HEALTHCARE WEB APP

A thesis submitted in partial fulfilment of the

Requirements for the award of degree of

B.Tech

Computer Science

And Engineering

By

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April – 2021

BONAFIDE CERTIFICATE

This is to certify that the project titled **Healthcare Web App** is a bonafide record of the work done by

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in partial fulfillment of the requirements for the award of the degree of of **Bachelor of Technology in Computer Science & Engineering DAYANANDA SAGAR UNIVERSITY, BANGALORE,** during the year 2020-2021.

Dr. Mouleeswaran SK
GUIDE

Dr. SanjayChitnis
CHAIRMAN

Project Viva-voce held on _____

Internal Examiner

External Examiner

ABSTRACT

21st century medicine is a high-pressure environment. As the cost of care continues to increase, healthcare providers around the world are struggling to maintain standards of care while working within ever-tighter financial constraints.

With the increasing number of internet users, online searching for health advice has gone through a rapid popularization. In today's world, people tend to search online for health-related advice before consulting a doctor whenever they face health problems initially instead of consulting with a health professional. With the rapid proliferation of online symptom checker sites and health forums, it has become handy to acquire information regarding health conditions supported by a number of symptoms. Though these existing symptom checkers afford an instant sense of disease diagnosis, these question-answering and selection based systems lack in interactivity. Online health forum sites can also be disappointing because of their time demanding nature and reliability issues.In this paper, we proposed an idea of creating a system which is web based application with cloud based AI which can meet the requirements .The proposed system can be interface that can be developed providing cloud-based AI to help patients choose the right path to care and give physicians access to valuable data to support decision-making and develop a database system beneficial for both practitioner and patient with better understanding of medical
history of patient leading to better diagnosis.

ACKNOWLEDGEMENT

We are grateful to the management of **DAYANADA SAGAR UNIVERSITY** for providing us the opportunity to study in esteemed institution. We would like to express our special thanks of gratitude to our Guide **Dr.Mouleeswaran SK** for his invaluable guidance, support, motivation and patience during the course of this major project work. We are always indebted to him for his kind support and constant encouragement.

We extend our sincere thanks to our **Chairman Dr. Sanjay Chitnis** who continuously helped throughout the project and without his guidance, this project would have been an uphill task.

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CHAPTER 1

1. INTRODUCTION

The traditional doctor-patient relationship has evidently remained the same over the course of time. The patient goes to the doctor if he/she feels unwell. The doctor listens to the patient, evaluates the symptoms and forms a diagnosis. This may lead to long waiting times for other patients who still await treatment, which is undesirable, as it is not possible to maintain social distancing in most government hospitals due to lack of proper infrastructure for it.

When people feel unwell, their first instinct is often to visit a doctor or emergency room but sometimes

, 85 percent of cases require no face-to-face interaction with doctors or physicians or visiting hospitals. A system with a user friendly interface can be developed to help patients choose the right path to care and give physicians access to valuable data to support decision-making.

Cloud based AI can be incorporated where AI cloud computing is the merging of the machine learning capabilities of artificial intelligence with cloud-based computing environments, making intuitive, connected experiences possible.Artificial intelligence tools are being used to deliver more value on existing cloud computing platforms and great functionality for end users.

Healthcare systems around the world are struggling to handle a constant influx of patients, many of whom simply need reassurance, rather than treatment. Meanwhile, emergency rooms are overflowing with people whose problems could be solved more effectively via alternative channels, such as an online chat or video consultation. Each of these cases diverts valuable time and resources away from seriously ill patients.

Technology has changed the way how patients communicate with doctors and not only that, but also how healthcare is administered. To make the healthcare system more interactive and diagnostic a smart system which improves access to healthcare is designed.

1.1PROBLEM STATEMENT

To design and implement a web based application with providing cloud-based AI to help patients with right guidance for health care and give physicians access to valuable data to support decision-making.

To build a permanent database like an identification number that a person's medical history is always

shown to a new medical practitioner who will get to know it and diagnose a symptom accordingly.

CHAPTER 2

LITERATURE SURVEY

[1]Intelligent Health Diagnosis Technique Exploiting Automatic Ontology Generation and Web- Based Personal Health Record Services

Authors: Gun-Woo Kim,Dong-Ho Lee

Conference Name and Place : IEEE Access, Department of Computer Science and Engineering, Hanyang University, Seoul 04763, South Korea .
Publishing Year : 2019

- The proposed system is an intelligent health diagnosis technique that exploits automatically generated ontology and Web-based personal health record services.
- The proposed technique first automatically generates a human disease diagnosis ontology by exploiting two well-established ontologies for diseases and symptoms: a large-scale medical database and an open biomedical repository.
- When a user enters the symptom-based queries, possible diagnoses are identified.
- Subsequently, the ranked diagnostic results are provided to the user via ranking methods that consider the user's symptoms, personal health attributes, and multi level diagnosis.

[2]A novel approach for medical assistance using trained chatbot

Authors: Divya Madhu, Elmy Sebastian

Conference Name and Place : IEEE,International Conference on Inventive Communication and Computational Technologies (ICICCT), Seoul, South Korea.
Publishing Year :2017

- The proposed idea is to create a system with artificial intelligence that can meet the requirements.It helps them to take the correct treatment.
- The implementation of Personalized Medical assistant heavily relies on AI algorithms as well as the training data as discussed in this paper.
- However, it is still in its early stage and levels and faces some challenges; some of which have a direct link to AI were discussed.
- While other problems such as research and implementation costs, and government regulations are also challenges which are critical to the successful implementation of personalized medicine, but not addressed by the algorithms discussed in this paper.

[3]An Automatic Disease Diagnosis Method Based on Big Medical Data

Authors: Xo Luo, Jun Yang

Conference Name and Place : IEEE,International Conference on Information Science and Security (ICISS) Seoul, South Korea.

Publishing Year: 2016.

- Medical diagnoses automation based on huge data is of great significance to doctor-patient contradiction regulation and the optimizing allocation of health resources.
- This paper presents an intelligent automatic disease diagnosis system.
- Based on a large number of confirmed disease cases, the method of probability and statistics is used to find the relations between the symptoms and different diseases.
- The autonomic disease diagnoses system has been implemented preliminarily and the system is proved having some value in clinical application.

[4] A Framework For Disease Identification From Unstructured Data Using Text Classification And Disease Knowledge Base

Authors: Fahim Faisal,Faisal Bin Ashraf

Conference Name and Place : IEEE,International Conference on Advances in Electrical Engineering (ICAEE) Dhaka, Bangladesh,

Publishing Year :2020

- In this paper,the proposed work is a web based automated disease identification framework which will take unstructured textual data like health forum posts as input and provide a ranking of probable diseases based on symptom-disease correlation considering all important factors.
- A lexicographic and semantic feature-based two-phase text classification system .
- A disease knowledge base-based similarity measurement module to identify probable disease have been incorporated in the proposed framework.
- The framework is made by varying the number of feature components and got the result that significant accuracy and reliability is obtained over baseline systems by effective feature engineering

at the same time of keeping up with increased user interactivity.

[5]Design and Development of Diagnostic Chabot for supporting Primary Health Care Systems

Authors: Bushra Kidwai, Nadesh RK

Conference Name and Place : International Conference on Computational Intelligence and Data Science (ICCIDS 2019).School of Information Technology and Engineering, VIT Vellore,, India. Publishing Year : 2019

- Artificial Intelligence has changed the healthcare scenario. The proposed system aims to narrow the gap between healthcare and patients further.
- AI concepts are used to fetch knowledge from medical databases containing many diseases to develop an efficient diagnostic chatbot.
- The chatbot asks the user questions in a format imitating a doctor-patient conversion.The questions are based on the users preceding input and then based on replies forms a possible diagnostic.
- The diagnostic form is preliminary which might help the user decide on further action.The system needs to increase its database and improve the machine learning part to ensure better diagnosis.

CHAPTER -3

REQUIREMENT ANALYSIS

3.1 FUNCTION REQUIREMENTS

- Storage: Permanent database containing all medical details of a person needs to be stored and available securely only to doctors.
- For Patients: A Medical ID is issued that is linked to a medical database that contains a patient's medical history and records of medicines, allergies, etc.
- For Doctors: Entering the patient details into the system should access the database and get patient records.
- For Pharmacists: Entering the patient details into the system should access the database
- and get medicinal requirements which have been entered by a doctor.

5.2 SOFTWARE REQUIREMENTS

- Code Editor :pycharm
- Operating System : Windows or Linux
- Backend: MySQL,Python
- Frontend : HTML,CSS,

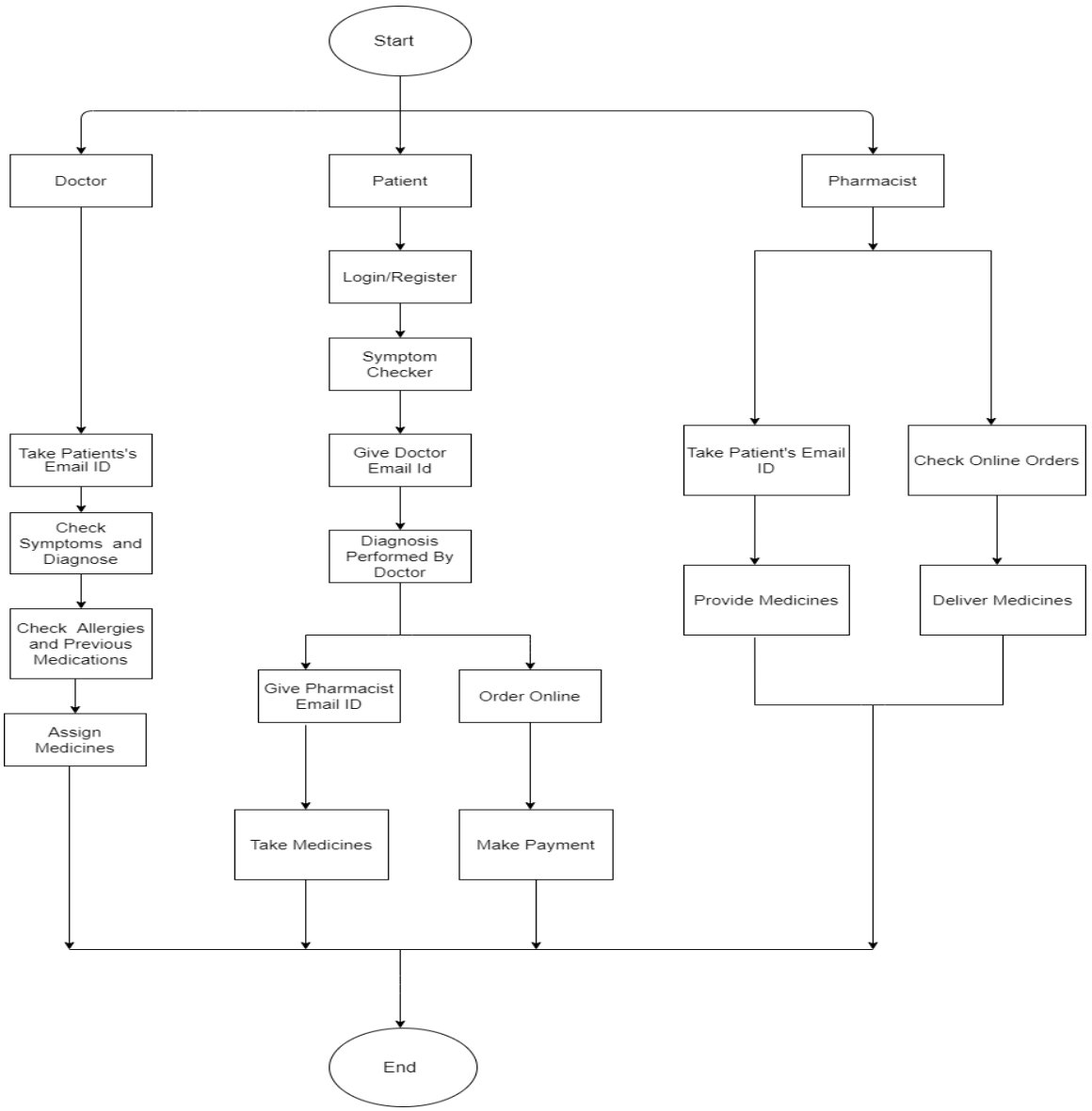
5.3 HARDWARE REQUIREMENTS

- i5 processor-based computing or higher
- Memory: 4GB RAM
- Hard Drive: 50 GB

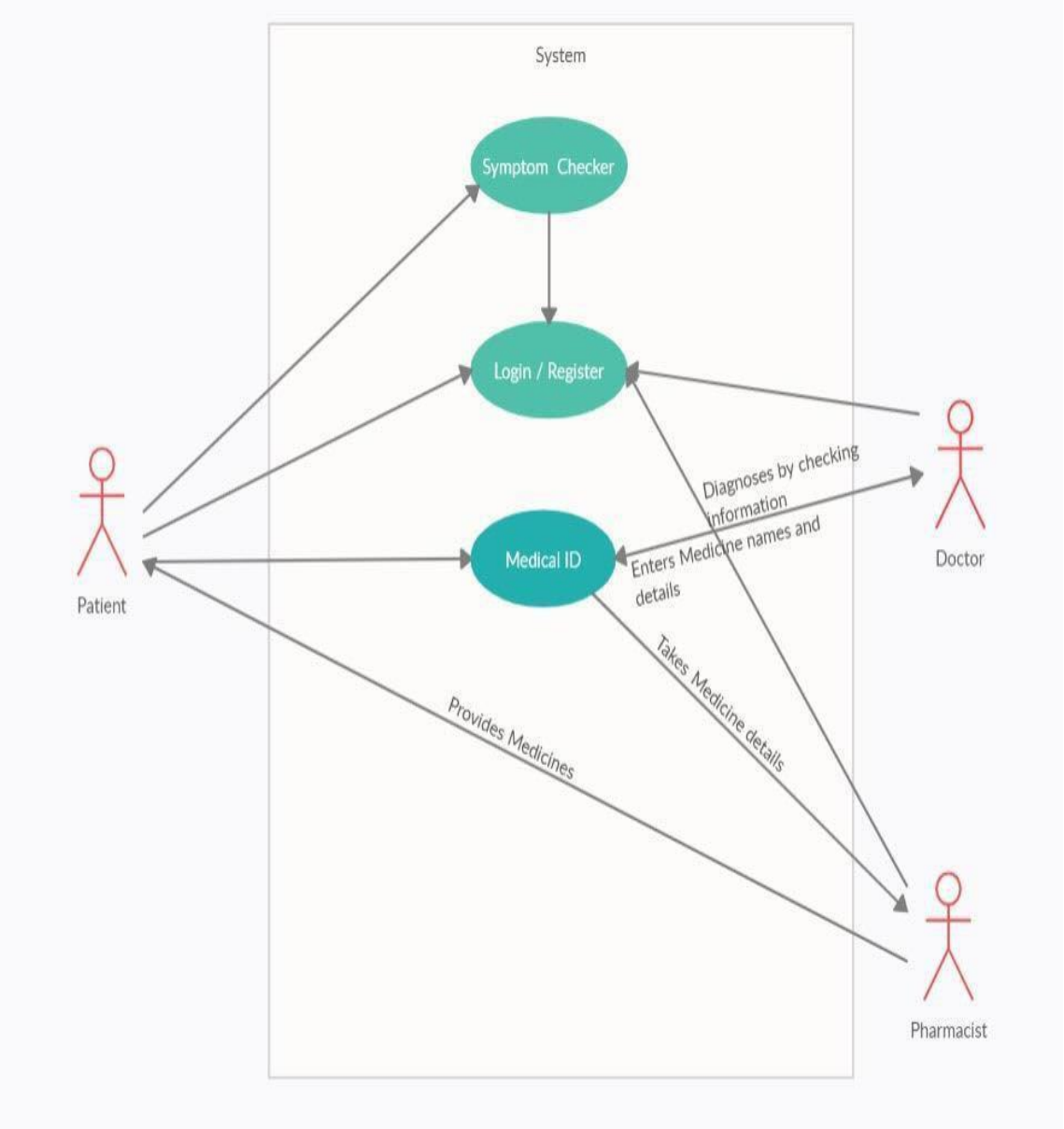
CHAPTER-4

DESIGN

4.1 FLOWCHART:



4.2 USE CASE DIAGRAM:



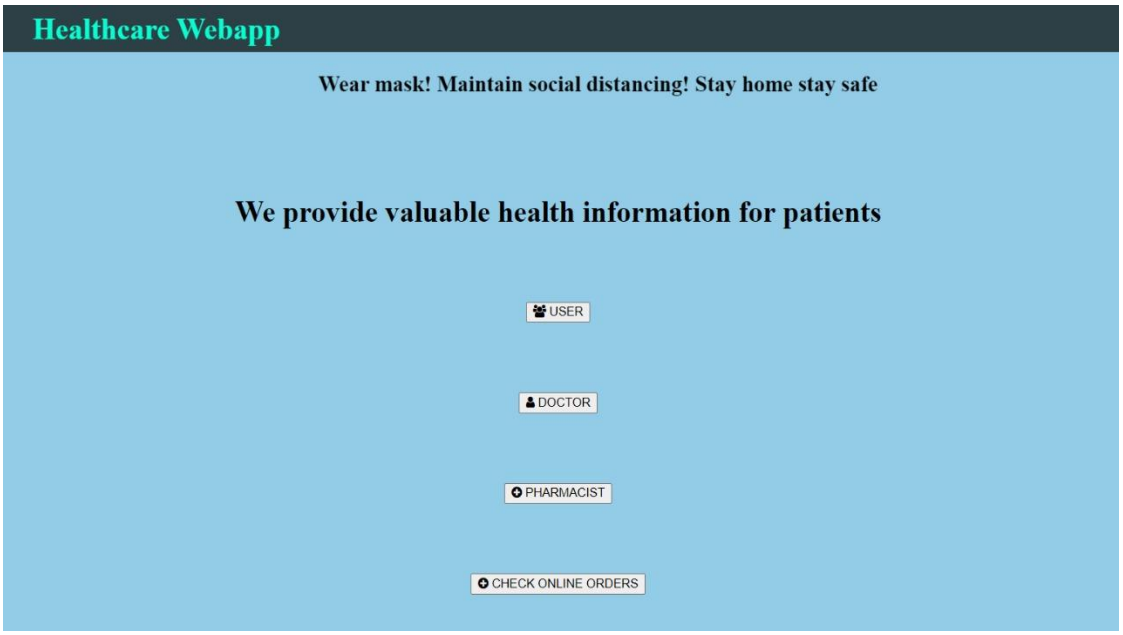
CHAPTER 5

IMPLEMENTATION

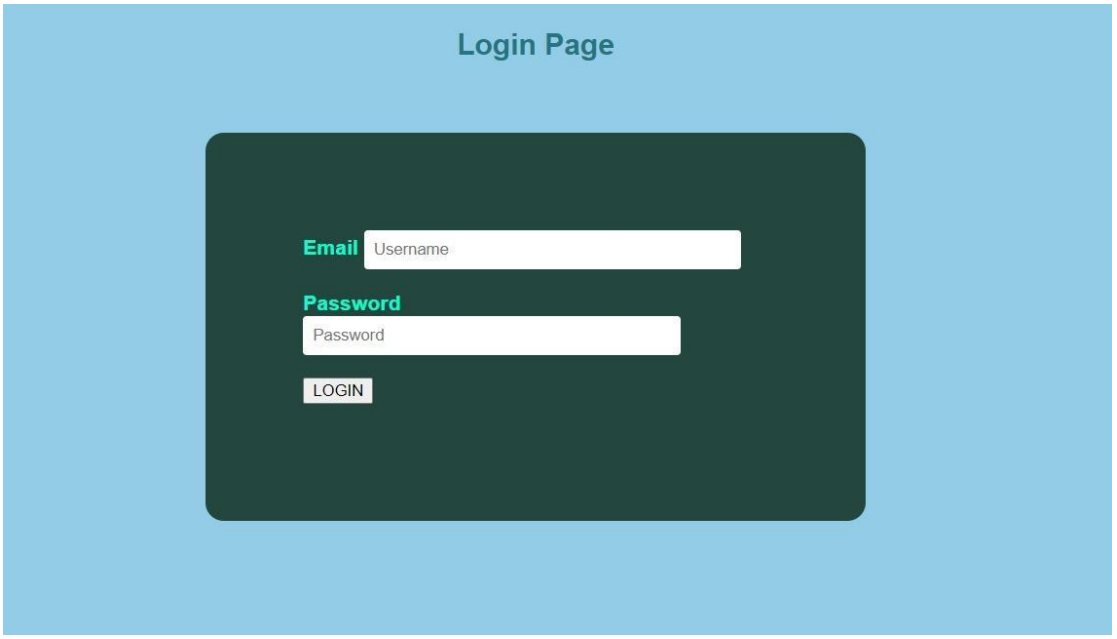
```
import pandas as pd
from sklearn.ensemble import RandomForestClassifier
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import LabelEncoder
import pickle
from sklearn import metrics

df = pd.read_csv(r"best_one_1.csv")

X = df.drop(["Disease"], axis = 1)
Y = df["Disease"]
X = X.apply(LabelEncoder().fit_transform)

X_train, X_test, Y_train, Y_test = train_test_split(X, Y, test_size = 0.1, random_state =
1)

model = RandomForestClassifier(n_estimators=100)
model = model.fit(X_train, Y_train) y_pred =

model.predict(X_test)

print("Accuracy:",metrics.accuracy_score(Y_test, y_pred))

pickle.dump(model, open('model_chandan.pkl', 'wb'))
```

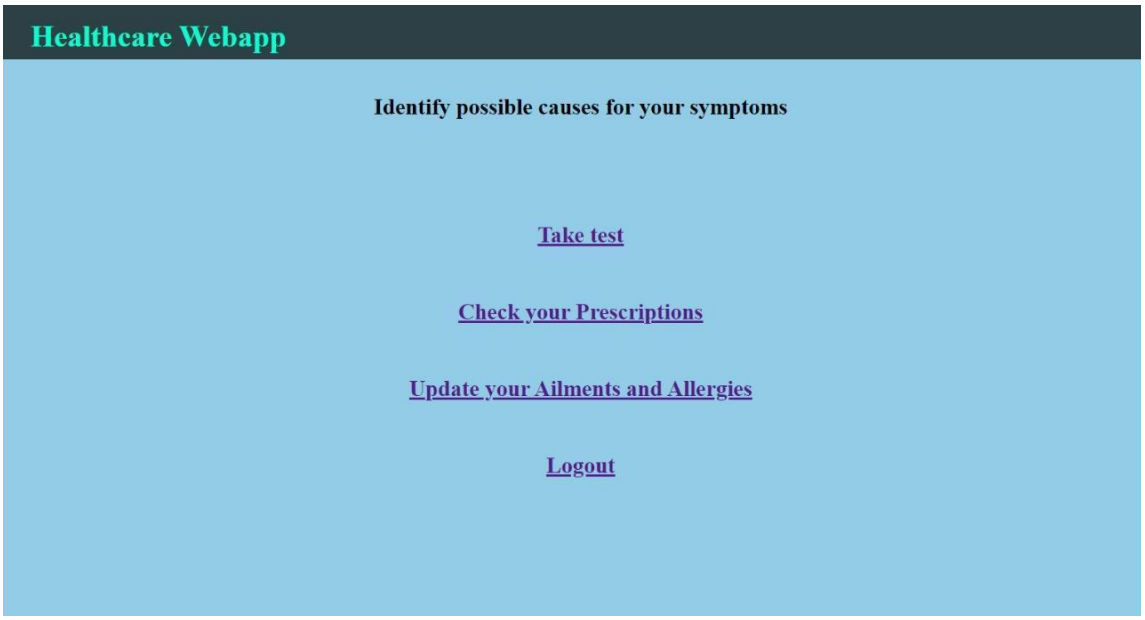
5.1 OUTPUT SCREENSHOTS

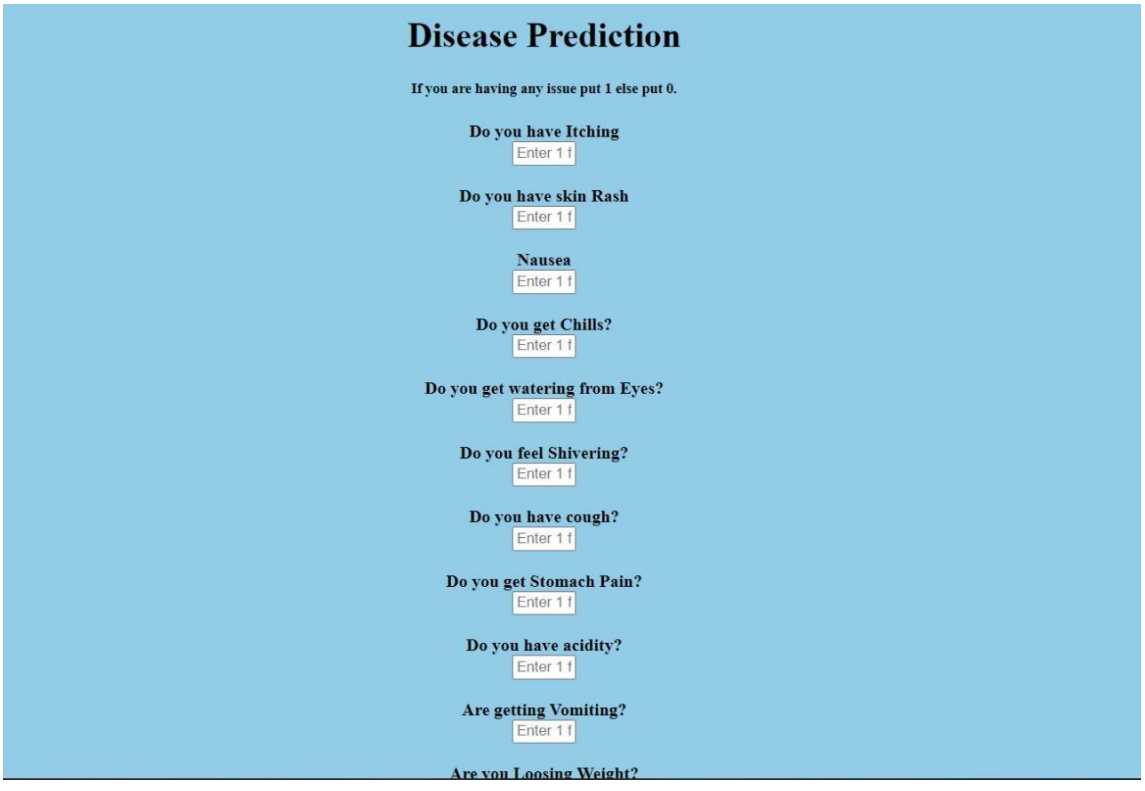
1) USER PAGE:

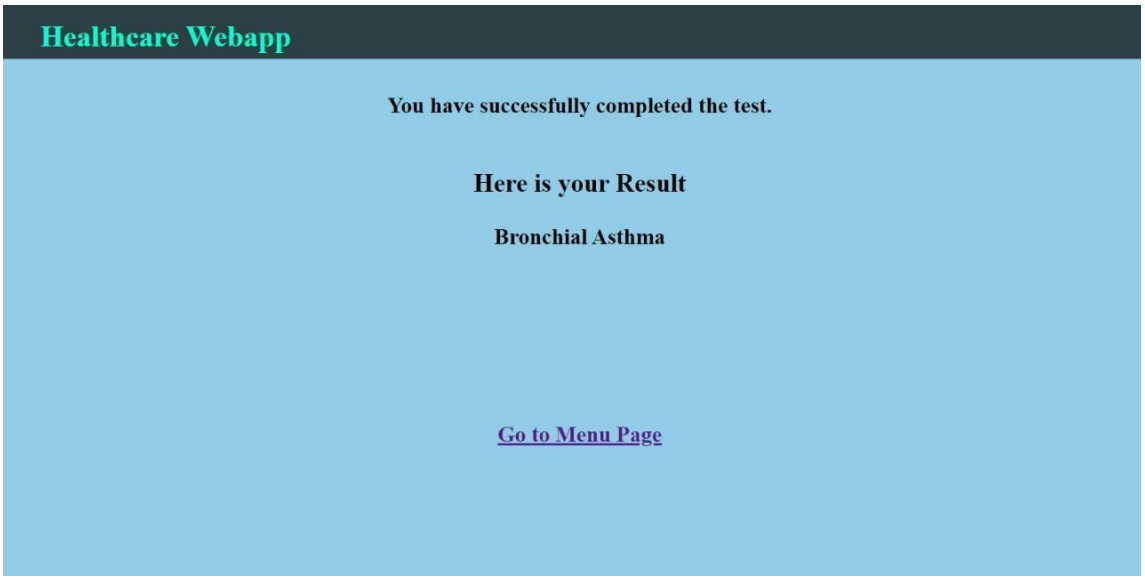


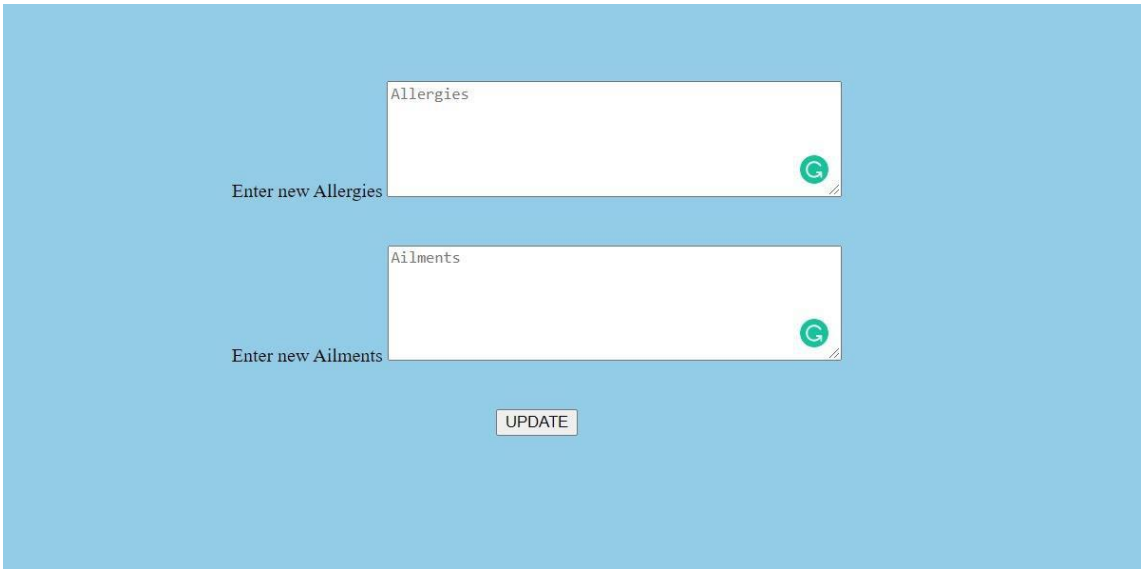

Register
Please fill in this form to create an account.
Email
Enter Email
Password
Enter Password
Repeat Password
Repeat Password
Name
Enter Name
DOB
Enter DOB
Allergies (If any else put None)
Enter your existing allergies
Ailments (If you have any existing ailments else put None)


Login Page
Email
Username
Password
Password
LOGIN

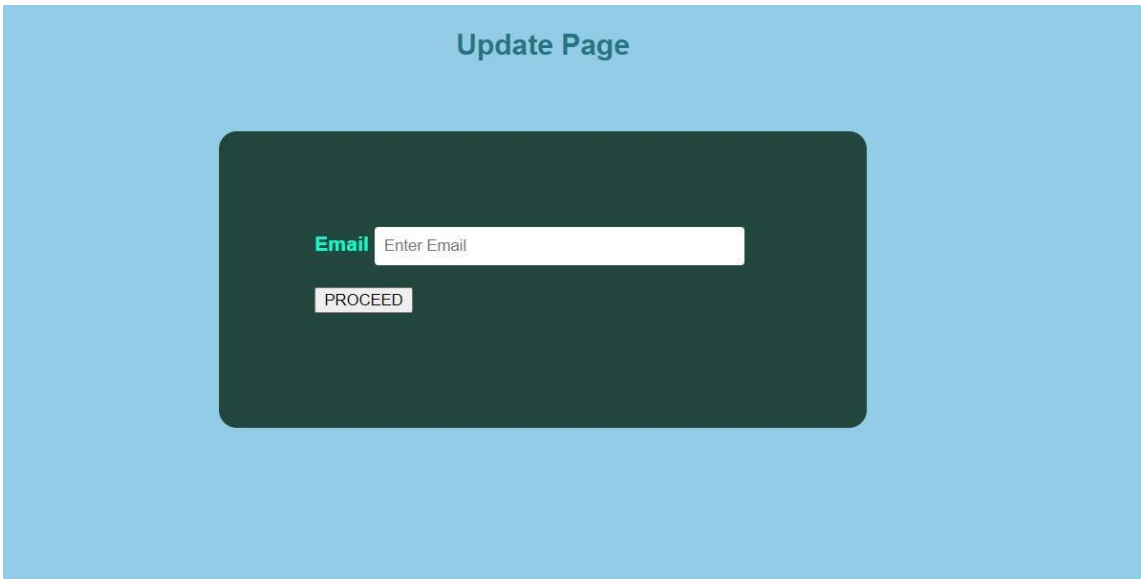

Healthcare Webapp
Identify possible causes for your symptoms
Take test
Check your Prescriptions
Update your Ailments and Allergies
Logout


Disease Prediction
If you are having any issue put 1 else put 0.
Do you have Itching
Enter 1 f
Do you have skin Rash
Enter 1 f
Nausea
Enter 1 f
Do you get Chills?
Enter 1 f
Do you get watering from Eyes?
Enter 1 f
Do you feel Shivering?
Enter 1 f
Do you have cough?
Enter 1 f
Do you get Stomach Pain?
Enter 1 f
Do you have acidity?
Enter 1 f
Are getting Vomiting?
Enter 1 f
Are you Loosing Weight?


Healthcare Webapp
You have successfully completed the test.
Here is your Result
Bronchial Asthma
Go to Menu Page


Allergies
Enter new Allergies
Ailments
Enter new Ailments
UPDATE

2) DOCTOR’S PAGE:



Name: Chandan

DOB: None

Allergies:

Ailments (Existing):

Disease: Bronchial Asthma

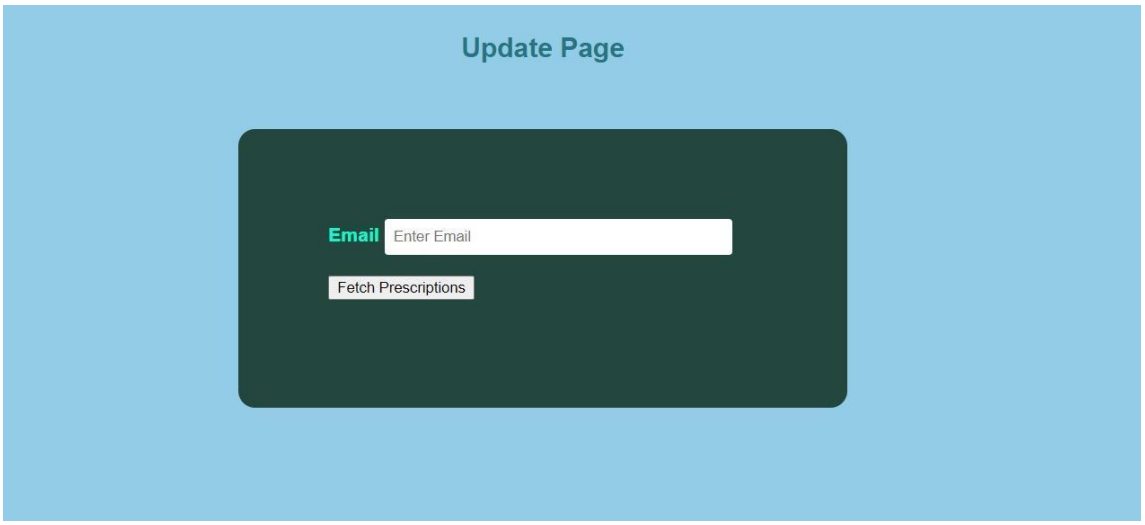
Enter Presecrptions

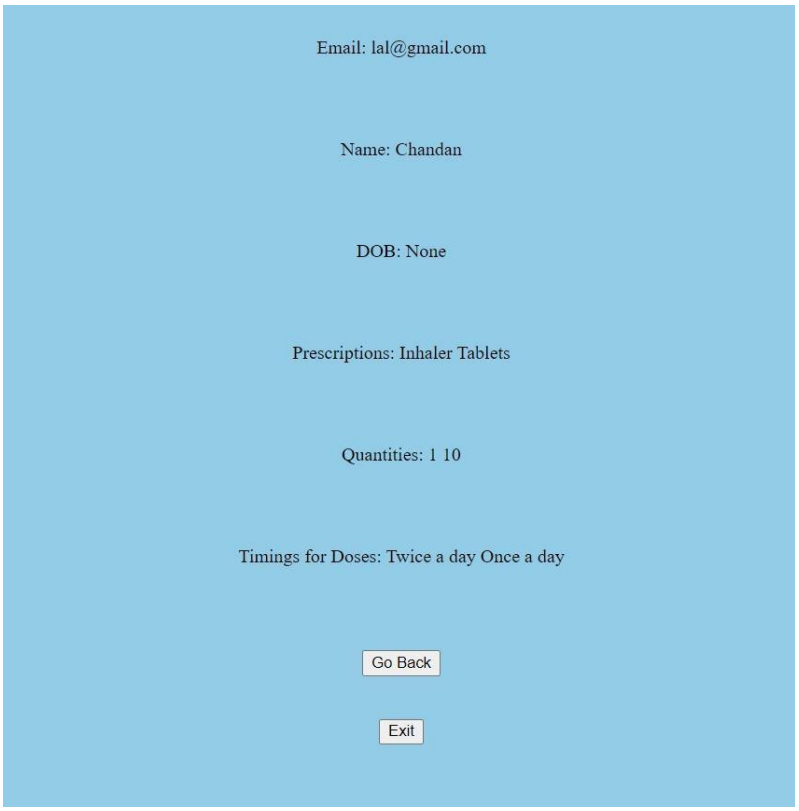
Enter Quantity of Each Medication

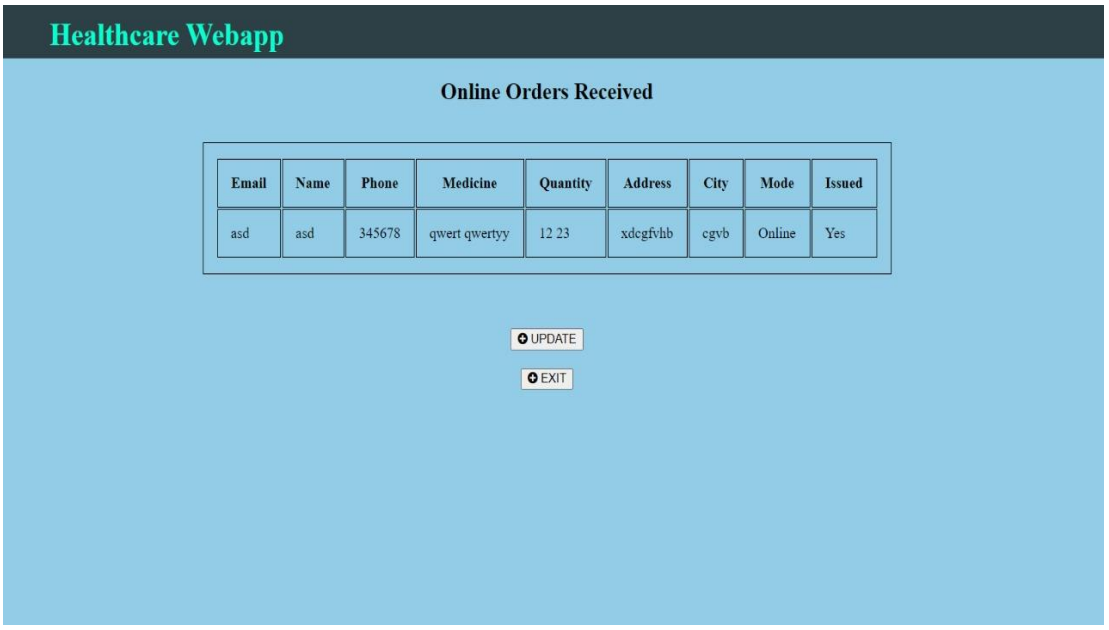
Enter Time for Every Doses

UPDATE

3)PHARMACIST PAGE:






Healthcare Webapp
Online Orders Received
Email
Name
Phone
Medicine
Quantity
Address
City
Mode
Issued
asd
asd
345678
qwert qwertyy
12 23
xdcgfvhb
cgvb
Online
Yes
UPDATE
EXIT

6. CONCLUSION

The implementation of Healthcare Web Application heavily relies on AI algorithms as well as the training data ,storing data and creating infrastructure as discussed . However, it is still in its early stage and levels and faces some challenges; some of which have a direct link to AI were discussed. While other problems such as research and implementation costs, and government regulations are also challenges which are critical to the successful implementation of web application with cloud based AI,as discussed in this paper. However, the implementation of the proposed web application does not only faces challenges; it does pose some challenges, as the accuracy of result and practice to the extent that some futurist think algorithms and machines could replace most of the jobs doctors do today.

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7.A novel approach for medical assistance using trained chatbot,IEEE,International Conference on Inventive Communication and Computational Technologies (ICICCT), Seoul, South Korea,2017.

8.S. Yang, R. Wei, J. Guo, and L. Xu, ‘‘Semantic inference on clinical documents: Combining machine learning algorithms with an inference engine for effective clinical diagnosis and treatment,’’IEEE Access, vol. 5,pp. 3529–3546, Dec. 2016.