EARLY PREDICTION FOR CHRONIC KIDNEY DISEASE DETECTION: A PROGRESSIVE APPROACH TO HEALTH MANAGEMENT

…….– *PROJECT BASED EXPERIENTIAL LEARNING PROGRAM*

PROJECT REPORT TEMPLATE

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1 INTRODUCTION

1.1 OVERVIEW

Chronic Kidney Disease (CKD) is a major medical problem and can be cured if treated in the early stages. Usually, people are not aware that medical tests we take for different purposes could contain valuable information concerning kidney diseases. Consequently, attributes of various medical tests are investigated to distinguish which attributes may contain helpful information about the disease. The information says that it helps us to measure the severity of the problem, the predicted survival of the patient after the illness, the pattern of the disease and work for curing the disease.

In todays, world as we know most of the people are facing so many disease and as this can be cured if we treat people in early stages this project can use a pretrained model to predict the Chronic Kidney Disease which can help in treatments of peoples who are suffer from this disease.

1.2 PURPOSE

Disease Prediction using Machine Learning is the system that is used to predict the diseases from the symptoms which are given by the patients or any user. The system processes the symptoms provided by the user as input and gives the

output as the probability of the disease. The aim of the study was to predict chronic

kidney disease using machine-learning techniques. Three machine learning algorithms; Random Forest, Support Vector Machine and Decision Tree have been used in this study. The main objective is to predict the diseases from the given symptoms create and monitors a health profile of every individual patient.

2 PROBLEM DEFINITION AND DESIGN THINKING

2.1 EMPATHY MAP

An empathy map is a square divided into four quadrants with the user or client in the middle. Each of the four quadrants comprises a category that helps us delve into the mind of the user. The four empathy map quadrants look at what the user says, thinks, feels, and does.

Template

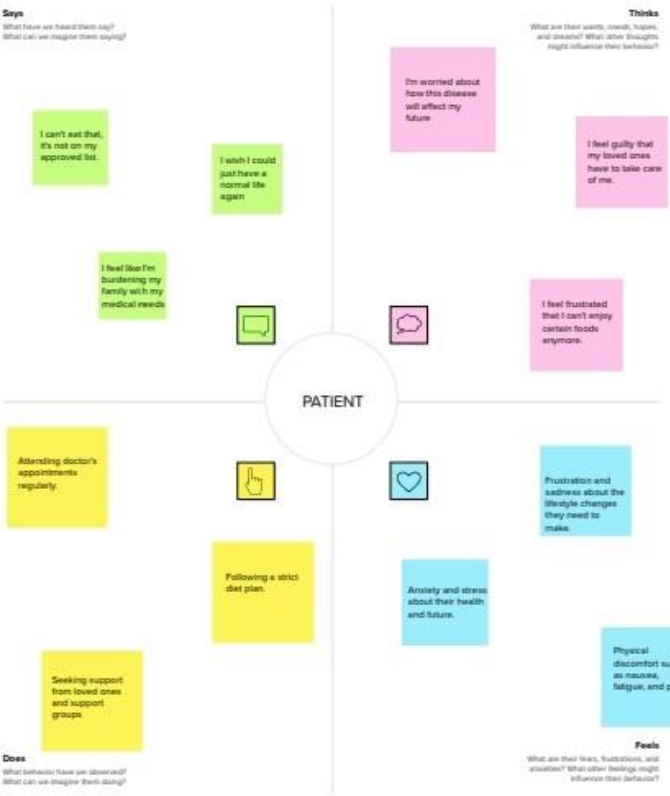
Empathy map

Use this framework to develop a deep, shared understanding and empathy for other people. An empathy map helps describe the aspects of a user's experience, needs and pain points, to quickly understand your users' experience and mindset.

Share template feedback

Build empathy

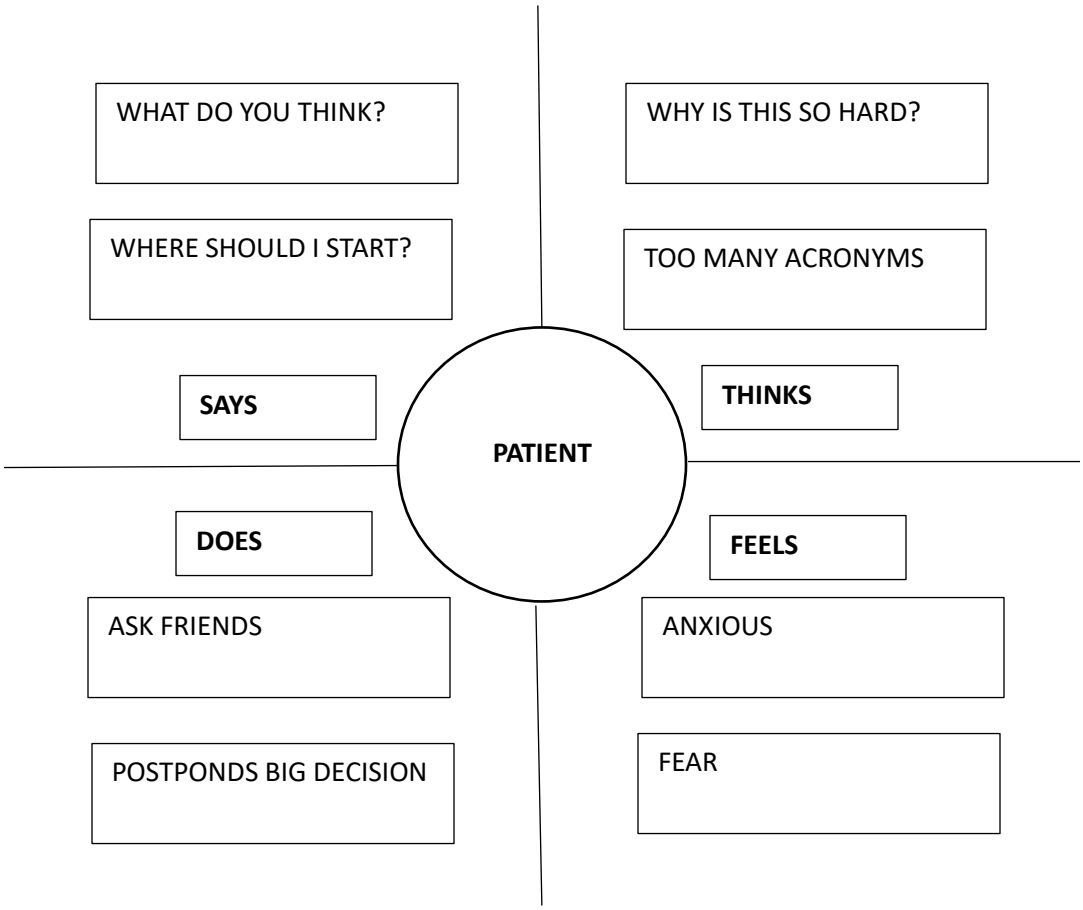
The information you add here should be representative of the observations and research you've done about your users.



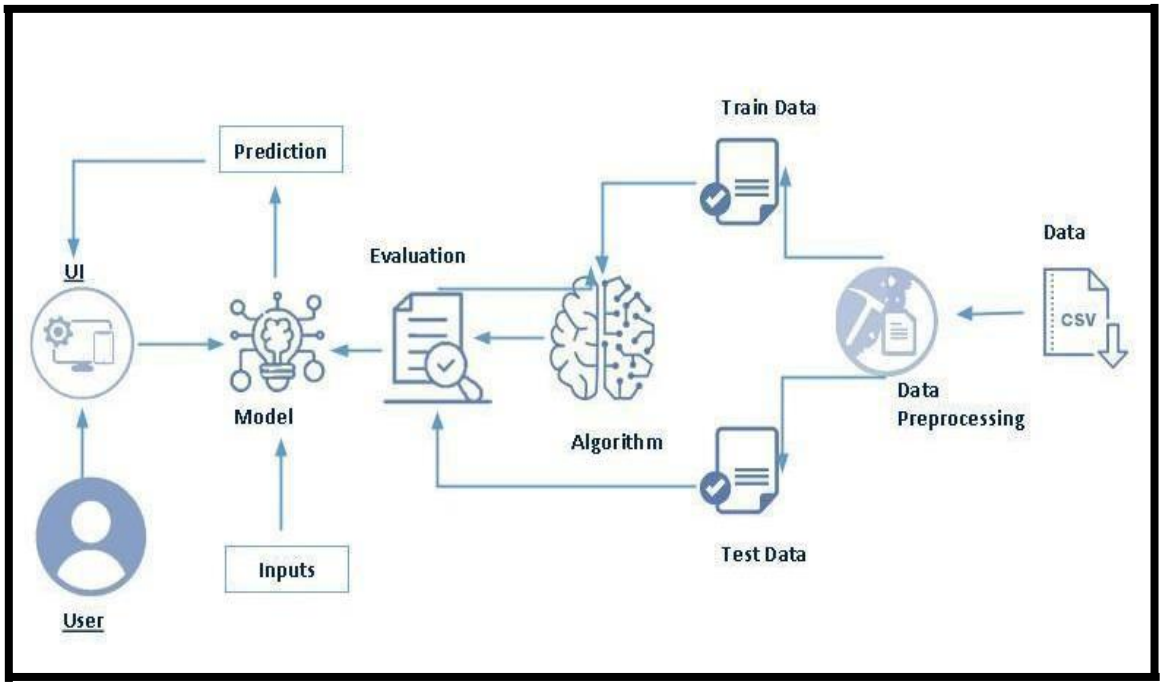
Need some inspiration?

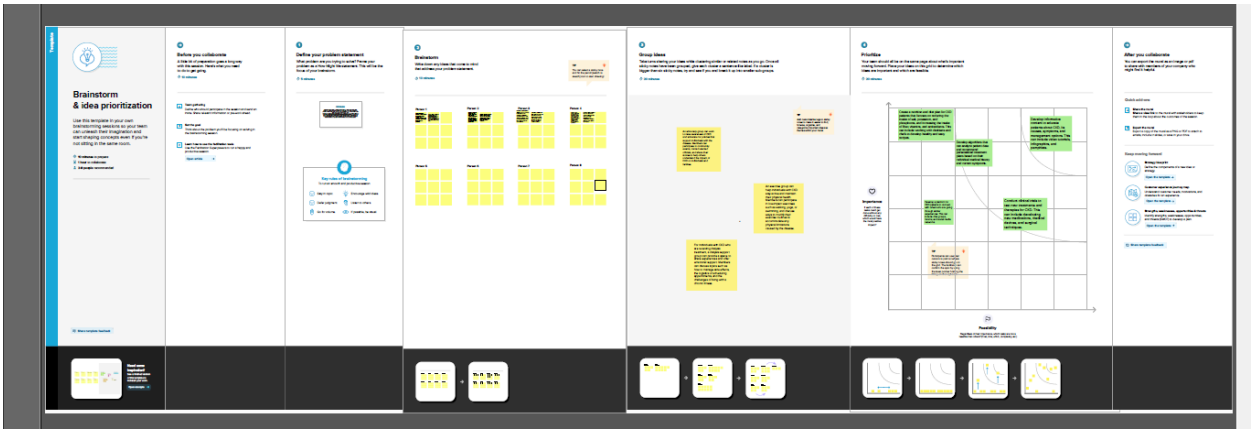
See a finished version of this template to kickstart your work.

Open example


WHAT DO YOU THINK?
WHY IS THIS SO HARD?
WHERE SHOULD I START?
TOO MANY ACRONYMS
SAYS
THINKS
PATIENT
DOES
FEELS
ASK FRIENDS
ANXIOUS
POSTPONDS BIG DECISION
FEAR

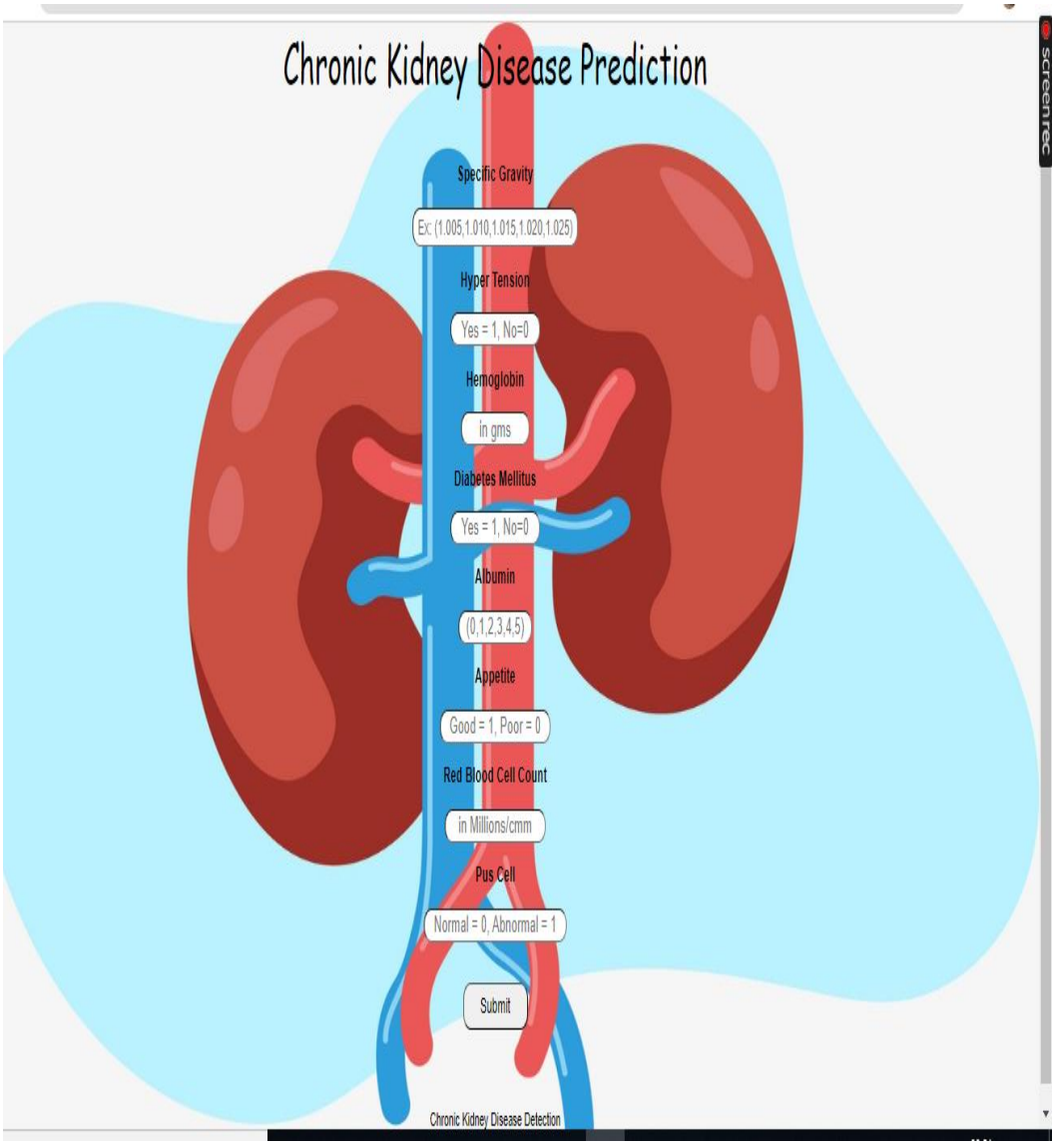
2.2 IDEATION MAP



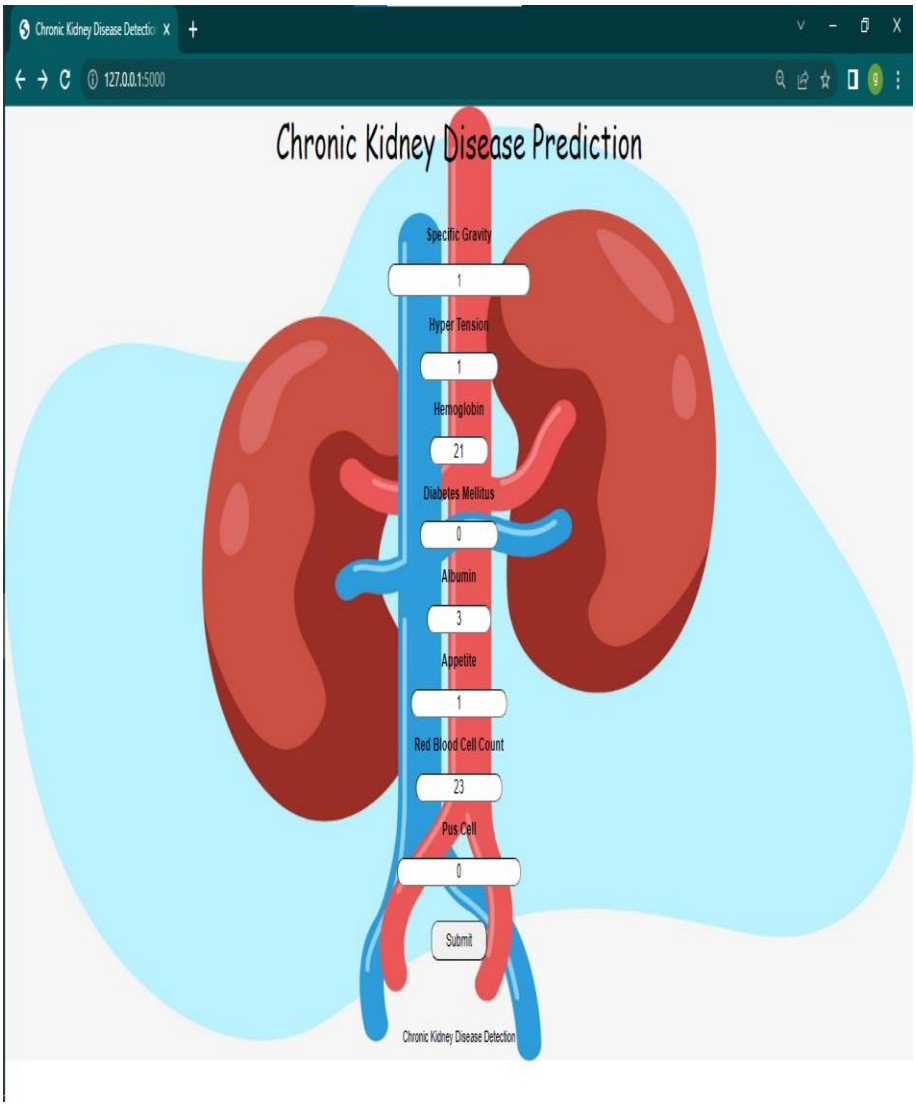


3 RESULT

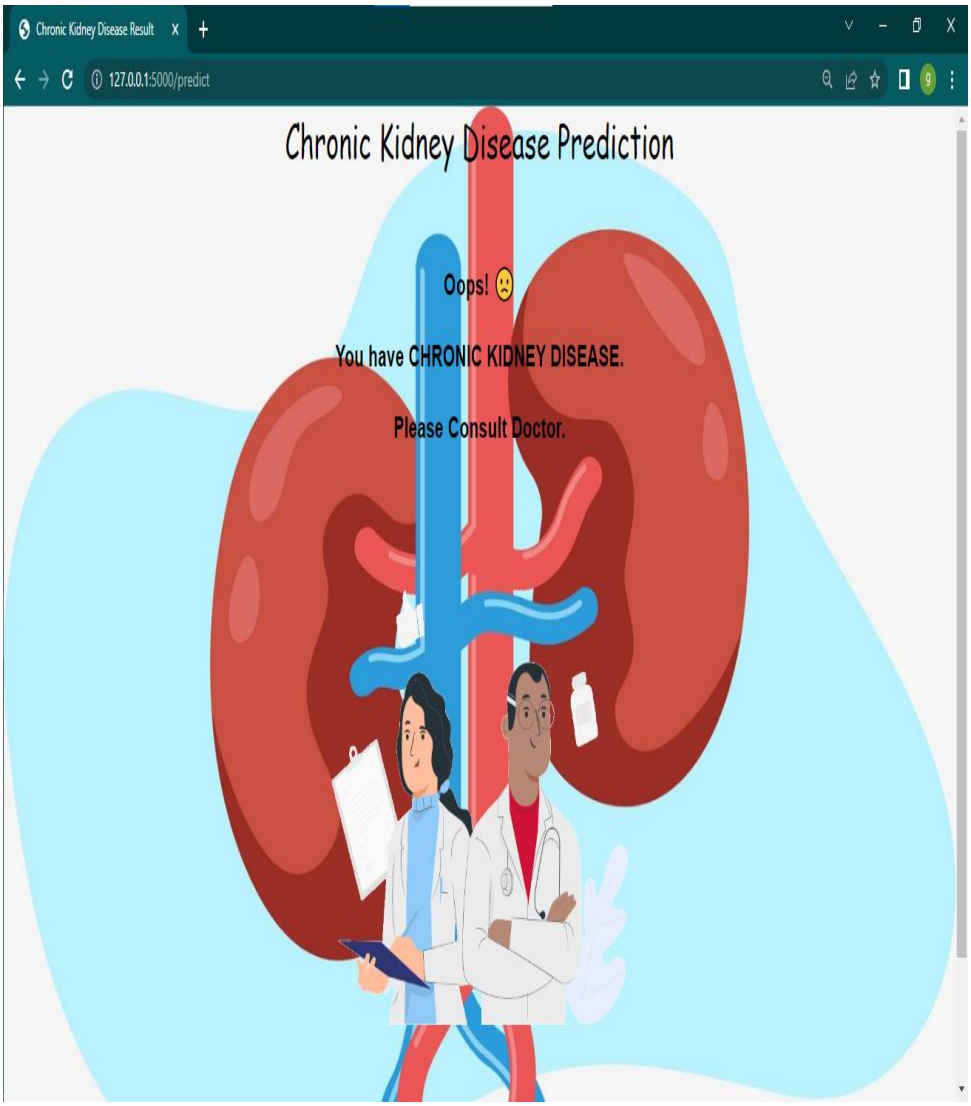
HOME PAGE



INPUT


Chronic Kidney Disease Detectio
127.0.0.1:5000
Chronic Kidney Disease Prediction
Specific Gravity
1
Hyper Tension
1
Hemoglobin
21
Diabetes Mellitus
0
Albumin
3
Appetite
1
Red Blood Cell Count
23
Pus Cell
0
Submit
Chronic Kidney Disease Detection

OUTPUT


Chronic Kidney Disease Result
127.0.0.1:5000/predict
Chronic Kidney Disease Prediction
Oops!
You have CHRONIC KIDNEY DISEASE.
Please Consult Doctor.

4 ADVANTAGES AND DISADVANTAGES

4.1 ADVANTAGES

- This is used to predict the kidney disease of a patient on the basis of dataset available.
- The system processes the symptoms provided by the user as input and gives the output as the probability of the disease.
- It will also recommend necessary precautionary measures required to treat the predicted disease.
- It saves time and money.
- Using predictive analytics in healthcare can improve the quality of healthcare, collect more clinical data for personalized treatment, and successfully diagnose the medical condition of individual patient.
- This could help to improve patient care and the safety and effectiveness of medical procedures.

4.2 DISADVANTAGES

- It will cause delays in providing the output. So, machine learning significantly depends on the data and its quality.
- The data that machines process remains huge in quantity and differs greatly.
- It requires massive and expensive resources and high-quality expertise to set up that quality of infrastructure. Trials runs are costly as they would cost in terms of time and expenses.
- It will have some degree of inaccuracy. For a high degree of accuracy, algorithms should be developed so that they give reliable results.

5 APPLICATIONS

5.1 APPLICATIONS

- Machine learning algorithm can be used in medical imaging (such as X-rays or MRI scans) using pattern recognition to look for patterns that indicate a particular disease. This could potentially help doctors make quicker, more accurate diagnoses.
- Can be used in health monitoring system.
- No need of expensive devices.
- Patients who are not willing to take test, can use this system.
- Can be used in daily checkup.

6 CONCLUSION

6.1 CONCLUSION

With the passage of time, diseases of the kidney are becoming increasingly widespread. These are solely going to get worse in the future, thanks to ongoing technological improvements. Despite the truth that people are becoming more health-conscious and enrolling in yoga and dancing classes, the sedentary lifestyle and facilities that are continuously being delivered and improved will proceed to be an issue. As a result, in this situation, our project will be rather recommended to society.

7 FUTURE SCOPE

7.1 FUTURE SCOPE

A future selection-based machine learning algorithm is proposed to predict three chronic diseases, namely, diabetes, heart attack, and cancer. Machine learning techniques, such as natural language processing (NLP) and image processing, help streamline data collection and convert data into a standard format. This can lead to enhancement in identifying clinical patterns and assist with better predictions. Machine learning with Quantum can improve the analysis of data and get more profound insights.

8 APPENDIX

8.1 SOURCE CODE

```
from flask import Flask, render_template, request
import numpy as np
import pickle

app = Flask(__name__)
model = pickle.load(open('Kidney.pkl', 'rb'))

@app.route('/',methods=['GET'])
def Home():
    return render_template('index.html')

@app.route("/predict", methods=['POST'])
def predict():
    if request.method == 'POST':
        sg = float(request.form['sg'])
        htn = float(request.form['htn'])
```

```
hemo = float(request.form['hemo'])
        dm = float(request.form['dm'])
        al = float(request.form['al'])
        appet = float(request.form['appet'])
        rc = float(request.form['rc'])
        pc = float(request.form['pc'])

        values = np.array([[sg, htn, hemo, dm, al, appet, rc, pc]])
        prediction = model.predict(values)

        return render_template('result.html', prediction=prediction)


if __name__ == "__main__":
    app.run(debug=True)
```

THE END….

THANK YOU…