

NEIL GOGTE INSTITUTE OF TECHNOLOGY

A Unit of Keshav Memorial Technical Education (KMTES) Approved by AICTE, New Delhi & Affiliated to Osmania University, Hyderabad

A

MINI PROJECT REPORT

ON

DISEASE PROGNOSIS USING RANDOM FOREST

For the award of Degree of

BACHELOR OF ENGINEERING

IN

CSE (AI ML)

Submitted By

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Under the guidance of

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CERTIFICATE

This is to certify that the Mini project work entitled "DISEASE PROGNOSIS USING RANDOM FOREST" is a bonafide work carried out by D. RAHUL(245321748022) of III-year V semester Bachelor of Engineering in CSE(AIML) by Osmania University, Hyderabad during the academic year 2023-2024 is a record of bonafide work carried out by them. The results embodied in this report have not been submitted to any other University or Institution for the award of any degree

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DECLARATION

I hereby declare that the Mini Project Report entitled, "DIESEASE PROGNOSIS USING Random Forest" submitted for the B.E degree is entirely my work and all ideas and references have been duly acknowledged. It does not contain any work for the award of any other degree.

Date:

D. RAHUL

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ABSTRACT

Technological Landscape: In the contemporary landscape dominated by Machine Learning and Deep Learning, there exists a critical need to bridge the gap between theoretical knowledge and its practical application, especially in fields crucial to human welfare.

Purpose of the Project: This project is conceived with the explicit goal of channeling the burgeoning expertise in machine learning towards the realm of Medical Science. The overarching objective is to simplify the complexities of medical diagnosis by providing a dataset designed for predictive analysis.

Dataset Overview: A dataset comprising 132 parameters has been meticulously curated, presenting a unique opportunity for practitioners to harness their existing knowledge in machine learning. The dataset enables the prediction of 42 distinct diseases, covering a diverse range of medical conditions.

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CHAPTER – 1 INTRODUCTION

1.1 PROBLEM STATEMENT

Accurate diagnosis of diseases based on symptoms can be challenging due to the complexity and variability of human health conditions. Traditional diagnostic methods may rely on subjective interpretation or limited medical knowledge, leading to misdiagnosis or delayed treatment.

1.2 MOTIVATION

The motivation behind this project lies in the potential to revolutionize disease prognosis by leveraging machine learning techniques. By developing a model capable of accurately predicting diseases based on symptoms, we aim to enhance healthcare delivery, improve patient outcomes, and optimize resource allocation in the medical field.

1.3 SCOPE

This project focuses on developing a machine learning-based system for health prognosis using symptoms provided by the user. The scope encompasses a wide range of diseases, with a primary focus on common ailments such as respiratory infections, gastrointestinal disorders, and cardiovascular diseases. The system will consider a variety of symptoms, including but not limited to fever, cough, chest pain, nausea, and fatigue. However, it is important to note that the system's performance may vary depending on the complexity and specificity of the disease.

1.4 OUTLINE

The VGG16 CNN model classifies the dataset into three parts, i.e., training dataset, testing dataset and lastly, validation dataset. The model learns from the training dataset and then using the validation dataset, inputs are validated. I used "Streamlit" to create web application that is flexible to use 200MB sized images as its input.

CHAPTER - 2

LITERATURE SURVEY

EXISTING SYSTEM:

In the domain of health prognosis using machine learning (ML), prior research has emphasized the importance of feature extraction or classification from symptom data to improve diagnostic accuracy. The effectiveness of these systems is heavily dependent on the quality and relevance of the features extracted from the input symptoms. Within the medical domain, researchers have explored various methodologies to differentiate between different health conditions based on symptom patterns. For example, a study introduced a novel feature selection approach leveraging statistical methods and domain knowledge to identify key symptoms associated with specific diseases. These features were then integrated into machine learning models such as random forests and decision trees, achieving notable success in accurately predicting disease prognosis from symptom data.

PROPOSED SYSTEM:

The proposed system employs a Random Forest algorithm, a popular machine learning ensemble method, for health prognosis based on user-provided symptoms. Unlike traditional machine learning algorithms, Random Forest requires minimal preprocessing of symptom data and can effectively handle both numerical and categorical features. The algorithm operates by constructing multiple decision trees during training and combining their predictions through voting to determine the final prognosis. This ensemble approach enhances the robustness and generalization of the model, making it suitable for handling diverse symptom patterns and predicting various health conditions. The proposed system aims to leverage Random Forest for disease prognosis by utilizing symptom data provided by users. By analyzing the symptom profiles and learning from historical datasets, the Random Forest model can effectively identify patterns and associations indicative of different diseases. Through rigorous training and validation procedures, the model is expected to achieve high accuracy and reliability in predicting disease prognosis based on user symptoms.

CHAPTER - 3

SOFTWARE REQUIREMENTS SPECIFICATION

3.1 Overall Description:

This SRS is an overview of the whole project scenario. This document is to present a detailed description of the course management system. It will explain the purpose and features of the system, the interfaces of the system will do, the constraints under which it must operate and how the system will react to external stimuli. This document is intended for both stakeholders and developers of the system.

3.2. Operating Environment:

Software Requirements:

Operating System : Windows 7 (Min)

Front End : Html, CSS, JS

Back End : Nodejs ,Express

Database : Microsoft Excel

Hardware Requirements:

Processor : Intel Pentium® Dual Core Processor (Min)

Speed : 2.9 GHz (Min)

RAM : 2 GB (Min) Hard Disk : 2 GB (Min)

3.3 Functional Requirements:

User Functionality:

- The user will be able to select symptoms regarding the disease he/she wants to find
- The user will be able to insert symptoms of 132 types.
- The user can see information regarding the disease he/she will also be provided with disease's Wikipedia.

Admin Functionality:

- The admin manages the website.
- The admin can increase database size.
- The admin can make changes to the website such as modifying the UI and making it more interactive than earlier.
- The admin can implement a better algorithm if at all a better algorithm is created in future.

3.4 Non-Functional Requirements:

3.4.1 Performance Requirements:

Performance requirements refer to static numerical requirements placed on the interaction betIen the users and the software.

Response Time:

Average response time shall be less than 5 sec.

Recovery Time:

In case of system failure, the redundant system shall resume operations within 30 secs. Average repair time shall be less than 45 minutes.

Start-Up/Shutdown Time:

The system shall be operational within 1 minute of starting up.

Capacity:

The system accommodates 1000 Concurrent Users.

Utilization of Resources:

The system shall store in the database no more than 450 different species with room for improvement.

3.4.2 Safety Requirements:

-NA-

3.4.3 **Security Requirements:**

The model will be running on a secure website i.e., an HTTPS website and on a secure browser such as Google Chrome, Brave, etc.

3.4.4 Software Quality Attributes:

Reliability:

The system shall be reliable i.e., in case the webpage crashes, progress will be saved.

Availability:

The website will be available to all its users round the clock i.e., they can access the website at any time.

Security:

The model will be running on a secure website i.e., an HTTPS website and on a secure browser such as Google Chrome, Brave, etc.

Maintainability:

The model shall be designed in such a way that it will be very easy to maintain it in future. Our model is a neural network model and a web-based system and will depend much on the web server and on the neural networks. However, the web application will be designed using Streamlit which is based on neural network approach and proper database modeling along with extensive documentation which will make it easy to develop, troubleshoot and maintain in future.

Usability:

The interfaces of the system will be user friendly enough that every user will be able to use it easily.

Scalability:

The system will be designed in such a way that it will be extendable. If more species or algorithms are going to be added in the system, then it would easily be done.

The same system can also be developed to become a mobile application rather than just a website.

CHAPTER-4

SYSTEM DESIGN

Use case Diagrams:

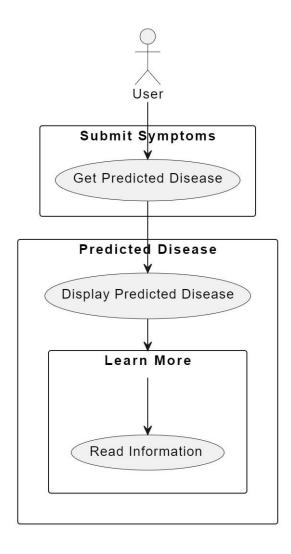


Fig 4.1: Use case diagram for User

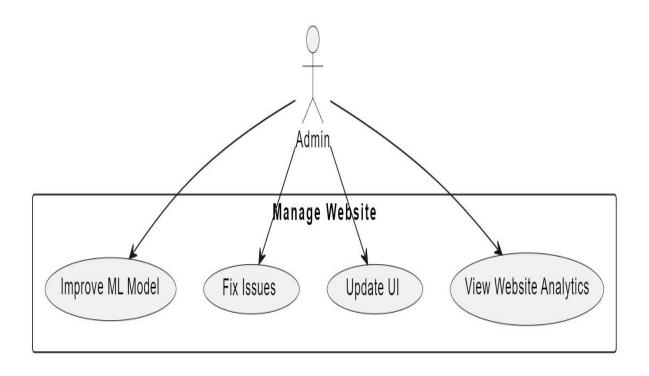


Fig 4.2: Use case diagram for Admin

Class Diagram:

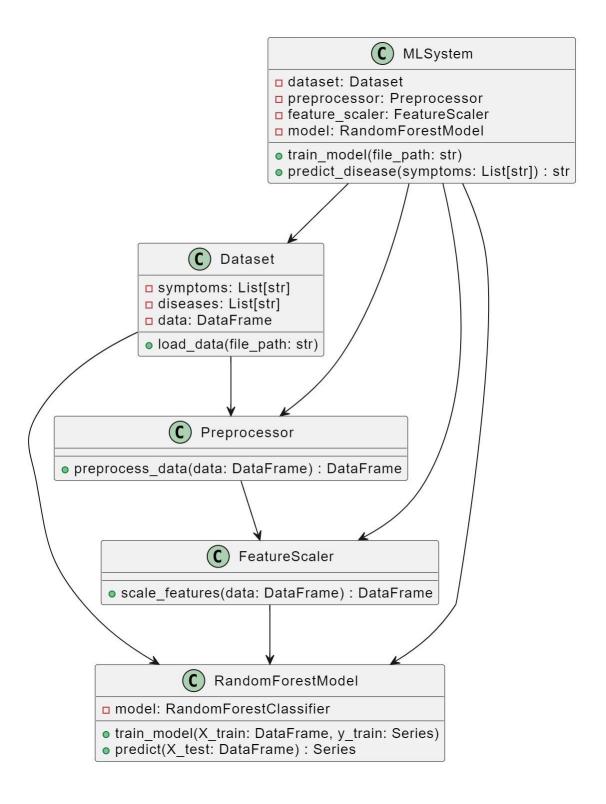


Fig.4.3: Class diagram for Model Training.

Sequence Diagram:

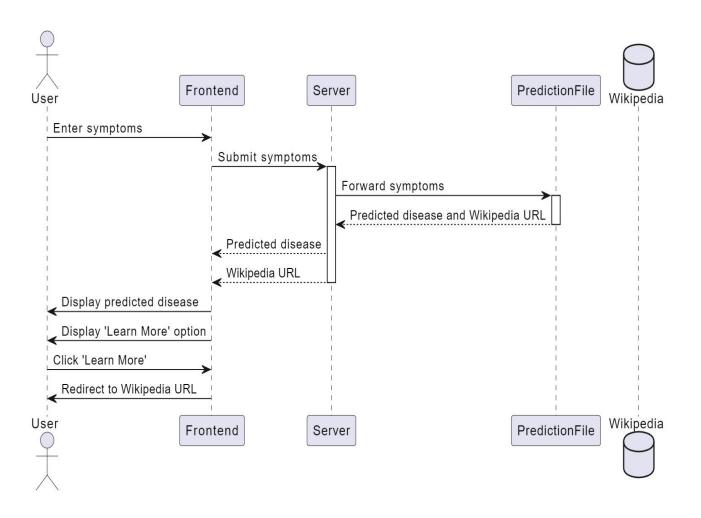


Fig4.3: Sequence Diagam for Disease Prediction.

CHAPTER - 5

IMPLEMENTATION

5.1 SAMPLE CODE

Model Training Code :-

```
import pandas as pd
import numpy as np
df = pd.read_csv('Training.csv')
df.info(verbose=True)
df
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4920 entries, 0 to 4919
Data columns (total 134 columns):
# Column
                          Dtype
0
   itching
                         int64
                          int64
1
    skin rash
    nodal_skin_eruptions
                               int64
    continuous_sneezing
                               int64
4
                          int64
    shivering
5
    chills
                        int64
                          int64
   joint_pain
    stomach_pain
                            int64
    acidity
                         int64
   ulcers_on_tongue
                              int64
10 muscle_wasting
                              int64
11 vomiting
                           int64
                               int64
12 burning_micturition
13 spotting_urination
                              int64
14 fatigue
                         int64
15 weight_gain
                            int64
16 anxiety
                          int64
17 cold_hands_and_feets
                                int64
18 mood swings
                              int64
19 weight_loss
                            int64
20 restlessness
                           int64
21 lethargy
                          int64
22 patches_in_throat
                              int64
23 irregular_sugar_level
                               int64
                          int64
24 cough
25 high_fever
                           int64
26 sunken eyes
                            int64
27 breathlessness
                            int64
28 sweating
                           int64
29 dehydration
                           int64
30 indigestion
                           int64
31 headache
                           int64
32 yellowish_skin
                             int64
33 dark_urine
                           int64
                          int64
34 nausea
35 loss_of_appetite
                             int64
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36 pain_behind_the_eyes			
37 back_pain int64 38 constipation int64 39 abdominal_pain int64 40 diarrhoea int64 41 mild_fever int64 42 yellow_urine int64 43 yellowing_of_eyes int64 44 acute_liver_failure int64 45 fluid_overload int64 46 swelling_of_stomach int64 47 swelled_lymph_nodes int64 48 malaise int64 49 blurred_and_distorted_vision int64 50 phlegm int64 51 throat_irritation int64 52 redness_of_eyes int64 53 sinus_pressure int64 54 runny_nose int64 55 congestion int64 56 chest_pain int64 57 weakness_in_limbs int64 58 fast_heart_rate int64 59 pain_during_bowel_movements int64 60 pain_in_anal_region int64 61 bloody_stool int64 62 irritation_in_anus int64 63 neck_pain int64 64 dizziness int64 65 cramps int64 66 bruising int64 67 obesity int64 68 swollen_legs int64 69 swollen_legs int64 70 puffy_face_and_eyes int64 71 enlarged_thyroid int64 72 brittle_nails int64 73 swollen_extremeties int64 74 excessive_hunger int64 75 extra_marital_contacts int64 76 drying_and_tingling_lips int64 77 slurred_speech int64 78 knee_pain int64 79 hip_joint_pain int64 80 muscle_weakness int64 81 stiff_neck int64 82 swelling_joints int64 83 movement_stiffness int64 84 spinning_movements int64 85 loss_of_balance int64 86 unsteadiness int64 87 weakness_of_one_body_side int64 88 loss_of_smell int64 89 bladder_discomfort int64 80 int64 81 stiff_neck int64 82 int64 83 intenal_itching int64 84 passage_of_gases int64 85 loss_of_balance int64 86 int64 87 weakness_of_one_body_side int64 88 intenal_itching int64 89 int64 90 int64 91 continuous_feel_of_urine int64 91 continuous_feel_of_urine int64 92 passage_of_gases int64 93 intenal_itching int64 94 toxic_look_(typhos) int64 95 depression int64	36	pain_behind_the_eyes	int64
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96 irritability int64			
	96	irritability	int64

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97 muscle_pain
                             int64
98 altered_sensorium
                               int64
99 red_spots_over_body
                                 int64
100 belly_pain
                            int64
                                  int64
101 abnormal_menstruation
102 dischromic _patches
                                int64
103 watering_from_eyes
                                 int64
104 increased_appetite
                               int64
105 polyuria
                           int64
106 family_history
                              int64
107 mucoid_sputum
                                int64
108 rusty_sputum
                              int64
109 lack_of_concentration
                                 int64
110 visual_disturbances
                                int64
111 receiving_blood_transfusion
112 receiving_unsterile_injections int64
113 coma
                           int64
114 stomach_bleeding
                                int64
115 distention_of_abdomen
                                  int64
116 history_of_alcohol_consumption int64
117 fluid_overload.1
                              int64
118 blood_in_sputum
                                int64
119 prominent_veins_on_calf
                                   int64
120 palpitations
                            int64
121 painful_walking
                               int64
122 pus_filled_pimples
                                int64
123 blackheads
                             int64
124 scurring
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                             int64
125 skin_peeling
126 silver_like_dusting
                               int64
127 small_dents_in_nails
                                int64
128 inflammatory_nails
                                int64
129 blister
                          int64
130 red_sore_around_nose
                                  int64
131 yellow_crust_ooze
                                int64
132 prognosis
                            object
133 Unnamed: 133
                               float64
dtypes: float64(1), int64(132), object(1)
memory usage: 5.0+ MB
   itching skin_rash nodal_skin_eruptions continuous_sneezing
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4915 (vertigo) Paroymsal Positional Vertigo NaN 4916 Acne NaN 4917 Urinary tract infection NaN 4918 Psoriasis NaN 4919 Impetigo NaN	
[4920 rows x 134 columns]	

print(df.columns.tolist())

['itching', 'skin_rash', 'nodal_skin_eruptions', 'continuous_sneezing', 'shivering', 'chills', 'joint_pain', 'stomach_pain', 'acidity', 'ulcers_on_tongue', 'muscle_wasting', 'vomiting', 'burning_micturition', 'spotting_ urination', 'fatigue', 'weight_gain', 'anxiety', 'cold_hands_and_feets', 'mood_swings', 'weight_loss', 'restlessness', 'lethargy', 'patches_in_throat', 'irregular_sugar_level', 'cough', 'high_fever', 'sunken_eyes', 'breathlessness', 'sweating', 'dehydration', 'indigestion', 'headache', 'yellowish_skin', 'dark_urine', 'nausea', 'loss_of_appetite', 'pain_behind_the_eyes', 'back_pain', 'constipation', 'abdominal_pain', 'diarrhoea', 'mild_fever', 'yellow_urine', 'yellowing_of_eyes', 'acute_liver_failure', 'fluid_overload', 'swelling_of_stomach', 'swelled_lymph_nodes', 'malaise',

'blurred_and_distorted_vision', 'phlegm', 'throat_irritation', 'redness_of_eyes', 'sinus_pressure', 'runny nose', 'congestion', 'chest pain', 'weakness in limbs', 'fast heart rate', 'pain during bowel movements', 'pain in anal region', 'bloody stool', 'irritation in anus', 'neck pain', 'dizziness', 'cramps', 'bruising', 'obesity', 'swollen legs', 'swollen blood vessels', 'puffy face and eyes', 'enlarged_thyroid', 'brittle_nails', 'swollen_extremeties', 'excessive_hunger', 'extra_marital_contacts', 'drying_and_tingling_lips', 'slurred_speech', 'knee_pain', 'hip_joint_pain', 'muscle_weakness', 'stiff_neck', 'swelling_joints', 'movement_stiffness', 'spinning movements', 'loss of balance'. 'unsteadiness', 'weakness_of_one_body_side', 'loss_of_smell', 'bladder_discomfort', 'foul_smell_of urine', 'continuous feel of urine', 'passage of gases', 'internal itching', 'toxic look (typhos)', 'depression', 'irritability', 'muscle pain', 'altered sensorium', 'red spots over body', 'belly pain', 'abnormal menstruation', 'dischromic patches', 'watering from eyes', 'increased appetite', 'polyuria', 'family_history', 'mucoid_sputum', 'rusty_sputum', 'lack_of_concentration', 'visual_disturbances', 'receiving blood_transfusion', 'receiving_unsterile_injections', 'coma', 'stomach_bleeding', 'distention of abdomen', 'history of alcohol consumption', 'fluid overload.1', 'blood in sputum', 'prominent veins on calf', 'palpitations', 'painful walking', 'pus filled pimples', 'blackheads', 'scurring', 'skin peeling', 'silver like dusting', 'small dents in nails', 'inflammatory nails', 'blister', 'red sore around nose', 'yellow crust ooze', 'prognosis', 'Unnamed: 133']

df.drop('Unnamed: 133',axis=1,inplace=True)

df.info(verbose=True, show_counts=True)

<class 'pandas.core.frame.DataFrame'> RangeIndex: 4920 entries, 0 to 4919 Data columns (total 133 columns):

Dau	Data Columns (total 133 Columns):			
#	Column	Non-Null Count Dtype		
0	itching	4920 non-null int64		
1	skin_rash	4920 non-null int64		
2	nodal_skin_eruptions	4920 non-null int64		
3	continuous_sneezing	4920 non-null int64		
4	shivering	4920 non-null int64		
5	chills	4920 non-null int64		
6	joint_pain	4920 non-null int64		
7	stomach_pain	4920 non-null int64		
8	acidity	4920 non-null int64		
9	ulcers_on_tongue	4920 non-null int64		
	muscle_wasting	4920 non-null int64		
11	vomiting	4920 non-null int64		
12	burning_micturition	4920 non-null int64		
13	spotting_ urination	4920 non-null int64		
14	0	4920 non-null int64		
15	0 =0	4920 non-null int64		
16	9	4920 non-null int64		
17	cold_hands_and_fee			
18		4920 non-null int64		
19	weight_loss	4920 non-null int64		
20	restlessness	4920 non-null int64		

21 lethargy 4920 non-null int64 4920 non-nul		
23 irregular_sugar_level 4920 non-null int64 4920 non-null		
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                            4920 non-null int64
83
   movement_stiffness
                               4920 non-null int64
    spinning_movements
                                4920 non-null int64
85
                             4920 non-null int64
   loss_of_balance
                            4920 non-null int64
   unsteadiness
87
    weakness_of_one_body_side
                                   4920 non-null int64
88 loss_of_smell
                            4920 non-null int64
89
   bladder_discomfort
                              4920 non-null int64
90
   foul_smell_of urine
                              4920 non-null int64
91
    continuous_feel_of_urine
                                 4920 non-null int64
92
    passage_of_gases
                              4920 non-null int64
93
    internal_itching
                            4920 non-null int64
94
   toxic_look_(typhos)
                              4920 non-null int64
95 depression
                           4920 non-null int64
96 irritability
                         4920 non-null int64
97 muscle_pain
                            4920 non-null int64
98 altered_sensorium
                              4920 non-null int64
99 red_spots_over_body
                                4920 non-null int64
100 belly_pain
                           4920 non-null int64
101 abnormal_menstruation
                                 4920 non-null int64
102 dischromic _patches
                               4920 non-null int64
103 watering_from_eyes
                                4920 non-null int64
104 increased_appetite
                              4920 non-null int64
105 polyuria
                           4920 non-null int64
106 family_history
                             4920 non-null int64
107 mucoid_sputum
                               4920 non-null int64
108 rusty_sputum
                             4920 non-null int64
109 lack_of_concentration
                                4920 non-null int64
110 visual_disturbances
                              4920 non-null int64
111 receiving_blood_transfusion
                                  4920 non-null int64
112 receiving_unsterile_injections 4920 non-null int64
113 coma
                          4920 non-null int64
114 stomach_bleeding
                               4920 non-null int64
115 distention_of_abdomen
                                 4920 non-null int64
116 history_of_alcohol_consumption 4920 non-null int64
117 fluid_overload.1
                             4920 non-null int64
118 blood_in_sputum
                               4920 non-null int64
119 prominent_veins_on_calf
                                 4920 non-null int64
                           4920 non-null int64
120 palpitations
121 painful_walking
                              4920 non-null int64
122 pus_filled_pimples
                              4920 non-null int64
123 blackheads
                            4920 non-null int64
124 scurring
                          4920 non-null int64
125 skin_peeling
                            4920 non-null int64
126 silver_like_dusting
                              4920 non-null int64
127 small_dents_in_nails
                               4920 non-null int64
128 inflammatory_nails
                               4920 non-null int64
129 blister
                         4920 non-null int64
130 red_sore_around_nose
                                 4920 non-null int64
131 yellow_crust_ooze
                               4920 non-null int64
132 prognosis
                           4920 non-null object
dtypes: int64(132), object(1)
memory usage: 5.0+ MB
from sklearn.preprocessing import LabelEncoder
LE = LabelEncoder()
df['prognosis'] = LE.fit_transform(df['prognosis'])
df['prognosis']
```

0

1

15 15

```
2
     15
3
     15
     15
4915
       0
4916
       2
4917
       38
4918
       35
4919
       27
Name: prognosis, Length: 4920, dtype: int32
from sklearn.model_selection import train_test_split
X = df.iloc[:,:132]
y = df['prognosis']
from sklearn.preprocessing import StandardScaler
std = StandardScaler()
X = std.fit\_transform(X)
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, random_state=0)
print(y_train.info())
print(y_test.info())
<class 'pandas.core.series.Series'>
Int64Index: 3444 entries, 3972 to 2732
Series name: prognosis
Non-Null Count Dtype
3444 non-null int32
dtypes: int32(1)
memory usage: 40.4 KB
None
<class 'pandas.core.series.Series'>
Int64Index: 1476 entries, 1525 to 3275
Series name: prognosis
Non-Null Count Dtype
1476 non-null int32
dtypes: int32(1)
memory usage: 17.3 KB
None
from sklearn.ensemble import RandomForestClassifier
RFC = RandomForestClassifier()
RFC.fit(X_train,y_train)
RandomForestClassifier()
y_pred = RFC.predict(X_test)
y_pred
array([18, 40, 36, ..., 30, 39, 0])
from sklearn.metrics import accuracy_score
print(accuracy_score(y_test,y_pred)*100)
100.0
y_train_pred = RFC.predict(X_train)
```

print(accuracy_score(y_train,y_train_pred)*100)

from sklearn.model_selection import KFold from sklearn.model_selection import cross_val_score from sklearn.ensemble import RandomForestClassifier

model = RandomForestClassifier(n_estimators=100)

 $num_folds = 5$

kfold = KFold(n_splits=num_folds, shuffle=True, random_state=42)

results = cross_val_score(model, X, y, cv=kfold)

print("Cross-Validation Results:")

print("Accuracy: %.2f%%" % (results.mean() * 100))

print("Standard Deviation: %.2f%%" % (results.std() * 100))

Cross-Validation Results: Accuracy: 100.00%

Standard Deviation: 0.00%

from sklearn.metrics import classification_report cr = classification_report(y_test,y_pred)

print(cr)

F	recision	recall	f1-score	support
0	1.00	1.00	1.00	32
1	1.00	1.00	1.00	31
2	1.00	1.00	1.00	38
3	1.00	1.00	1.00	34
4	1.00	1.00	1.00	33
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	39
7	1.00	1.00	1.00	41
8	1.00	1.00	1.00	33
9	1.00	1.00	1.00	35
10	1.00	1.00	1.00	42
11	1.00	1.00	1.00	27
12	1.00	1.00	1.00	33
13	1.00	1.00	1.00	40
14	1.00	1.00	1.00	40
15	1.00	1.00	1.00	31
16	1.00	1.00	1.00	42
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	49
19	1.00	1.00	1.00	31
20	1.00	1.00	1.00	32
21	1.00	1.00	1.00	41
22	1.00	1.00	1.00	37
23	1.00	1.00	1.00	35
24	1.00	1.00	1.00	34
25	1.00	1.00	1.00	21
26	1.00	1.00	1.00	33
27	1.00	1.00	1.00	39
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	31
30	1.00	1.00	1.00	42

31 32 33 34	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	37 41 38 34
35	1.00	1.00	1.00	31
36	1.00	1.00	1.00	37
37	1.00	1.00	1.00	42
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	38
40	1.00	1.00	1.00	38

accuracy 1.00 1476 macro avg 1.00 1.00 1.00 1476 weighted avg 1.00 1.00 1.00 1476

CHAPTER – 6 TESTING

6.1 TEST CASES

Test Case ID:	1
Test Case Name:	Required Software Testing
Purpose:	To check whether the required Software is installed on the systems
Input:	Enter python command
Expected Result:	Should Display the version number for the python
Actual Result:	Displays python version
Failure	If the python environment is not installed, then the Deployment fails

Test Case to check whether the required Software is installed on the systems

Table 6.1.1 python Installation verification

Test Case to check Program Integration Testing

Test Case ID:	2
Test Case Name:	Programs Integration Testing
Purpose:	To ensure that all the modules work together
Input:	All the modules should be accessed.
Expected Result:	All the modules should be functioning properly.
Actual Result:	All the modules should be functioning properly.
Failure	If any module fails to function properly, the implementation fails.

Table 6.1.2 python Programs Integration Testing

Test Case to Collect Dataset and Load the Dataset

Test Case ID:	3
Test Case Name:	Collect Dataset and Load the Dataset
Purpose:	Check Dataset is collected, and the data is stored
Input:	Provide Dataset as input
Expected Result:	Dataset is collected and view the Dataset and store the Dataset
Actual Result:	Load the Dataset and view the Dataset and store
Failure	If the dataset is not loaded, it will throw an error.

Table 6.1.3 Collect Dataset and Load the Dataset

Test Case to check whether the species is recognized

Test Case ID:	4
Test Case Name:	Disease Prediction
Purpose:	Disease Prediction using RandomForestClassifier
Input:	Provide dataset and input the symptoms
Expected Result:	After Evaluation I get the Disease Predicted
Actual Result:	After Evaluation I get the Disease Predicted
Failure	If the data is not Evaluated, it does not show anything

Table 6.1.4 Disease Prediction

CHAPTER – 7 SCREENSHOTS

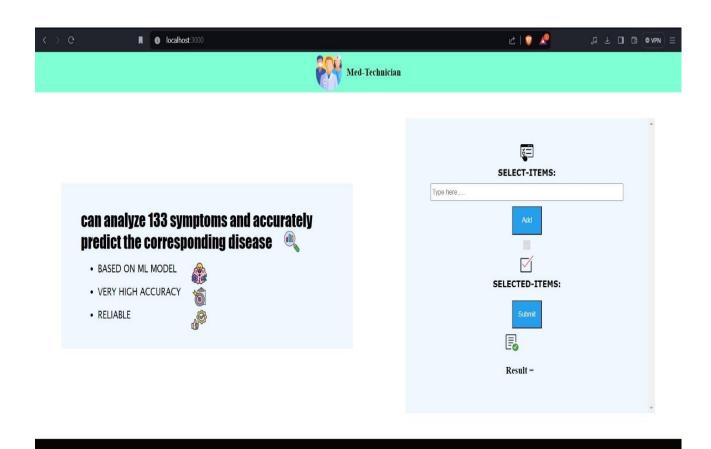


Figure 7.1: Frontend of website

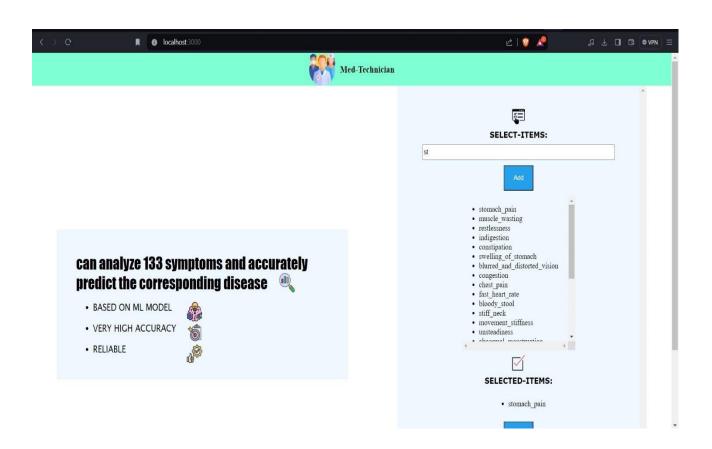


Figure 7.1: Selecting the symptoms

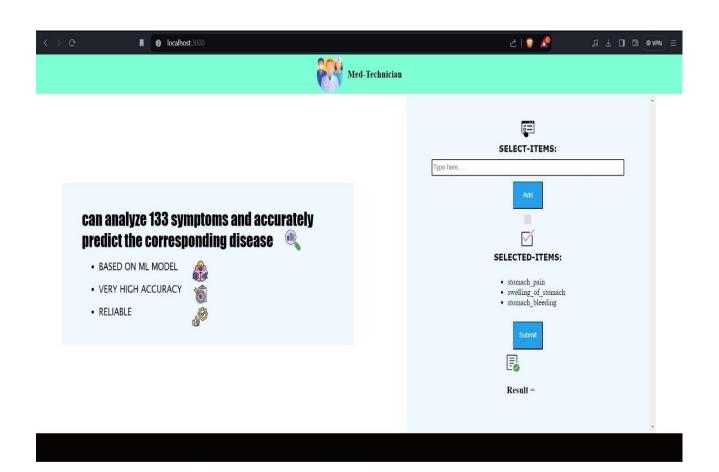


Figure 7.2: Submitting the symptoms

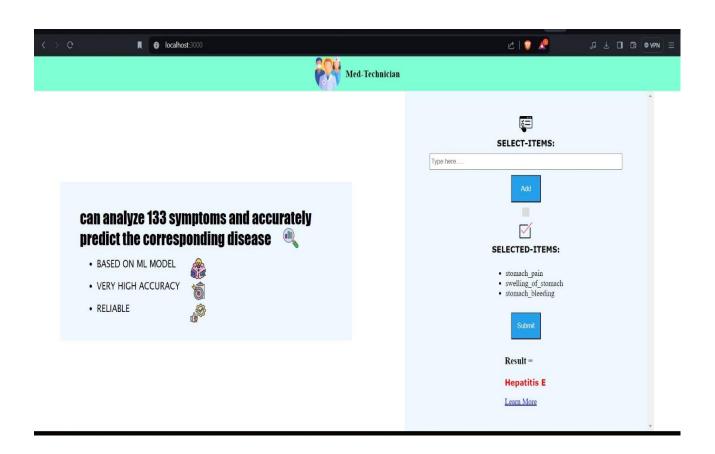


Figure 7.2: Getting the Predicted Disease and clicking on learn more

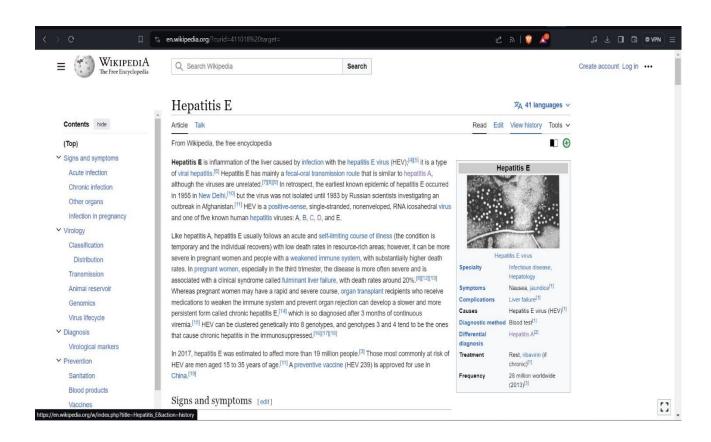


Figure 7.3: Redirecting to the Wikipedia page of that disease

CHAPTER - 8

CONCLUSION AND FUTURE SCOPE

The future of disease prognosis using the Random Forest classifier holds great promise due to several factors. Firstly, advancements in data collection techniques, such as wearable devices, electronic health records, and genetic testing, are generating vast amounts of diverse and high-dimensional healthcare data. Random Forest, with its ability to handle large datasets with high dimensionality and mixed data types, is well-suited for analyzing such complex healthcare data.

Secondly, the integration of Random Forest with other machine learning techniques, such as deep learning and ensemble methods, can further enhance its predictive accuracy and robustness. By combining the strengths of different algorithms, more comprehensive and accurate disease prognosis models can be developed.

Additionally, ongoing research in feature selection, model interpretability, and explainable AI techniques will improve the transparency and interpretability of Random Forest models, making them more clinically relevant and trustworthy for healthcare professionals.

Furthermore, the application of Random Forest in personalized medicine and precision healthcare, where treatment decisions are tailored to individual patient characteristics, holds significant potential. By leveraging patient-specific data and clinical variables, Random Forest models can assist in early detection, risk stratification, and personalized treatment planning for various diseases.

Overall, the future of disease prognosis using Random Forest classifier is bright, with opportunities for further innovation and advancements in healthcare analytics and personalized medicine.

BIBLIOGRAPHY

- [1] Chen, C. (2018). Predicting heart disease using machine learning algorithms. International Journal of Engineering Research and Technology, 11(8), 1219-1223..
- [2] Ding, Y., Tang, J., & Guo, F. (2015). A random forest model for predicting diabetes mellitus. International Journal of Bioinformatics Research and Applications, 11(5), 472-485. Recognition, ICLR, 2015.
- [3] Ghasemi, A., Zahediasl, S., & Azimzadeh, P. (2012). A novel hybrid naive Bayes, K-nearest neighbors and random forests classifier for the heart disease diagnosis. Journal of Medical Systems, 36(5), 3403-3410. SISAP '10, 2010, p. 101.
- [4] Sharma, V., Kumar, R., & Sharma, P. (2019). Predictive modeling for breast cancer using random forest classifier. International Journal of Computer Sciences and Engineering, 7(6), 596-600
- [5] Wang, Y., Liu, J., & Jin, Z. (2018). Application of random forest algorithm in early warning of infectious diseases. Journal of Computer Applications, 38(1), 12-16.[6] Y. Chen, Z. Lin, and X. Zhao.
- [6] Zheng, H., Jin, B., & Li, Z. (2017). A prediction model for infectious diseases based on random forest and multilayer perceptron. Journal of Medical Imaging and Health Informatics, 7(4), 902-906
- [7] Zhou, X., Wu, L., & Zhang, D. (2016). A hybrid method for predicting heart disease using random forest and decision tree. International Journal of Hybrid Information Technology, 9(12), 65-76.
- [8] Zhu, J., Xue, Z., & Luo, Y. (2019). A novel method for disease prediction based on random forest. Frontiers in Genetics, 10, 268.
- [9] G. Mercier and M. Lennon, "Support vector machines for hyperspectral image classification with spectral-based kernels," in IGARSS 2003. 2003 IEEE

APPENDIX A: TOOLS AND TECHNOLOGIES

- HTML (Hypertext Markup Language): Markup language for creating web pages and web
 applications.
- CSS (Cascading Style Sheets): Style sheet language for describing the presentation of HTML and XML documents.
- JavaScript (JS): High-level, interpreted scripting language used for adding interactivity to web
 pages.
- Node.js: Server-side JavaScript runtime environment for building scalable network applications.
- Express.js: Minimal and flexible Node.js web application framework for building web applications and APIs.
- Python: High-level, general-purpose programming language known for its readability and versatility.
- Jupyter Notebook: Open-source web application for creating and sharing documents containing live code, equations, visualizations, and narrative text.
- Random Forest: Ensemble learning method for classification, regression, and other tasks using multiple decision trees.