

# Disease Diagnosis Using Machine Learning

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**Abstract:** A diagnosis is made based on medical signs and patient-reported symptoms, rather than diagnostic tests. The whole program is done and executed in Python language mainly using file operations in Python and HTML for creating web pages. This project mainly deals with how the diagnosis is made by listing out all the symptoms faced by the patients from the given diseases on the website. This project gives you the list of seven diseases spread over our country according to the WHO (World Health Organization). The seven diseases are Heart, Diabetics, Breast Cancer, Liver, Kidney, Malaria, and Pneumonia. So based on the patient gives details under a particular disease, it finds out whether the patient is having the disease or not. If the person is suffering from that particular disease it shows that person is positive with that particular disease and shows a warning that the person should consult the doctor. We also created a user-based login page where the user can create his login page, thereby creating an account that person can fill in the details. If the person is registered then that person can log indirectly. The health diagnosis website was designed by using web technology and languages such as HTML & CSS and python respectively. 1) If the person is not suffering from that particular disease and shows the result as great you are healthy.....! 2) If a person is suffering from a particular disease then it shows the result as please consult the doctor.....!

**Keywords:** Medical signs, patient reported symptoms, Python libraries

## 1. Introduction

The topic is Health Diagnosis Using Machine Learning

A diagnosis is made based on medical signs and patient-reported symptoms, rather than diagnostic tests. The whole program is done and executed in Python language mainly using file operations in Python and HTML for creating web pages. This project mainly deals with how the diagnosis is made by listing out all the symptoms faced by the patients from the given diseases on the website.

The health diagnosis website was designed by using web technology and languages such as HTML & CSS and python respectively.

- If the person is not suffering from that particular disease and shows the result as great you are healthy.....!
- If a person is suffering from a particular disease then it shows the result as please consult the doctor.....!
- Here we'll be having a login/ sign up page where a person can enroll on our website.
- There is a home page where a person can check the diseases on our website and can enter his symptoms for the particular disease.
- By our website, the patient can save his time and Energy.
- The person can stay safe and know whether he is suffering from a particular disease or not.

This project gives you the list of seven diseases spread over our country according to the WHO (World Health Organization). The seven diseases are Heart, Diabetics, Breast Cancer, Liver, Kidney, Malaria, and Pneumonia. So based on the patient gives details under a particular disease, it finds out whether the patient is having the disease or not. If the person is suffering from that particular disease it shows that person is positive with that particular disease and shows a warning that the person should consult the doctor.

We also created a user-based login page where the user can create his login page; thereby creating an account that person can fill in the details. If the person is registered then that person can login directly.

## 2. Literature Survey

A literature survey or a literature review in a project report is that section that shows the various analyses and research made in the field of your interest and the results already published, taking into account the various parameters of the project and the extent of the project.

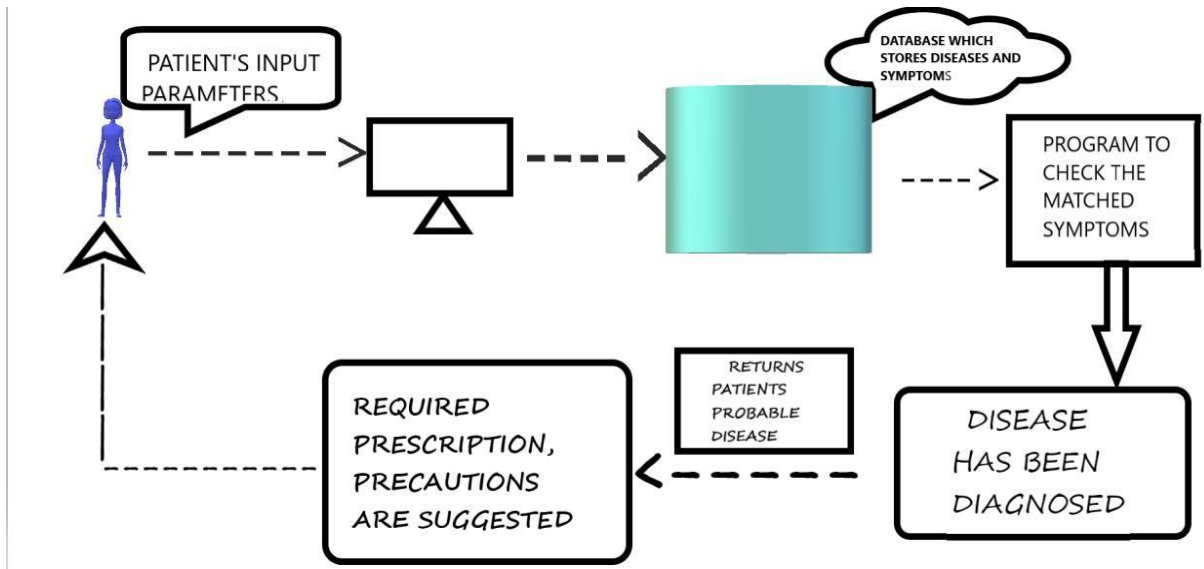
It is the most important part of your report as it gives you a direction in the area of your research. It helps you set a goal for your analysis- thus giving you your problem statement.

### 2.1 Existing System

In the existing system, it can diagnose only 1 disease. It can only help in analyzing only one disease which they were given already. Like it, and only one disease and the patient should fill out the form to know whether that person is having that disease or not.

### 2.2 Proposed System

It is helping patients realize what are the possible diseases they are suffering from or trying to make them beware of the disease they may suffer with. They may also have them already. As going to the doctor immediately may not be possible, they can check in the possible disease they may suffer with by login into our page. With this system, they can also know if the disease is serious or not. The person should enter their symptoms in the given form. They should enter under the disease that they might have or have been suffering from. This project is helpful for patients to try to create awareness among them with instant access.



### 3.1 Sample Code

```

from flask import Flask, render_template, request, flash, redirect
import pickle
import numpy as np
from PIL import Image
from tensorflow.keras.models import load_model

app = Flask(__name__)

def predict(values, dic):
    if len(values) == 8:
        model = pickle.load(open('models/diabetes.pkl', 'rb'))
        values = np.asarray(values)
        return model.predict(values.reshape(1, -1))[0]
    elif len(values) == 26:
        model = pickle.load(open('models/breast_cancer.pkl', 'rb'))
        values = np.asarray(values)
        return model.predict(values.reshape(1, -1))[0]
    elif len(values) == 13:
        model = pickle.load(open('models/heart.pkl', 'rb'))
        values = np.asarray(values)
        return model.predict(values.reshape(1, -1))[0]
    elif len(values) == 18:
        model = pickle.load(open('models/kidney.pkl', 'rb'))
        values = np.asarray(values)
        return model.predict(values.reshape(1, -1))[0]
    elif len(values) == 10:
        model = pickle.load(open('models/liver.pkl', 'rb'))
        values = np.asarray(values)
        return model.predict(values.reshape(1, -1))[0]

@app.route("/")
def home():
    return render_template('login.html')

@app.route("/logincheck", methods=['GET', 'POST'])
def logincheck():
    if request.method == "POST":
        username = request.form['username']

```

Figure 1: Architecture Diagram of the proposed system

### 3.2 Purpose

The main purpose of this project is to help patients realize what are the possible diseases they are suffering from or try to make them beware of the disease they may suffer with. They may also have them already.

Creating a home page for a user to check their symptoms and diagnose them. Also give a warning if necessary, for the patient to take for further worsening.

The main motivation to do this project is that, after suffering from some symptoms or after getting the results of diagnostic test results, it is tough to get an appointment from the hospital to consult a doctor on the spot. Even after waiting so long in the waiting room to get an appointment some people don't get an appointment. It's a waste of time. It is difficult when it comes to kids and old age people. So

this website helps to find out which disease they are suffering from. Or whether they are suffering from that disease or not.

### 3.3 Scope

This project is helpful for patients to try to create awareness among them with instant access. As going to the doctor immediately may not be possible, they can check in the possible disease they may suffer with by login into our page. With this system, they can also know if the disease is serious or not. The technological advancements come in handy for health purposes.

The diagnostic process proceeds as follows: First, a patient experiences a health problem. The patient is likely the first person to consider his or her symptoms. The person should enter their symptoms in the given form. They should enter

under the disease that they might have or have been suffering from. This helps the patients to get to know the disease they are suffering from. With this system, they can also know if the disease is serious or not.

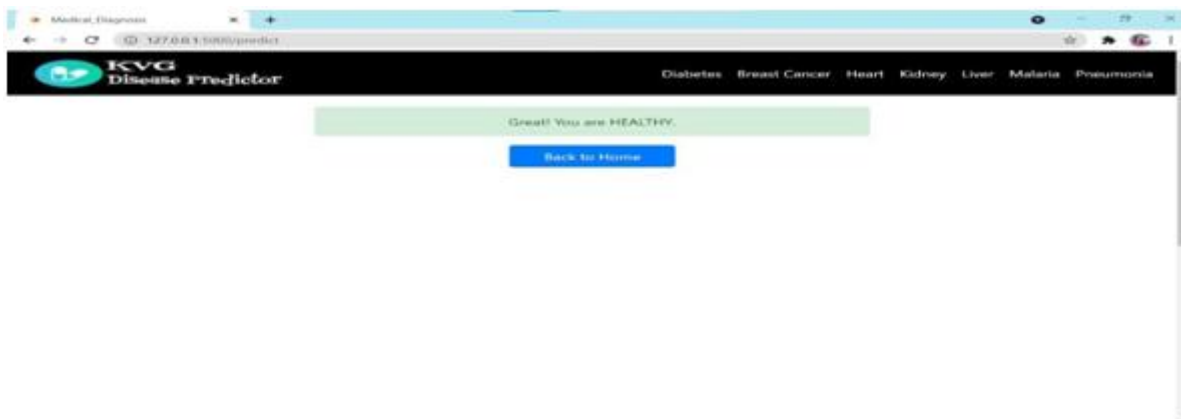
### 3.4 Implementation

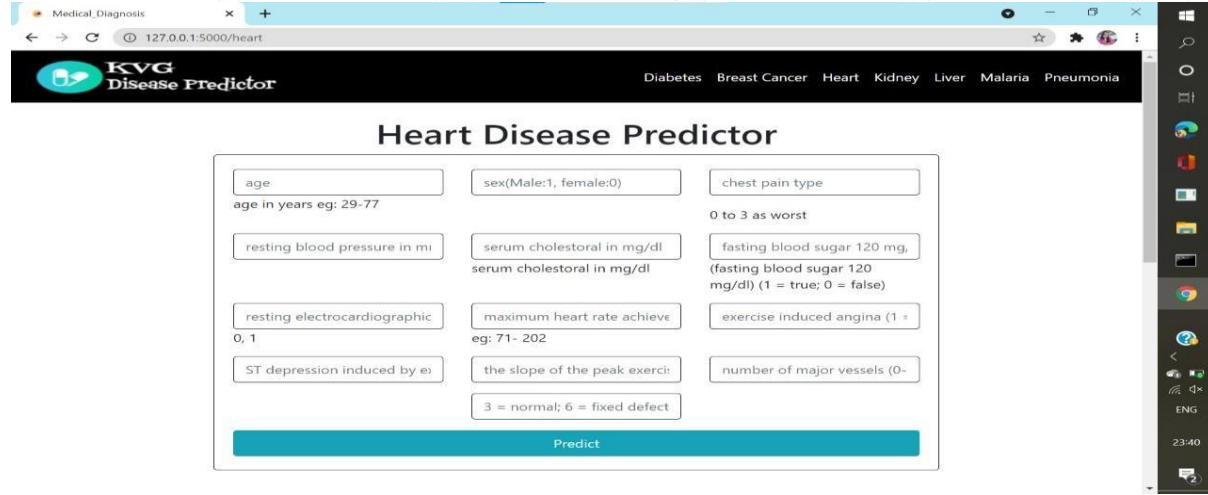
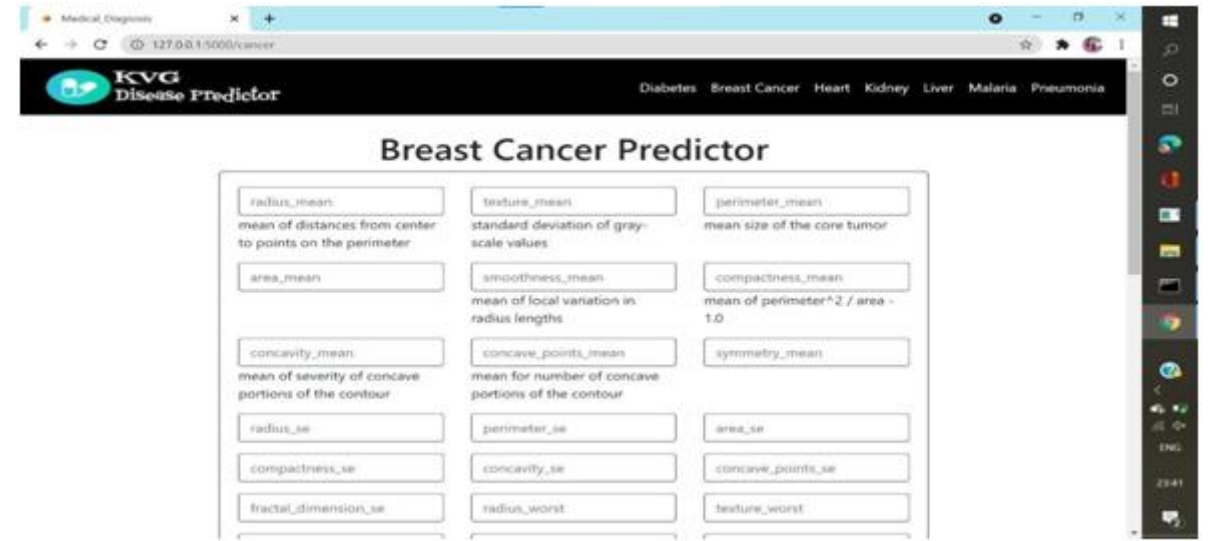
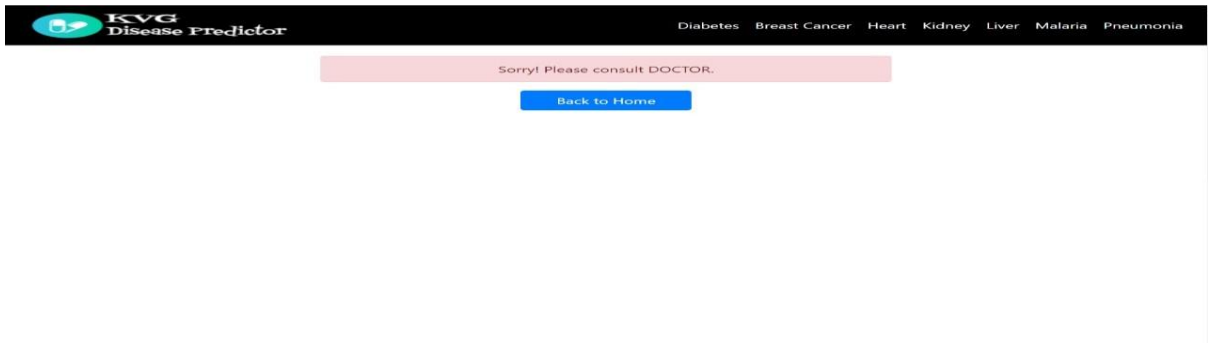
Implementation includes all those activities that take place to convert from the old system to the new system. The old system consists of manual operations, which are operated in a very difficult manner from the proposed system. Proper

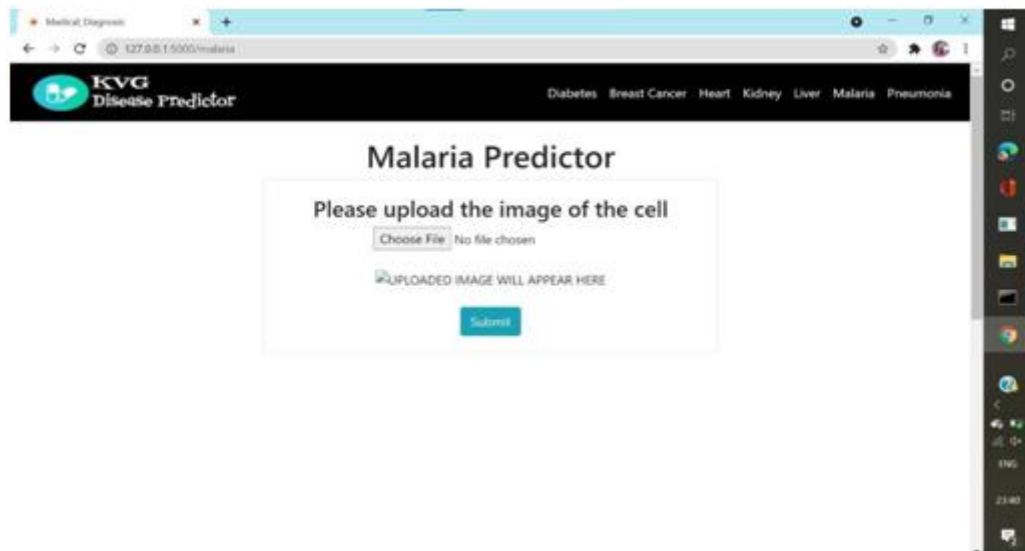
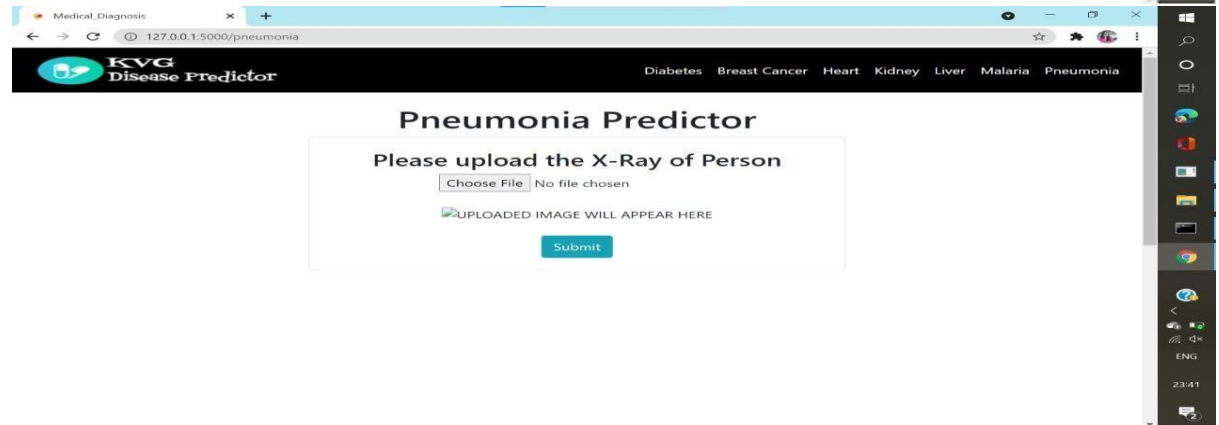
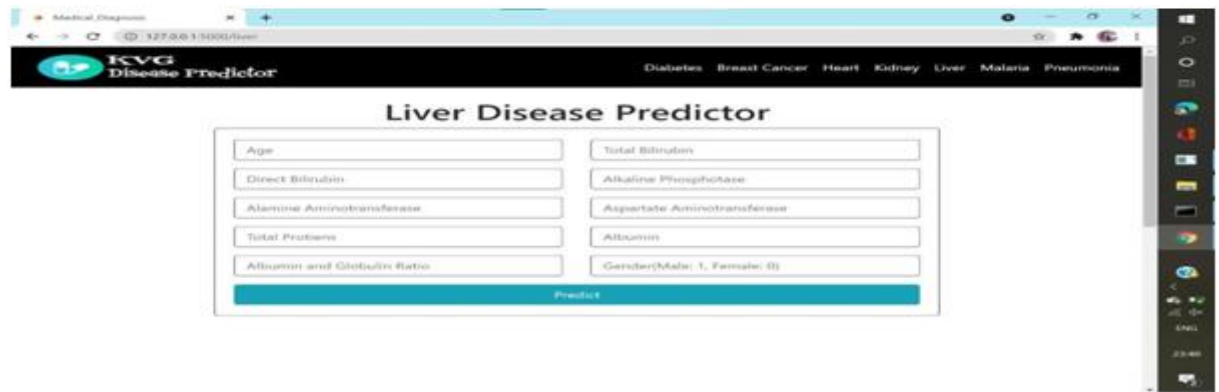
implementation is essential to provide a reliable system to meet the requirements of the organization.

### 3. Result Analysis

The Hardware Requirements used in this paper are PC/Laptop, and RAM (minimum of 4GB). The Software Requirements used in this paper are Python Language, Jupyter Notebook (IDE) and the libraries used are Pandas, NumPy, learn, and matplotlib.







## 4. Conclusion and Future Scope

### 4.1 Conclusion

- 1) Disease diagnosis helps the patient to the immediate knowledge of which disease they may suffer with.
- 2) This helps save time by going to the preferred doctor with a given warning.
- 3) We hope our current project helps people in general with their well-being.
- 4) It is much more useful for old-age people. Through this website, they can diagnose their disease easily.

### 4.2 Future Scope

- 1) Health care is the only sector that frequently deals with emergencies.
- 2) Here, technological advancements come in handy for health purposes.
- 3) Improved services for both indoor and outdoor patients are a back bone of the health care-related business
- 4) The modern approach to health care is to prevent the disease with early intervention rather than go for treatment after diagnosis.
- 5) Traditionally, physicians or doctors use a risk calculator to assess the possibility of disease development.

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