#percentage').css('width', percent + "%");

      document.getElementById('diseasesearch').innerText = data["predicteddisease"];

      $("#href").attr("href","https://www.google.com/search?q="+ disease +"");


      document.getElementById('consultdoctor').innerText = data["consultdoctor"];

    }

  });
```

```
  }

  });


});
```

```
</script>

{% endblock %}

{% block body %}
```

```
<div class="container">
    <!--

 <div class="dropdown">
   <button class="btn btn-secondary dropdown-toggle" type="button"
id="dropdownMenuButton" data-toggle="dropdown" aria-haspopup="true" aria-
expanded="false">
    Dropdown button
   </button>
   <div class="dropdown-menu" aria-labelledby="dropdownMenuButton">
    <a class="dropdown-item" href="#">Action</a>
    <a class="dropdown-item" href="#">Another action</a>
    <a class="dropdown-item" href="#">Something else here</a>
   </div>
 </div> -->


 <div class="container">
   <br>
   <div class="text-center">
    <h3>
       Identify possible conditions and treatment related to your symptoms.
    </h3><br>
         <button onclick="Functionshow()" class="btn btn-primary dropdown-toggle">Add
symptoms</button>
   </div>
 </div >

 <div id="myDropdown" class="drop-content">

      <div id="searchbardiv" class="searchbardiv">

         <input id="searchbar" class="searchbar" onkeyup="search_symptoms()" type="text"
          name="search" placeholder=" Search symptoms.. "> <br>
      </div>

      <div class="container" id="container-dropdown">
         {% for i in list2 %}
```

```
        <a class="dropdown-item" onclick="Functionsymptoms(this.textContent)">{{i}}</a>

        {% endfor %}
      </div>
  </div>




<!--

<div class="dropdown">

   <button onclick="Functionshow()" class="dropbtn">Add symptoms</button>

  </div >
    <div id="myDropdown" class="dropdown-content">

     <div id="searchbardiv" class="searchbardiv">

    <input id="searchbar" class="searchbar" onkeyup="search_symptoms()" type="text"
    name="search" placeholder=" Search symptoms.. "> <br>
  </div>
  <div>
        {% for i in list2 %}

        <a class="links" onclick="Functionsymptoms(this.textContent)">{{i}}</a>

        {% endfor %}
  </div>
      </div>
     -->

<br><br>
  <div class="text-center">
      <div class="card" id= "symptoms-box">

    {% csrf_token %}
        <div class="card-header">Symptoms list -</div>
              <div class="card-body" id="sympbox" >
```

```
                </div>
                    <br>
                    <div class="card-footer">
                        <button id="predict" class="btn btn-success">Predict</button>
                    </div>
            </div>
        </div>
    </div>

    <br>

    <div id="resultdiv" style="display: none;" >
        <div class="text-center">
            <div class="card" id="predicted-data">
                <div>
                    <span class="diseasefield" >Patient name :
{{ user.patient.name }}</span>
                    <span class="diseasefield" >           
  Age : {{ user.patient.age }} </span>
                </div>
                <span class="diseasefield" >predicted disease is : </span><span
class="diseasefield" id="diseasefield" style="color: #092700; text-shadow: 2px 2px 4px
rgb(36, 255, 45);"></span> <br>
                <br>
<!--                <span class="diseasefield">confidence score of :  </span>-->
<!--                <span>-->
<!--                    <div class="progress" style="display: inline-block;width:140px">-->
<!--                        <div id="percentage" class="progress-bar" style="width: 0%">0%-
->
<!--                        </div>-->
<!--                    </div>-->
<!--                </span>-->

                </div>
            </div>

<!--        <div class="text-center mt-4 mb-4"> -->
<!--            <button class="btn btn-outline-success">-->
<!--                <a id="href" href="https://www.google.com/search?q=diseasesearch"
target="_blank" rel="noopener noreferrer">Click here to know more about  -->
<!--                <span id="diseasesearch" style="color: crimson;"></span></a>-->
```

```
<!--            </button>-->
<!--       </div>-->
        <br><br>


       <div class="text-center">
          <div class="card">
         <h4>The information provided by us is on the basis of machine ,please consult doctor.</h4>
         <h4>It is not a substitute for professional medical advice, diagnosis or treatment.
         </h4>
       <br><br>
          </div>

       </div>
     <br><br>


<div class="mx-auto text-center " style="width:350px">



       <div >  <form action="consult_a_doctor" method="GET">
          {% csrf_token %}
          <button id="consultbtn" type="submit" class="btn btn-primary"> Consult a <span id="consultdoctor"  name="consultdoctor" > </span> doctor</button>
         </form>
       </div>


</div>



</div>









</div>
```

```
{% endblock %}
```

```
#!/usr/bin/env python
"""Django's command-line utility for administrative tasks."""
import os
import sys


def main():
    os.environ.setdefault('DJANGO_SETTINGS_MODULE', 'disease_prediction.settings')
    try:
        from django.core.management import execute_from_command_line
    except ImportError as exc:
        raise ImportError(
            "Couldn't import Django. Are you sure it's installed and "
            "available on your PYTHONPATH environment variable? Did you "
            "forget to activate a virtual environment?"
        ) from exc
    execute_from_command_line(sys.argv)


if __name__ == '__main__':
    main()
```

# FPR REPORTS:-

FPR Report from 5th Feb to 20th Feb

**FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR**

| Name of student | Shaantanu Agarwal | | Department | Django Developm |
|---|---|---|---|---|
| Industry/Organization | Praedico Global Research Pvt. Ltd. | | Date/Duration | 05 Feb to 20 Feb |
| **Criterion** | **Poor** | **Average** | **Good** | **Very Good** | **Excellent** |
| Punctuality/Timely completion of assigned work | | | ✓ | | |
| Learning capacity/Knowledge up gradation | | | ✓ | | |
| Performance/Quality of work | | | ✓ | | |
| Behaviour/Discipline/Team work | | | ✓ | | |
| Sincerity/Hard work | | | ✓ | | |
| Comment on nature of work done/Area/Topic | SQL, Django Revision, Python Revision and OOPs | | | | |
| **OVERALL GRADE (Any one)** | **POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT** | | | | |
| **Name of Industry Mentor** | Priyank Gupta | | | | |
| **Signature of Industry Mentor** | Priyank | | | | |

| **Receiving Date** | | **Name of Faculty Mentor** | Prof. Abhilash Sonker. | **Sign** | |
|---|---|---|---|---|---|

# FPR Report from 21st Feb to 5th March

**MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE, GWALIOR**

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Date:

**FORMAT**

**FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR**

| Name of student | Shaantanu Agarwal | | Department | Django Developer | |
|---|---|---|---|---|---|
| Industry/Organization | Praedico Global Research Pvt Ltd. | | Date/Duration | 21/02/22 to 05/03/22 | |
| **Criterion** | **Poor** | **Average** | **Good** | **Very Good** | **Excellent** |
| Punctuality/Timely completion of assigned work | | | | | ✓ |
| Learning capacity/Knowledge up gradation | | | | ✓ | |
| Performance/Quality of work | | | | ✓ | |
| Behaviour/Discipline/Team work | | | | | ✓ |
| Sincerity/Hard work | | | | ✓ | |
| Comment on nature of work done/Area/Topic | Login, Logout System with Authentication & Authorization and Sessions in Django. | | | | |
| **OVERALL GRADE (Any one)** | **POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT** | | | | |
| **Name of Industry Mentor** | Priyank Gupta | | | | |
| **Signature of Industry Mentor** | Priyank | | | | |

| **Receiving Date** | | **Name of Faculty Mentor** | Prof. Abhilash Sonkar | **Sign** | |
|---|---|---|---|---|---|

# FPR Report from 6th March to 20th March

**MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE, GWALIOR**

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Date:

**FORMAT**

**FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR**

| Name of student | Shaantanu Agarwal | | Department | Django Developer | |
|---|---|---|---|---|---|
| Industry/Organization | Praedito Global Research Pvt Ltd. | | Date/Duration | 06/03/22 to 20/03/22 | |
| **Criterion** | **Poor** | **Average** | **Good** | **Very Good** | **Excellent** |
| Punctuality/Timely completion of assigned work | | | | | ✓ |
| Learning capacity/Knowledge up gradation | | | | ✓ | |
| Performance/Quality of work | | | | ✓ | |
| Behaviour/Discipline/Team work | | | | | ✓ |
| Sincerity/Hard work | | | | | ✓ |
| Comment on nature of work done/Area/Topic | CRUD operations, Email and SMS api, Work on the main project (Login Sys.) Logout. ✓ | | | | |
| **OVERALL GRADE (Any one)** | **POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT** | | | | |
| **Name of Industry Mentor** | Priyank Gupta | | | | |
| **Signature of Industry Mentor** | Priyank | | | | |

| **Receiving Date** | | **Name of Faculty Mentor** | Prof. Abhilash Sonkar. | **Sign** | |
|---|---|---|---|---|---|

# FPR Report from 21st March to 5th April

**MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE, GWALIOR**

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Date:

**FORMAT**

**FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR**

| Name of student | Shaantanu Agarwal | | Department | Django Developer | |
|---|---|---|---|---|---|
| Industry/Organization | Praedito Global Research Pvt. Ltd | | Date/Duration | 21/03/22 to 05/04/22 | |
| **Criterion** | **Poor** | **Average** | **Good** | **Very Good** | **Excellent** |
| Punctuality/Timely completion of assigned work | | | | ✓ | |
| Learning capacity/Knowledge up gradation | | | | ✓ | |
| Performance/Quality of work | | | ✓ | | |
| Behaviour/Discipline/Team work | | | | ✓ | |
| Sincerity/Hard work | | | | ✓ | |
| Comment on nature of work done/Area/Topic | Customer Support System with 2 sites (admin & User). | | | | |
| **OVERALL GRADE (Any one)** | **POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT** | | | | |
| **Name of Industry Mentor** | Priyanka Gupta | | | | |
| **Signature of Industry Mentor** | | | | | |

| **Receiving Date** | | **Name of Faculty Mentor** | Prof. Abhilash Sonkar. | **Sign** | |
|---|---|---|---|---|---|

# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

## APPENDIX – ROLE OF MENTORS

I am very grateful for my institute mentor who helped me throughout my internship and project period. Whenever I was in any kind of trouble, he were always there to help me. They were in continuous contact with me and helped me to successfully complete my internship.

**Prof. Abhilash Sonker**
Assistant Professor
Information Technology

**Shaantanu Agarwal**
0901IT181053
Information Technology
IV Year

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