International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 12 | December - 2023 SJIF Rating: 8.176 ISSN: 2582-3930

DISEASE PREDICTION USING MACHINE LEARNING

Rushikesh Savadatkar, Saurabh Datar, Rohit Bansode, Sanket Waghutkar

ABSTRACT: One such implementation of machine learning algorithms is in the field of healthcare. Medical facilities need to be advanced so that better decisions for patient diagnosis and treatment options can be made. Instead of diagnosis, when a disease prediction is implemented using certain machine learning predictive algorithms then healthcare can be made smart and effective. Some cases can occur when early diagnosis of a disease is not within reach. Hence disease prediction can be effectively implemented. Our proposed system mainly focus on the development of a system where patients can feed symptoms into this tool as a input, which will be process and go through the machine learning module and then predict the possible disease to the patient. Finally, a doctor will be suggested by the system to cure the predicted disease of the patient. This dataset would then be analyzed using different machine learning algorithms to deliver results with maximum accuracy

I. INTRODUCTION

The traditional way of diagnosis is proceeds as follows: First, a patient experiences a health problem. The patient will engage with the doctors and tell all the problems that he or she is facing which is considered as symptoms by the doctor. The symptoms are the key source for doctors to find out the most probable disease that patient may have. The main problem in the traditional system is that doctors will predict the disease not by machine where probability of the errors may be high. Here machine learning comes into picture, where instead of doctor machine learning algorithms is use to predict the most probably disease that patient may have. The system which will create by machine learning algorithm is not hundred percent accurate but far better and efficient these days than doctors predictions. The main focus is on to use machine learning in healthcare to supplement patient care for better results. 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. 7 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. Machine learning in healthcare manner with very less cost compare to traditional systems so that everyone can easily afford it

II. LITERATURE SURVEY

Our proposed system‘s aim is to provide a system where all the problem or disease that patient is facing is cured effectively and accurately based on their symptoms. With the advancement of the technology our traditional system of disease identification or prediction also need to be advance so that patients can be satisfied and get the treatment hassle-free. Therefore, our objective from this proposed system is to combine technology into healthcare system for effective treatment for all. Another main aim behind this project is to cut down the cost of the treatment so that every person can afford the best treatment easily. Most of the patients are suffering from different diseases but due to high cost of diagnosis and treatment they are not able to get proper and effective treatment. Moreover, sometimes patient are not aware about the disease that they are suffering from. So to keep all these problems into mind our proposed system will detect and predict the disease at early stage and in effective manner with very less cost compare to traditional systems so that everyone can easily afford it

III. SYSTEM SPECIFICATION

Software Requirement

Name of component	Specification
Operating system	Windows 7
Language	HTML, CSS, JS, Python, Django
Database	MySQL ,Python Pickle, PostgreSQL
Browser	Any of Mozilla, opera, Chrome etc.
Web Server	Chrome

Hardware Requirement

Name of component	Specification
Processor	Pentium III 630MHZ
Ram	8GB
Hard disk	20 GB
Monitor	15’’ color monitor
Keyboard	122 keys

IV. SYSTEM DEVELOPMENT

REQUIREMENT ANALYSIS PHASE: The Requirements Analysis Phase begins when the previous phase objectives have been achieved. Documentation related to user requirements from the Concept Development Phase and the Planning Phase shall be used as the basis for further user needs analysis and the development of detailed requirements. Multiple-release projects require only one iteration of the Requirements Analysis Phase, which should involve requirements definition for all planned releases. The objective of this phase is to define in more detail the system inputs, processes, outputs and interfaces. At the end of this phase the system‘s processes will be defined at the functional level, meaning the functions to be performed will be known, but not necessarily how they will be performed. Unless specifically constrained by the Project Charter, Requirements Analysis should not consider the computer programs, files and data streams. Requirements Analysis will identify and consider the risks related to how the technology will be integrated into the standard operating procedures. Requirements Analysis will collect the functional and system requirements of the business process, the user requirements and the operational requirements (e.g., when operational what is necessary to keep the system up and running). System Requirement Specification :Software requirements specification establishes the basis for an agreement between customers and contractors or suppliers on how the software product should function (in a market-driven project, these roles may be played by the marketing and development divisions). Software requirements specification is a rigorous assessment of requirements before the more specific system design stages, and its goal is to reduce later redesign. It should also provide a realistic basis for estimating product costs, risks, and schedules. Used appropriately, software requirements specifications can help prevent software project failure

Functional Requirement: In Software engineering and systems engineering, a functional requirement defines a function of a system or its component. A function is described as a set of inputs, the behaviour, and outputs. Functional requirements may be 33 calculations, technical details, data manipulation and processing and other specific functionality that define what a system is supposed to accomplish. Behavioural requirements describing all the cases where the system uses the functional requirements are captured in use cases. Functional requirements are supported by non-functional requirements which impose constraints on the design or implementation. As defined in requirements engineering, functional requirements specify particular results of a system. This should be contrasted with non-functional requirements which specify overall characteristics such as cost and reliability. Functional requirements drive the application architecture of a system, while non-functional requirements drive the technical architecture of a system. 2.1.4 Non-Functional Requirement In systems engineering and requirements engineering, a nonfunctional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviours.

They are contrasted with functional requirements that define specific behaviour or functions. The plan for implementing functional requirements is 34 detailed in the system design. The plan for implementing non-functional requirements is detailed in the system architecture, because they are usually Architecturally Significant Requirements. Feasibility Study: Feasibility study is made to see if the project on completion will serve the purpose of the organization for the amount of work, effort and the time that spend on it. Feasibility study lets the developer foresee the future of the project and the usefulness. A feasibility study of a system proposal is according to its workability, which is the impact on the organization, ability to meet their user needs and effective use of resources.

Testing :Testing refers to test the software so it is also called software testing. Software testing is an investigation conducted to provide stakeholders with information about the quality of the software product or service under test.[1] Software testing can also provide an objective, independent view of the software to allow the business to appreciate and understand the risks of software implementation. Test techniques include the process of executing a program or application with the intent of finding software bugs (errors or other defects), and verifying that the software product is fit for us

V. DIAGRAMS

- **USECASE DIAGRAM**

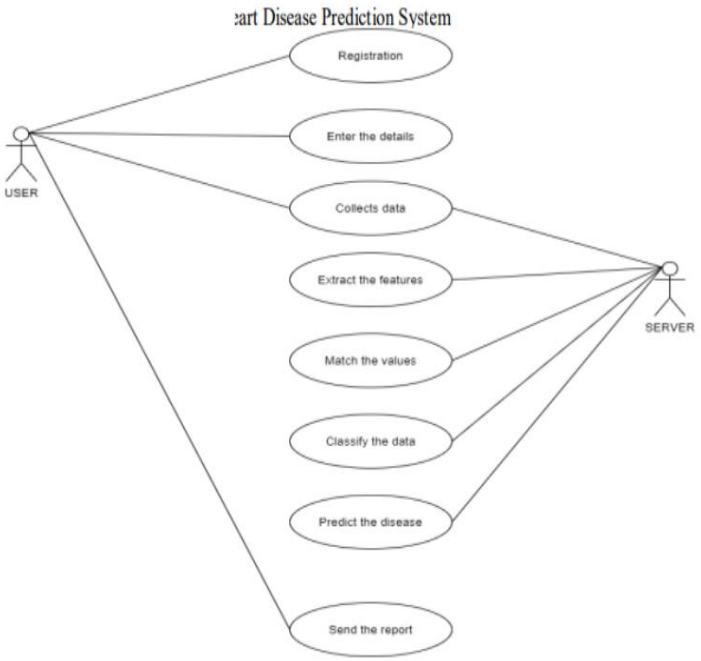

Fig. V.I

- **ER DIAGRAM**

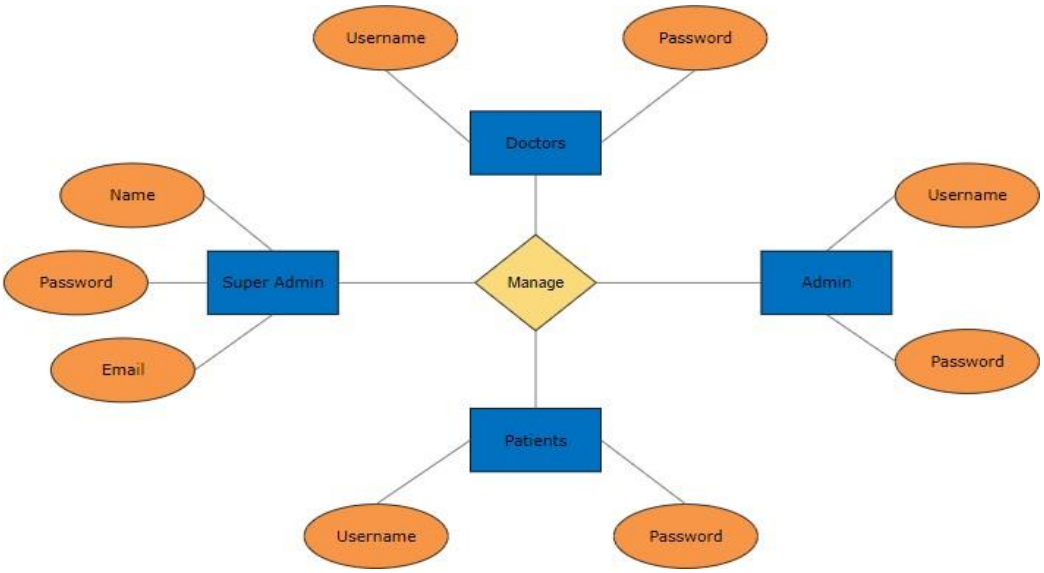

Fig. V.II

- **DFD Diagram**

Level-0 DFD

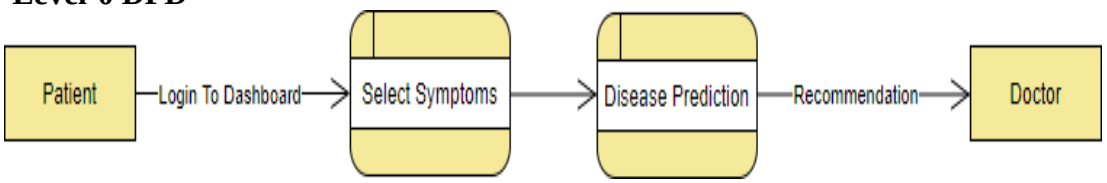

Fig. V.III

Level-1 DFD

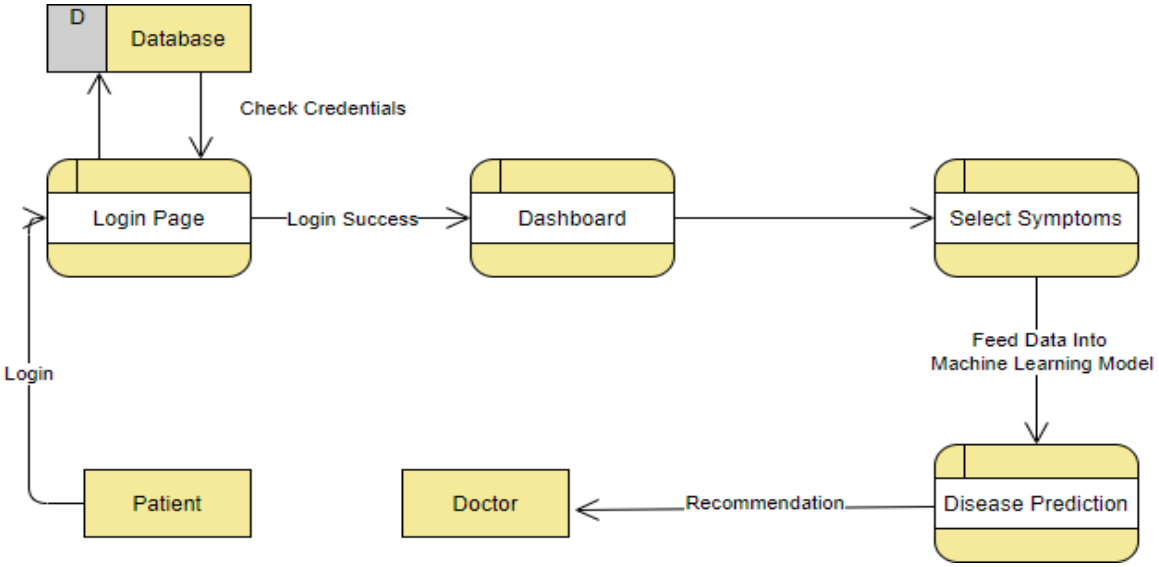

Fig. V.IV

VI. DISEASE PREDICTION USING ML

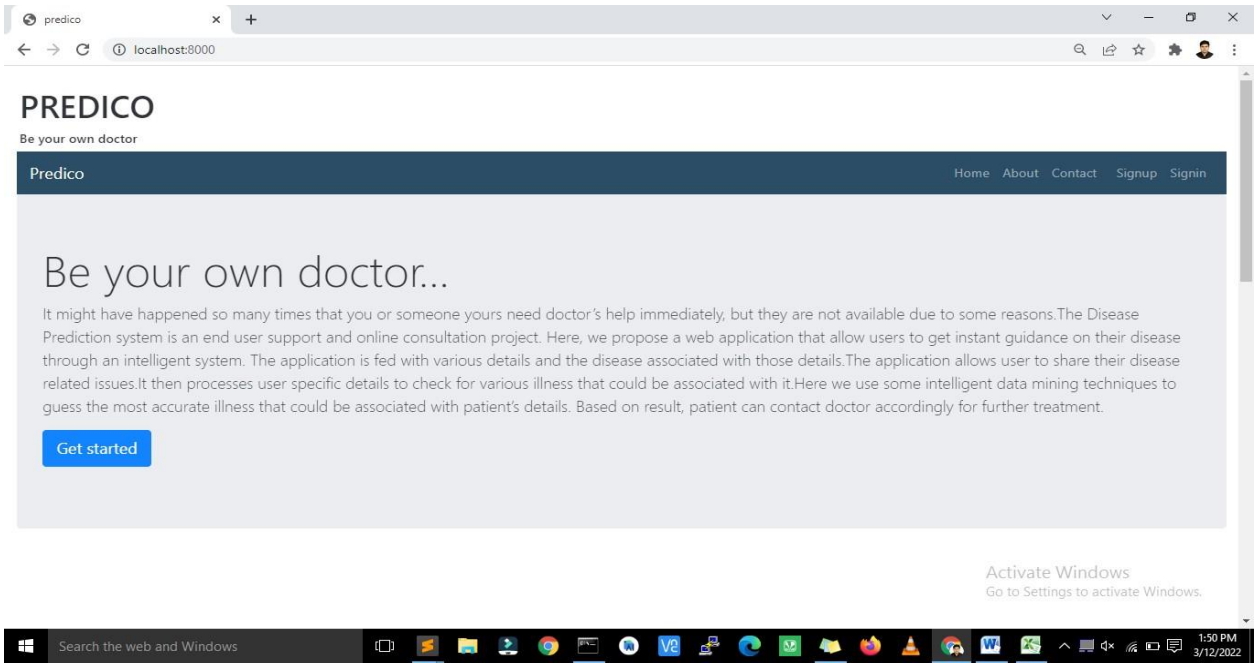

FIG:VI.I

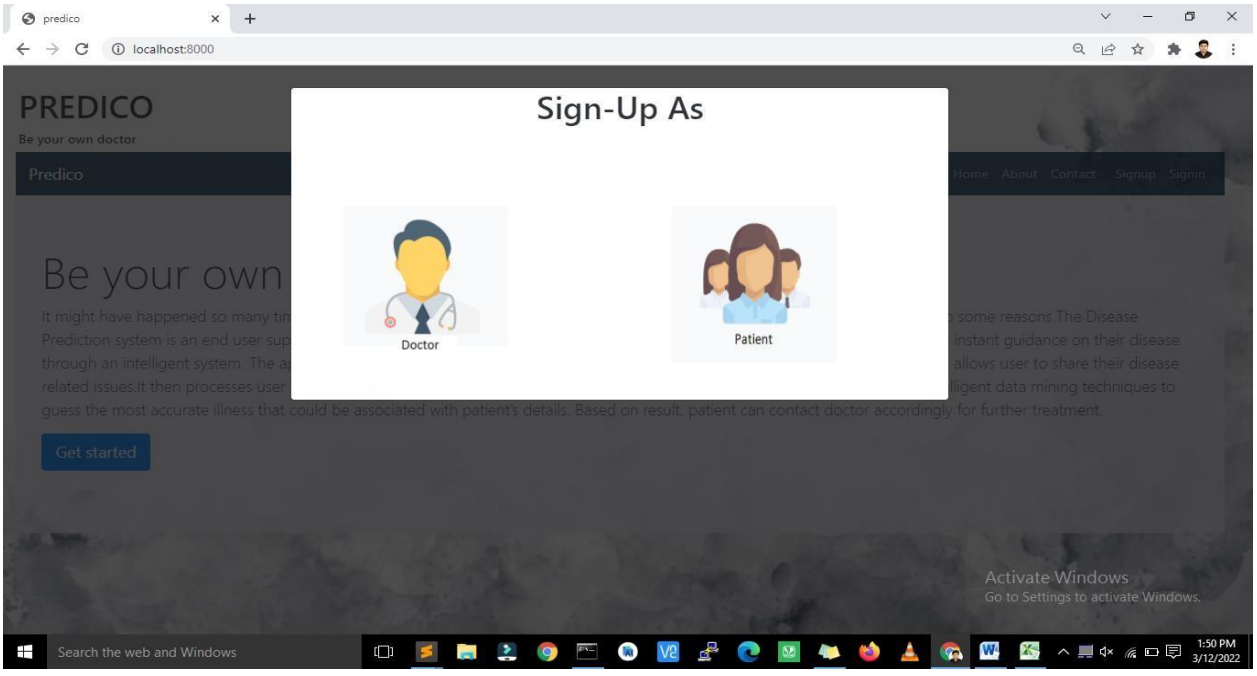

FIG:VI.II

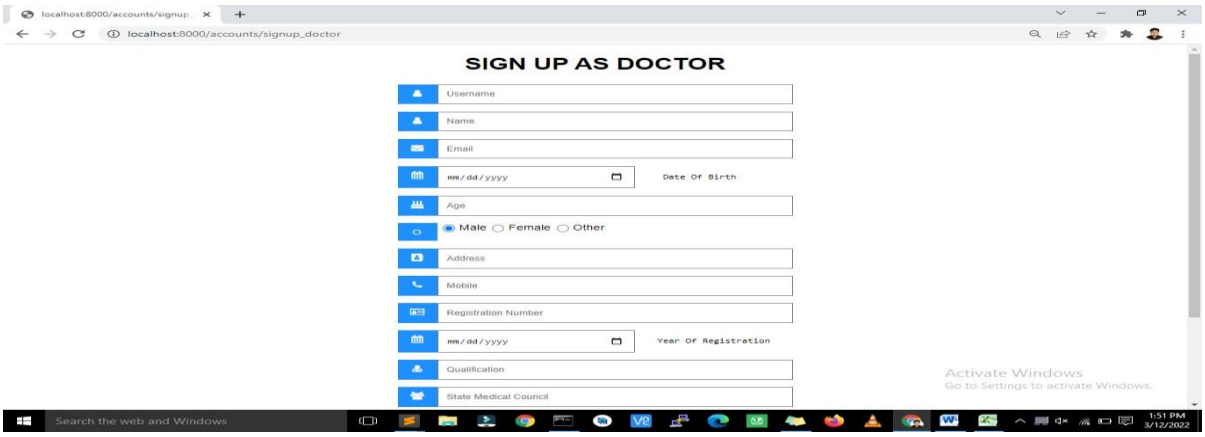

FIG:VI.III

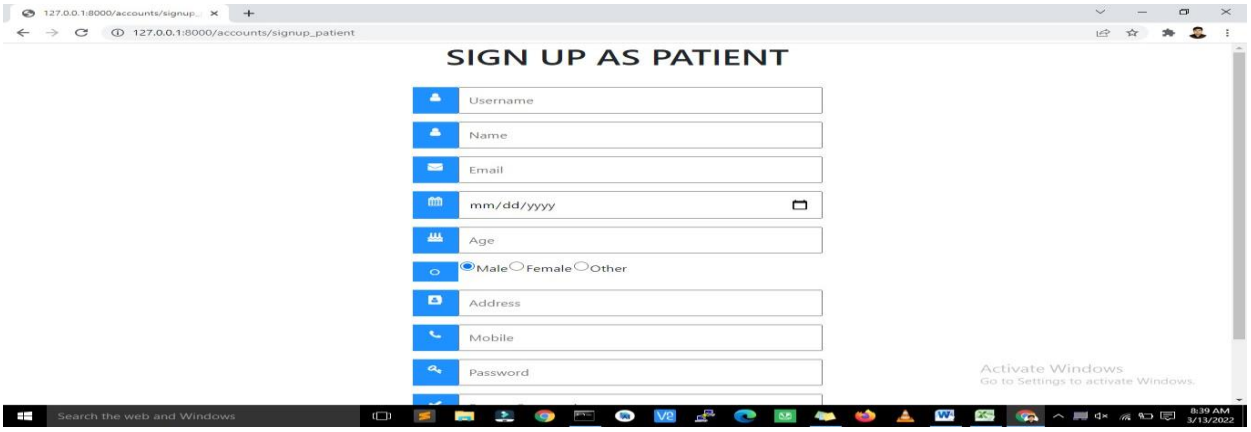

FIG:VI.IV

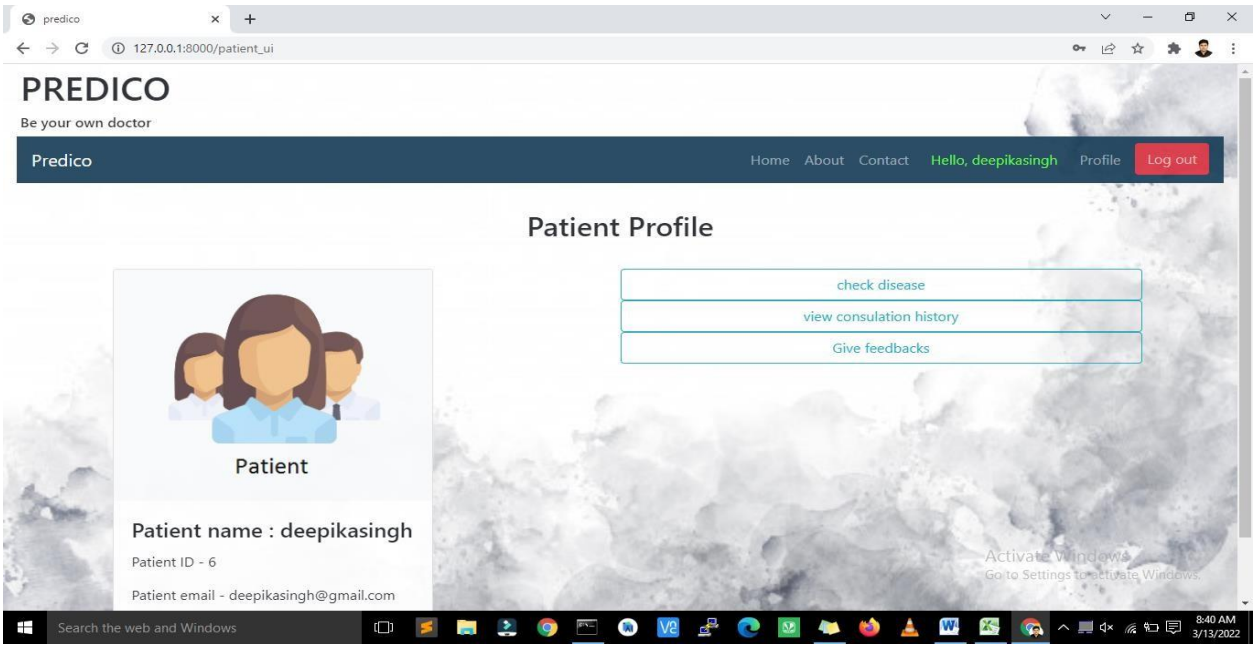

FIG:VI.V

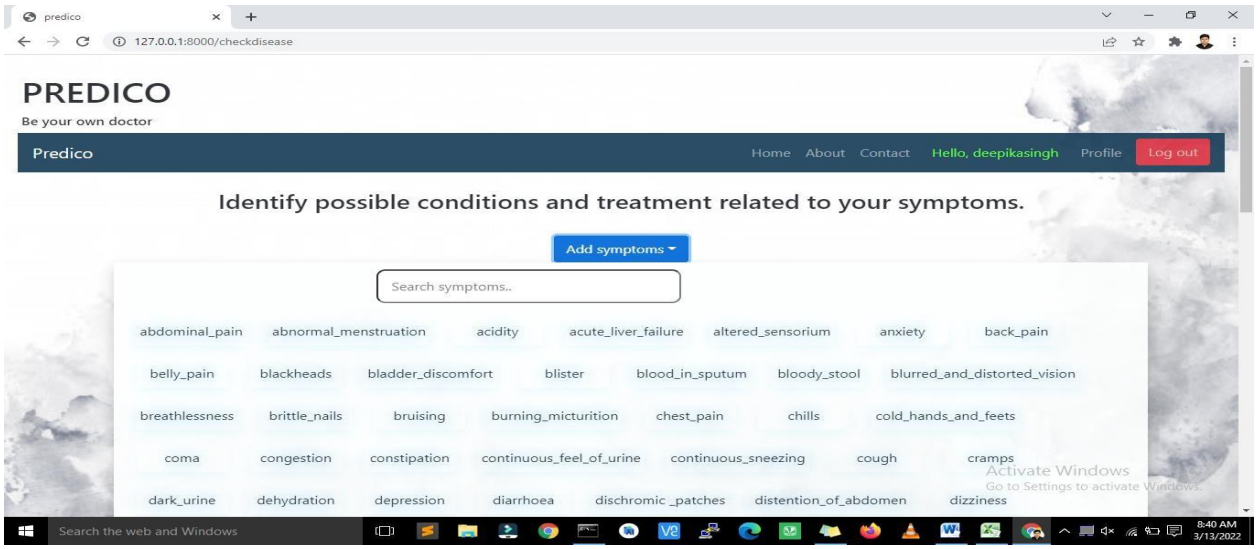

FIG:VI.VI

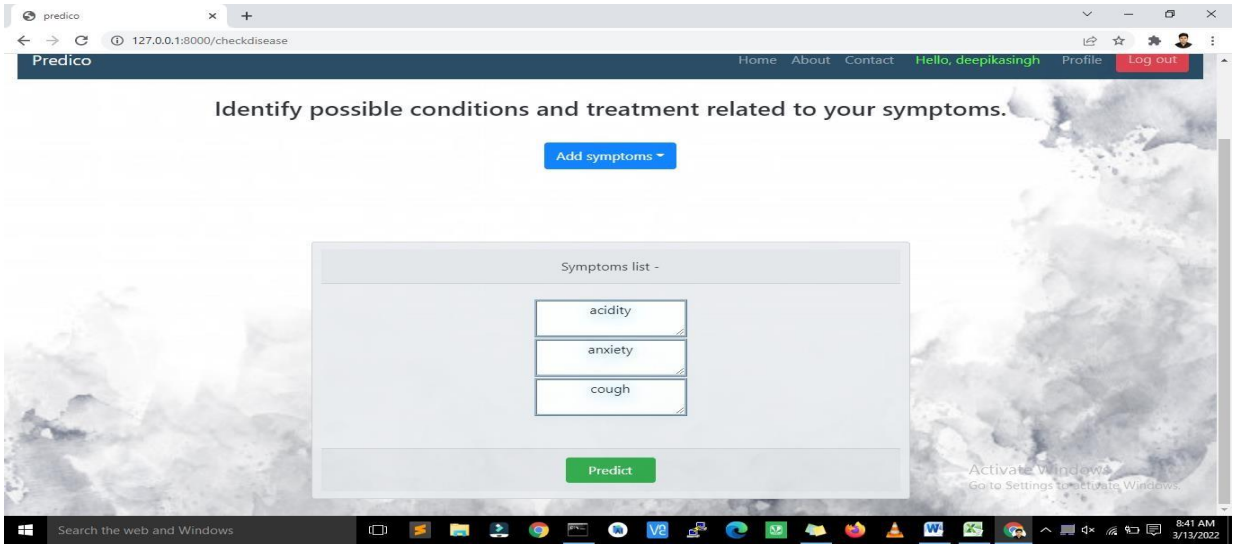

FIG:VI.VII

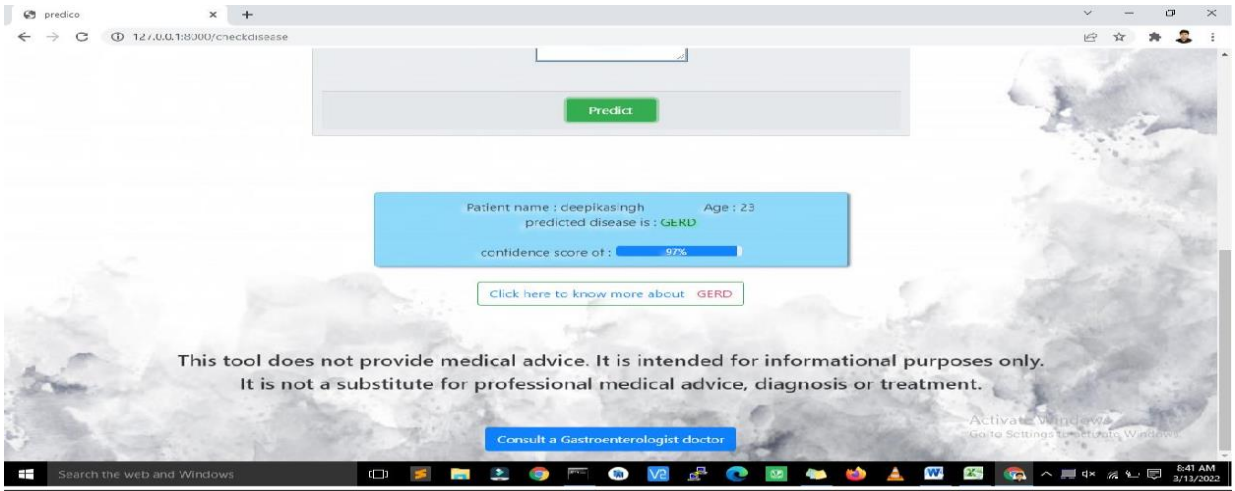

FIG:VI.VIII

VII. ADVANTAGES, DISADVANTAGES & APPLICATION

Advantages :

Enables early detection of diseases for timely intervention , Tailors treatment plans based on individual patient data, Helps allocate healthcare resources more effectively, Enhances diagnostic accuracy and reduces false positives/negatives, Enables real-time tracking of health parameters for proactive healthcare.

Disadvantages:

Depends on data quality; biased data can lead to unequal outcomes, Lack of model interpretability may reduce trust among healthcare professionals, Raises ethical issues related to patient privacy, data security, and consent,Models may overfit, performing well on training data but poorly on new data, Development and implementation can be expensive and resource-intensive, Subject to legal and regulatory complexities in healthcare compliance.

VIII. CONCLUSION

In conclusion, our disease prediction using machine learning project demonstrates the potential of artificial intelligence in revolutionizing healthcare. By analyzing diverse datasets and leveraging advanced algorithms, our models achieve accurate and early disease detection. While promising, challenges such as data privacy and ethical considerations must be addressed for responsible deployment. Overall, this project marks a significant step toward proactive healthcare, emphasizing the importance of collaboration between data scientists, healthcare professionals, and policymakers in shaping a future where machine learning contributes to early intervention and improved patient outcomes. inefficient, and inconvenient for customers. While blockchain technology is often mentioned as a potential solution, it is not clear how to use the technology’s advantages without violating data protection regulations and customer privacy. We demonstrate how blockchain-based self- sovereign identity (SSI) can solve the challenges of KYC. We follow a rigorous design science research approach to create a framework that utilizes SSI in the KYC process, deriving nascent design principles that theorize on blockchain’s role for SSI.

IX. REFERENCES

BOOKS :
1.Ian Somerville _Software engineering‘
2.Rajeev mall _Software engineering‘

ONLINE REFERENCE:
1.www.google.co.in
2. https://stackoverflow.com/
3. https://docs.djangoproject.com/en/3.2/
4. https://www.w3schools.com