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DISEASE PREDICTION WEB BASED SYSTEM

KCA UNIVERSITY BSC.IT

TWO SEMESTER PROJECT

CHAPTER ONE

Background

Use of computing in the field of medicine can be seen from the early 1950s. However, the first applications of systems using AI in medicine can only be seen during the 1970s through expert systems such as INTERNIST-I, MYCIN, ONCOSIN. The application of artificial intelligence in medicine was mostly limited in Kenya before 2000. An international conference was organized on September 2010 in Nairobi County to provide a clear view how to help patients with the act of first Aid across the world, BLIZZ health care was concerned with the disease prediction system that would bring a brighter change to the remote future.

Relevance of the project

The major problem with using AI for the diagnosis of disease is the lack of data for training predictive models. Though there is vast amount of data including mammograms, genetic tests, and medical records,

they are not open to the people who can make use of them for research. The project tries to cover up and identify various way that patients can be help with necessarily going to the hospital.

Problem statement

The primary goal is to develop a prediction engine which will allow the users to check whether they have diseases like malaria, tuberculosis, typhoid, diabetes or heart disease et cetera sitting at home when feeling sick. The user don't need visit the doctor unless he or she has a strong disease that required physical checkup, for further treatment. The prediction engine requires a large dataset and efficient machine learning algorithms to predict the presence of the disease. Pre-processing the dataset to train the machine learning models, removing redundant, null, or invalid data for optimal performance of the prediction engine

Objectives

The primary of this project is to predict the disease from the given symptoms create and monitors a health profile of every individuals patients

In order to predict disease several factors has been consider such as body mass index, cholesterol level, blood sugar, blood pressure and so on.

It also recommend necessary precautionary measures required to treat the predicted disease

Diseases that can be predicted using machine learning are simple cart, naïve Bayes, svm and random forest are used for prediction and analyze the diabetes data

The secondary aim is to develop a web application that allows users to predict heart disease, malaria, tuberculosis, diabetes et cetera utilizing the prediction engine

To implement the IT in real world problems.

To help general practice doctors, nurses, nursing students and to assist the eye patients as first aid diagnosis

Scope of the project

The disease diagnosis system will permit end-users to predict disease like malaria, tuberculosis, typhoid, heart disease et cetera

Growth of AI systems

Artificial Intelligence is one of the hottest topics today. The revenue for cognitive and artificial intelligence systems is expected to hit $12.5 billion

Regression method fall within the category of supervised ML, They help to predict of explain a particular numerical value based on a set of prior data. For example predicting the disease based on previous disease result data inserted

Availability of doctors and chat bot

Other than disease diagnosis, artificial intelligence can be used to streamline and optimize the clinical process. There is only one doctor for over 1600 patients in Kenya. AI health assistants can help in covering large part of clinical and outpatient services freeing up doctor's time to attend more critical cases. Chat bot like "SH chat bot" can assist patients by understanding what disease to cure' symptoms and suggest easy-to-understand medical information about their condition

CHAPTER TWO

Literature Review

The following chapters give an overview of the various methodologies used by various authors for disease prediction using machine learning methodologies. We can observe that there is fine comparison made between 5 major machine learning algorithms whether they are able to predict the presence of the disease with a greater accuracy, achieving optimal performance. The research efforts presented by the authors in the following papers are focused in developing and evaluating a web-based tool for disease prediction

Author: Priyanka Sonar, Prof. K. JayaMalini

Published In: Proceedings of the Third International Conference on Computing

Methodologies and Communication (ICCMC 2019)

The authors have used Machine Learning approaches to predict diabetes [1]

Diabetes is one of lethal diseases in the world. It is additional an inventor of various varieties of disorders for example: coronary failure, blindness, urinary organ diseases etc. In such a case the patient is required to visit a diagnostic centre, to get their reports after consultation. Due to every time they must invest their time and currency. But with the growth of Machine Learning methods we have got the flexibility to search out an answer to the current issue, we have got advanced system mistreatment information processing that has the ability to forecast whether the patient has polygenic illness or not. Furthermore, forecasting the sickness initially ends up in providing the patients before it begins vital. Information withdrawal has the flexibility to remove unseen data

Authors: Samrat Kumar Dey, Ashraf Hossain and Md. Mahbubur Rahman

Published In: 2018 21st International Conference of Computer and Information Technology (ICCIT)

The authors design and develop a web application to predict diabetes [2]

Diabetes is caused due to the excessive amount of sugar condensed into the blood. Currently, it is considered as one of the lethal diseases in the world. People all around

CHAPTER THREE

Goals and objectives

The goals and objectives of this test plan is to measure testing progress and verify that testing activity is consistent with project objectives. Goals and objectives are grouped into the following categories: **Functional correctness**.

Validation that the application correctly supports required Hive design application processes and transactions. List all the smart health application processes that the application is required to support. Also list any standards for which there is required compliance. Some of the objectives under this category includes the following

• Ability to identify a duplicate user that is about to be created by the system.

• Ability to make accurate disease prediction-based symptoms submitted by patient.

• Ability to find the correct doctor based on the doctor's profile that is searched

• Ability for system users to give their feedback on how they fill about the system's experience

Authorization.

Verification that actions and data are available only to those users with correct authorization. Here the goals and objectives are to identify key authorization requirements that must be satisfied, including access to functionality and data. In detail they include the following

• Ability to sign in only users that are registered by the system.

• Ability to register new users and determine their access levels. Service level. This is the verification that the system will support the required service levels of the business. This includes system availability, load, and responsiveness.

Usability.

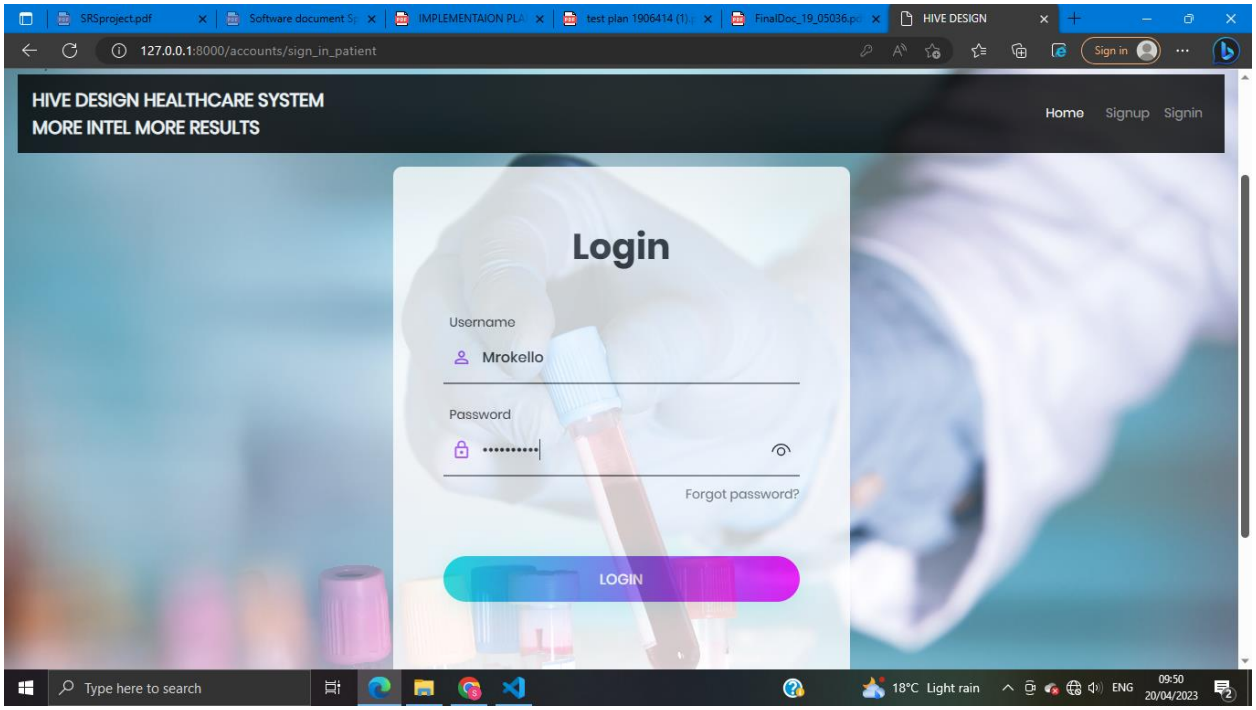
Implementation plan

This the validation that the application meets required levels of usability. This include the required training level needed for users to be able to use the system effectively.

AUDIENCE DFN

The user:

The for this system are patient suffering from different diseases, the system basically helps them to predict disease and provides a way forward of which doctor to consult



The figure above shows the user login. Especially the patient side

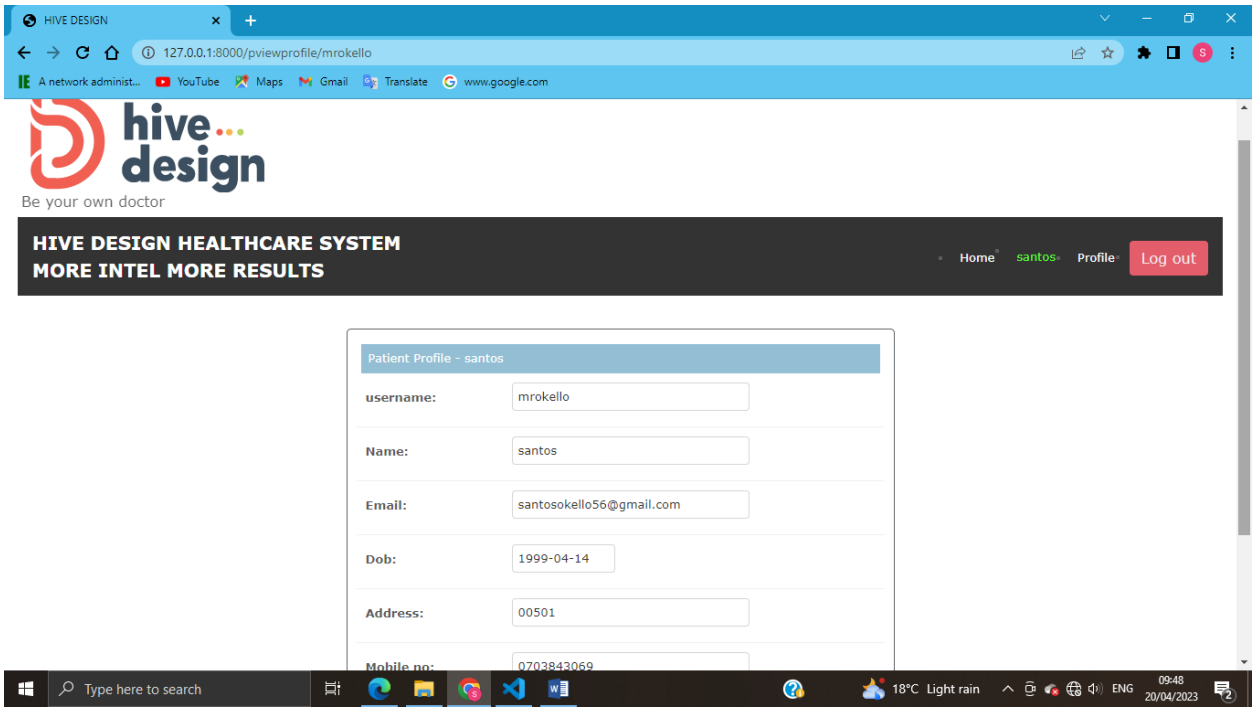


Figure 1: patients profile

The system

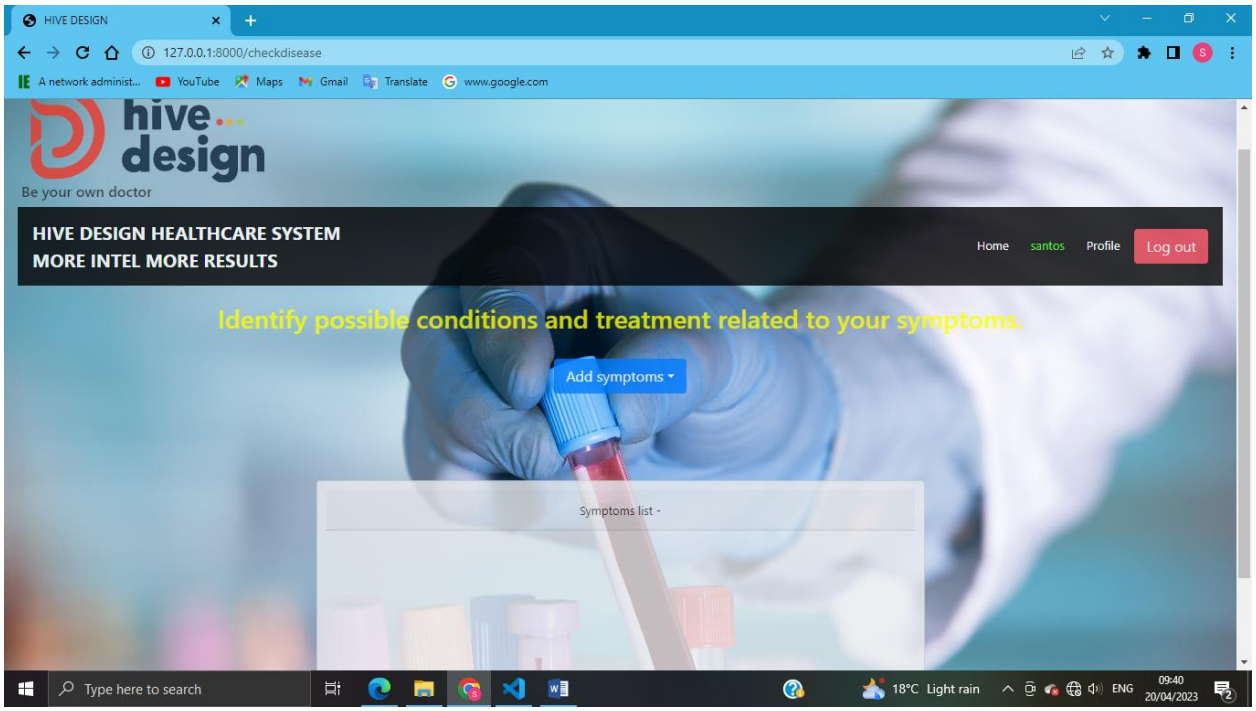
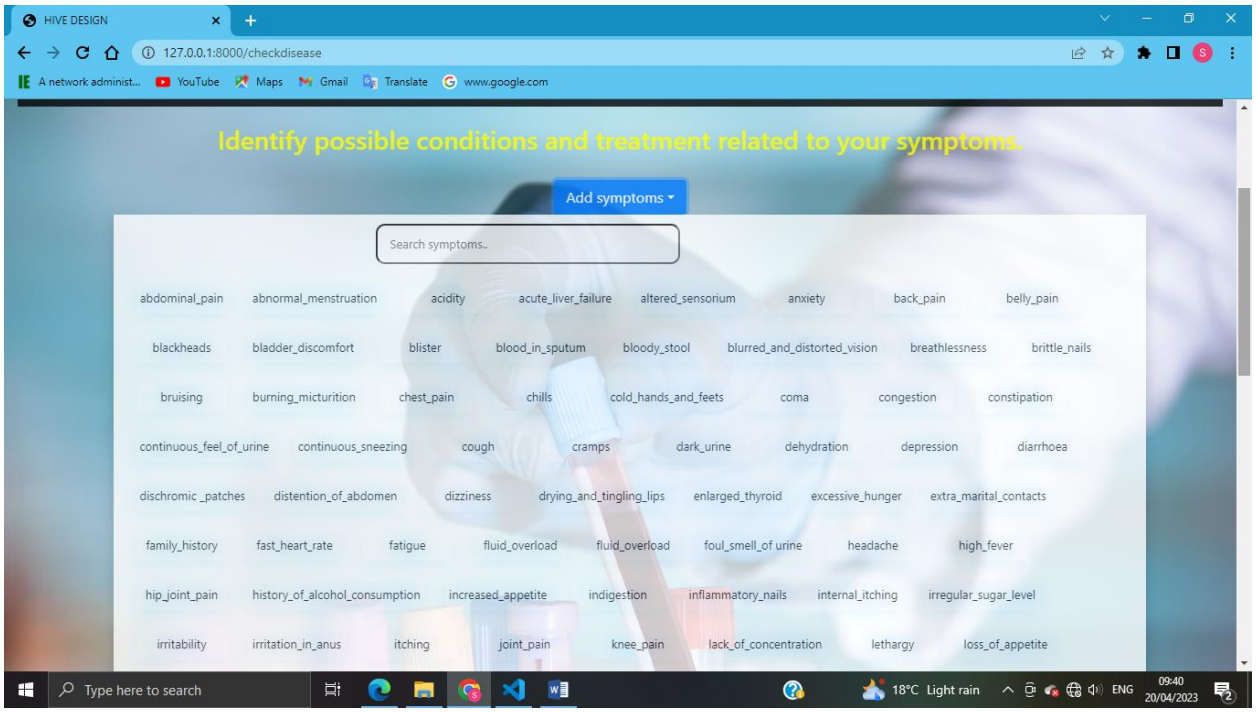


Figure 2: Prediction page



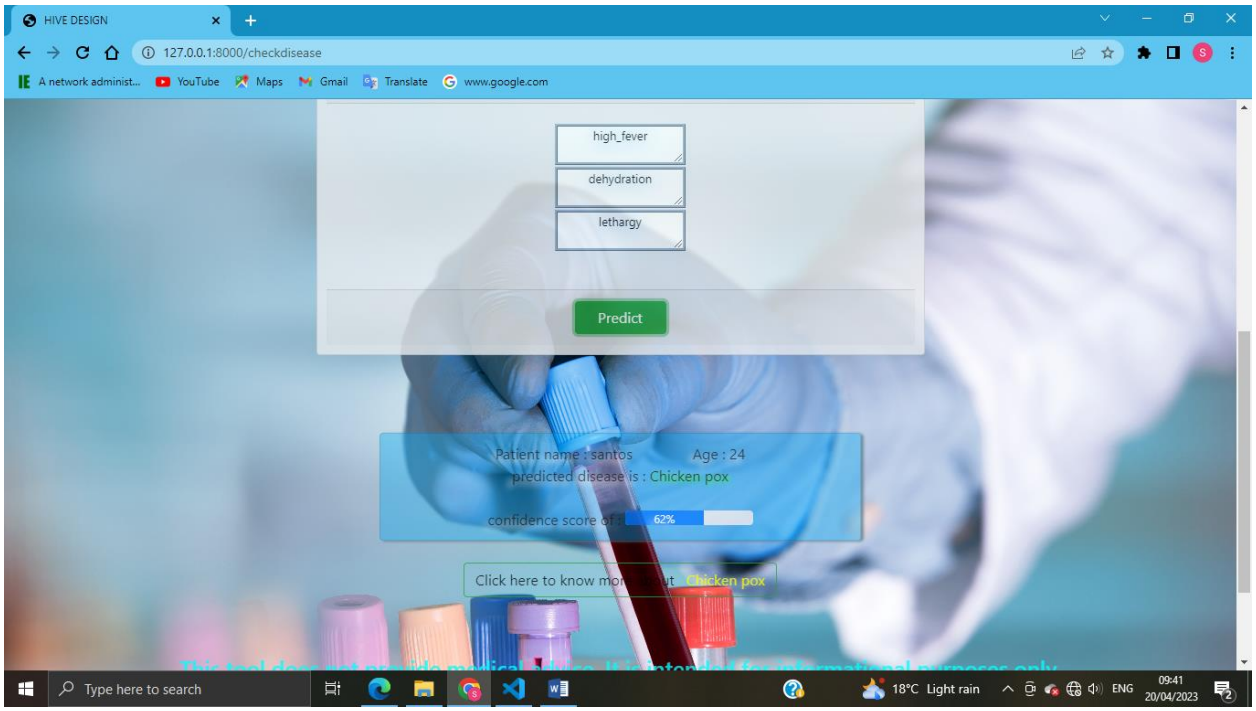


Figure 3: Results Of Prediction

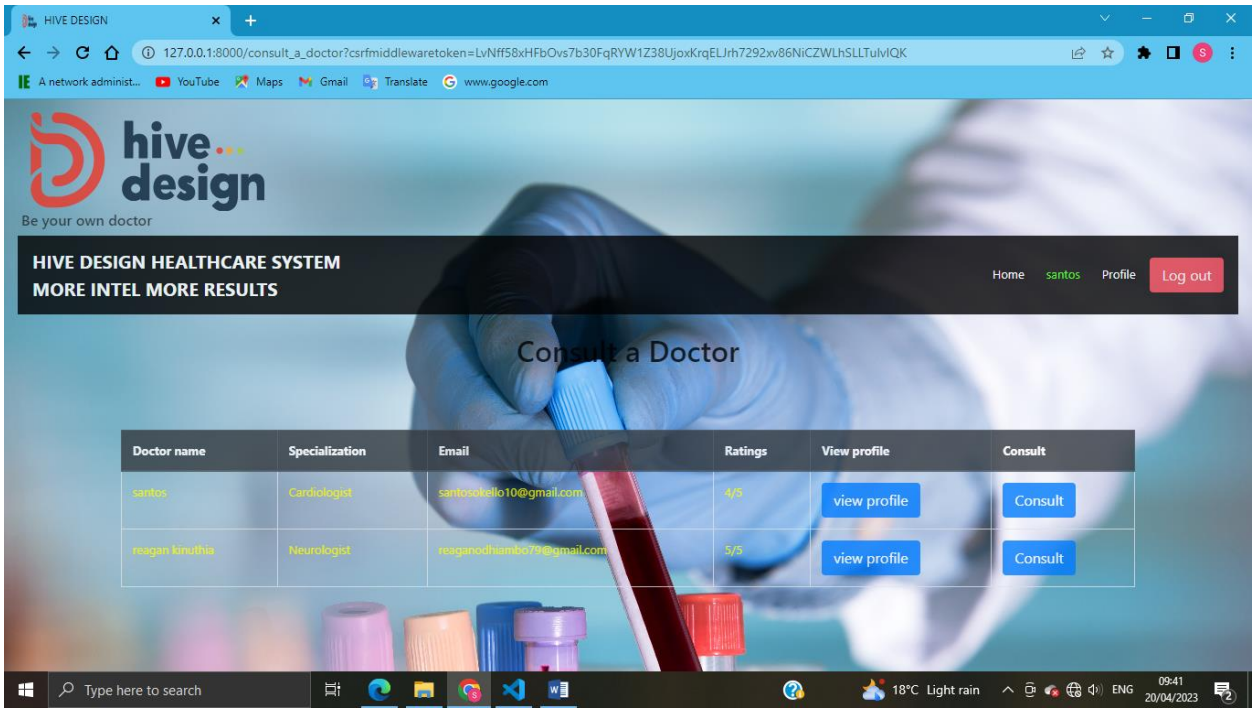


Figure 4:Consult Doctor Page

The Task

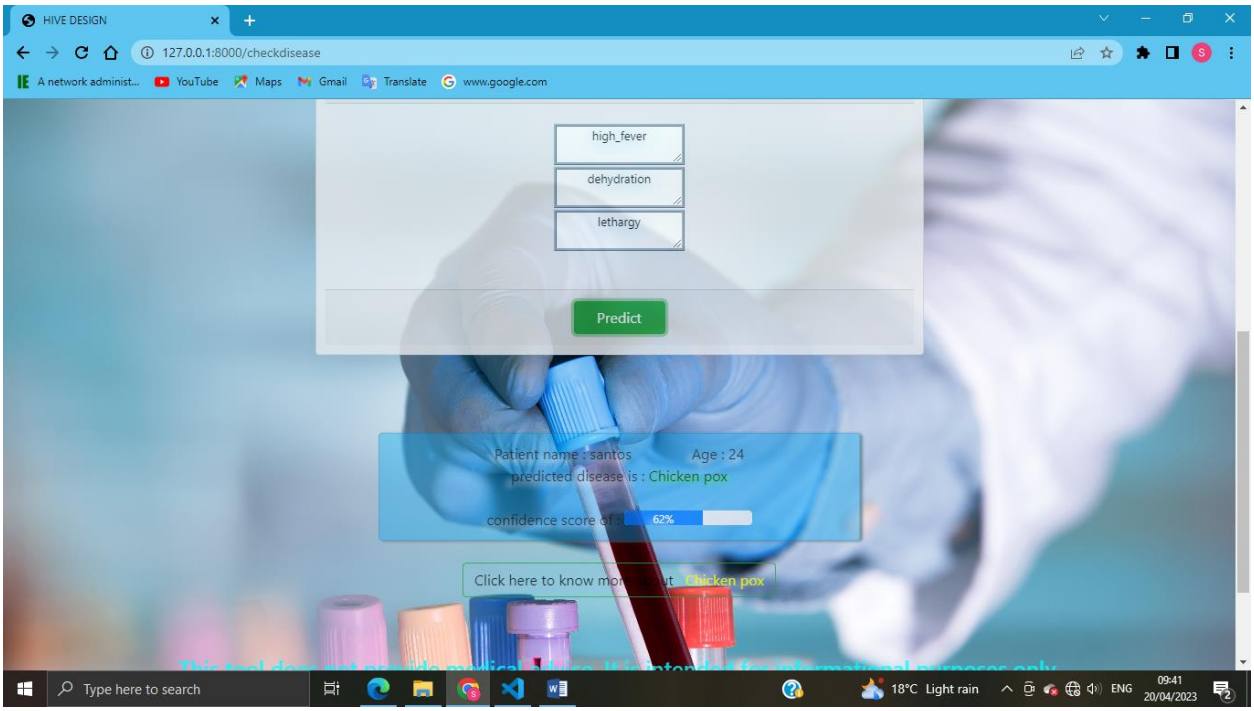
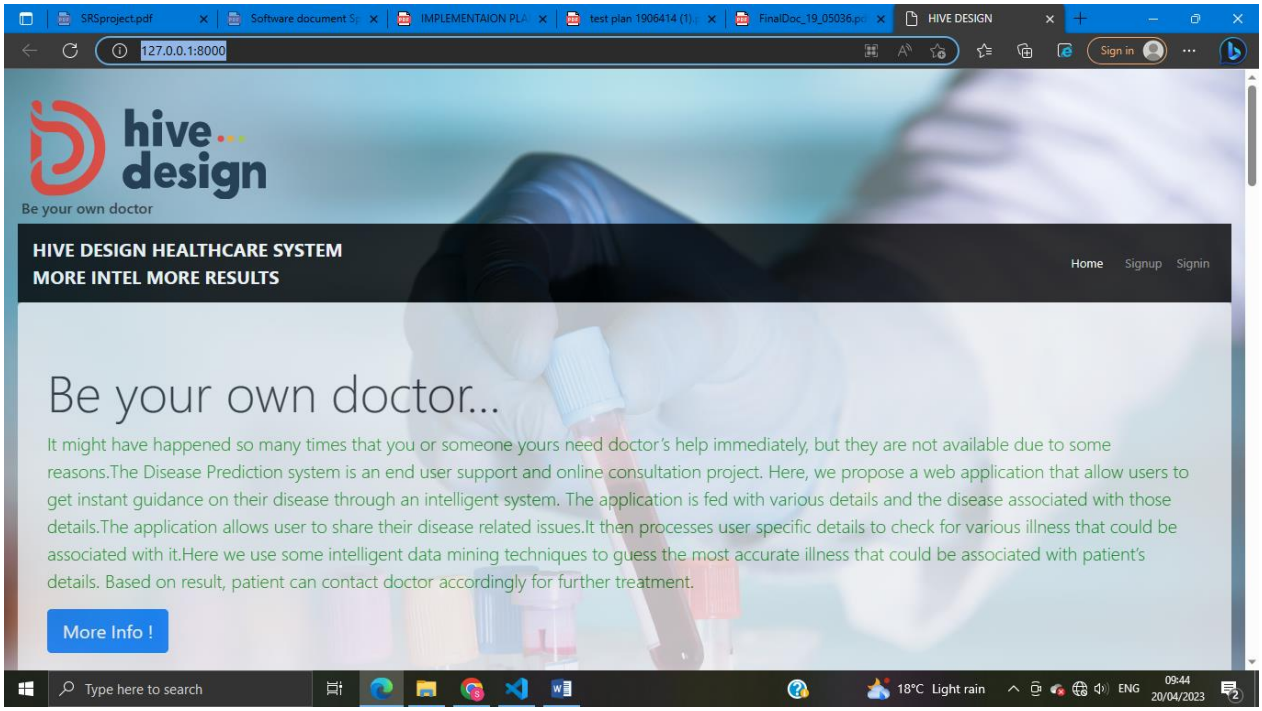


Figure 5:Prediction

USER GUIDE

Front page



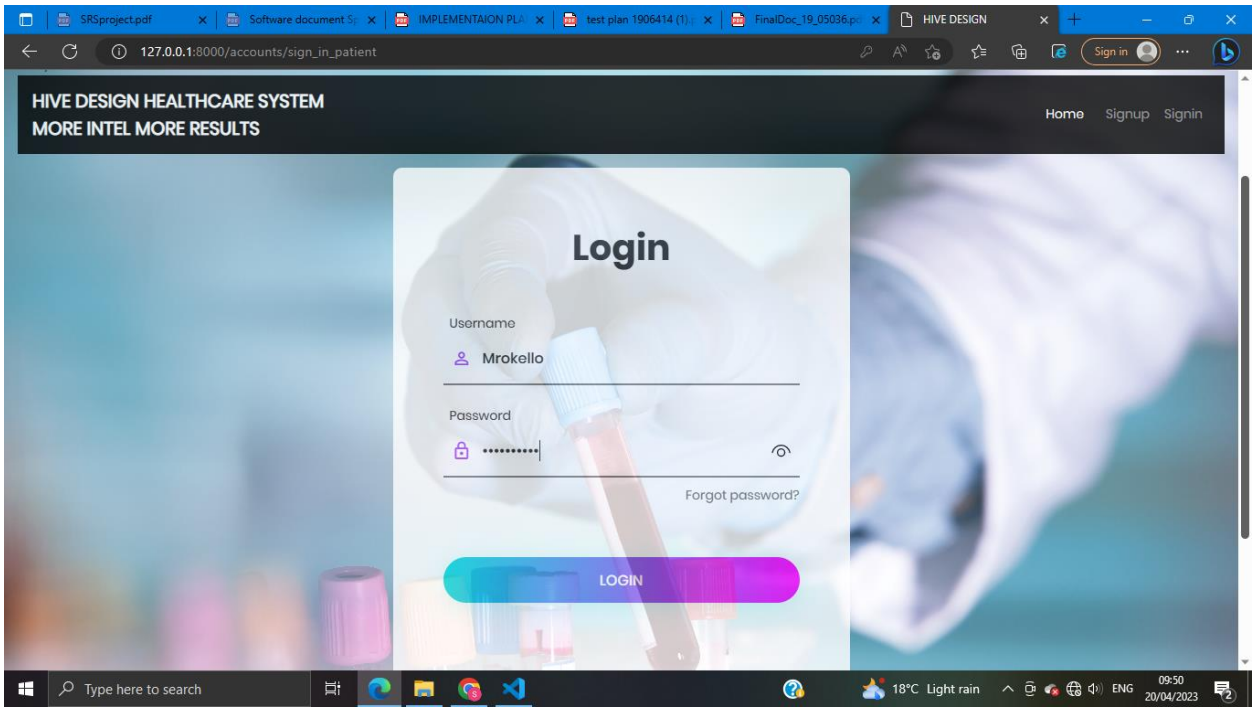


Figure 6: Patient LogIn

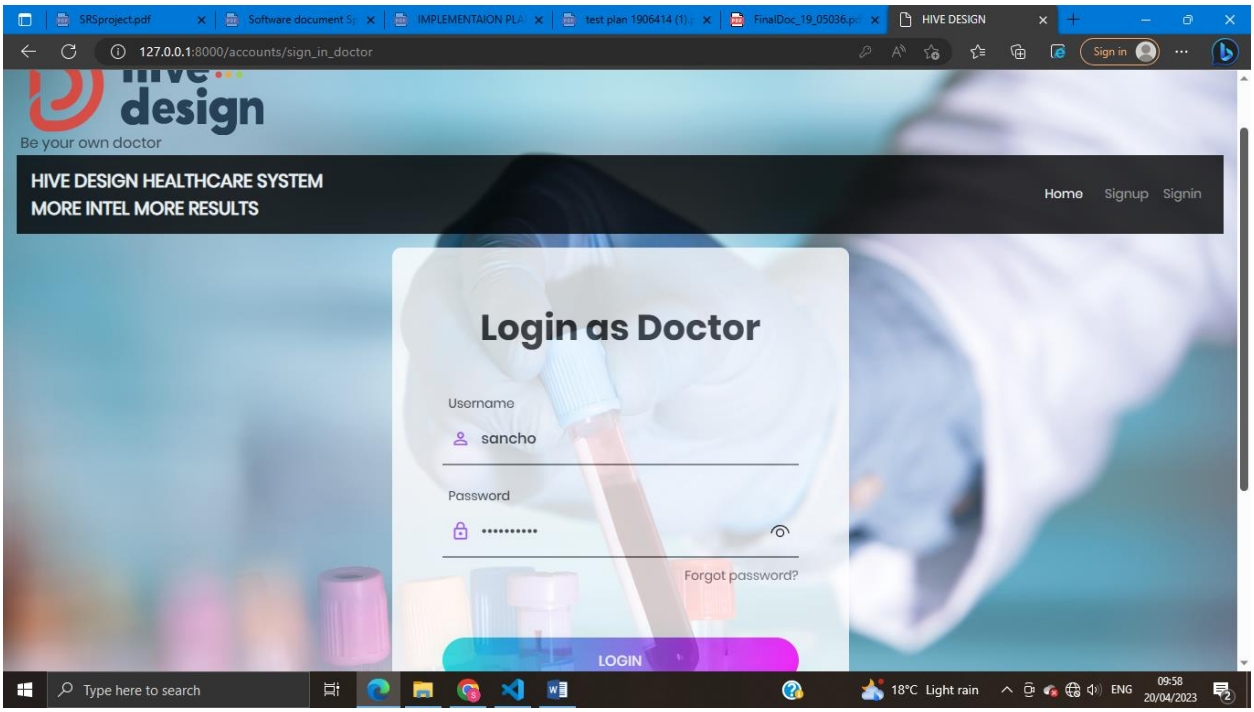


Figure 7: Doctor Login

NOTE

The system enables individuals like a patient, doctor and admin to be able to login, and basically, only the doctor and the patient can sign up/ register in the system. The admin is a super user so he/she can only login.

PATIENT

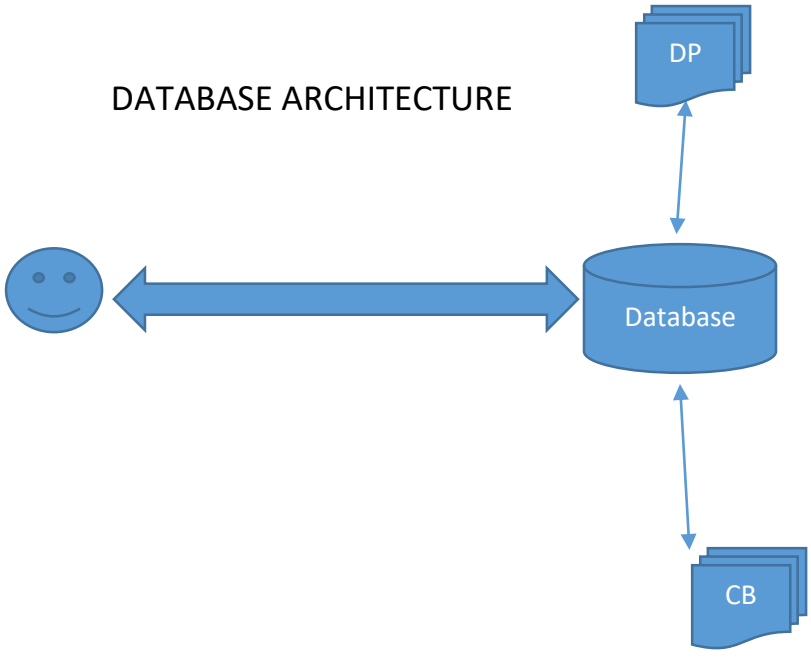
The patient after loging in can predict disease and also find the exact doctor to consult. The patient can chat with the doctor directly through web message and get guidance on how to treat the disease.

ADMIN

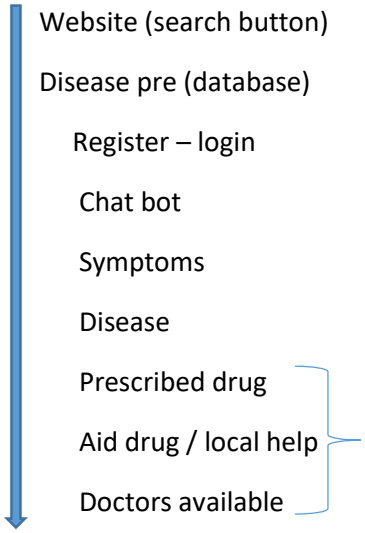
The admin can change the patient to super user or doctor, or doctor to super user. The admin has the advantages to do different sorts of authority.

DOCTOR

The doctor has privilege to listen to the patients needs and provide a way forward to the patient by telling him/her the exact prescribed drug to use or to visit the hospital immediately.



System overview



Reference

Beverly G. Hope, Rosewary H. Wild, « AnExpert Support System for Service Quality Improvement», Proceedings of the TwentySeventh Annual Hawaii International Conference on System Science, 1994

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