CHAPTER 1

INTRODUCTION

Parkinson's disease is a neurodegenerative condition brought on by the loss of the neurotransmitter dopamine. Elderly people are more likely to have PD, which can alter gait and posture and increase the risk of falling and mobility issues. It consequently affects daily activities and decreases the quality of life for the patient and their family. Parkinson's illness mostly affects motor function, reduced and sluggish mobility, increased muscular tonus, and difficulty moving freely. These movement disorder's symptoms include shaking while in a resting position. Lack of facial expression, poor coordination, and noticeable voice and speech changes are other traits. People with Parkinson's disease (PD) may lose their sense of smell and have sleep disruptions during the rapid eye movement sleep period. The prevalence of Parkinson's disease is estimated to be 1% in people over 60. In most cases, the cause of Parkinson's disease is unknown. Neurochemical dysfunction and pathogenic alterations in dopaminergic neurons have been found to be the most notable features of this illness. Most of the dopamine-producing neurons in the brainstem come together to form a dark substance called the substantia nigra. This anatomical region helps to produce regular body movement and has strong connections to other deep brain areas. Range of motion is decreased and voluntary movement is influenced by a lack of dopamine production in the dopaminergic neurons of the substantia nigra.

1.1 PROJECT OVERVIEW:

Parkinson's disease diagnosis is quite expensive. A patient's quality of life can be improved with early diagnosis and appropriate treatment for this illness. The objective of this study is to streamline the Parkinson's disease diagnostic procedure by using only hand-drawn figures created by individuals who have the disease. The efficacy of the suggested methods has been tested using two separate ways. For various types of hand-drawn images, histograms of oriented gradient features and deep features have also been extracted. These features are used as inputs to a variety of machine

learning classifiers, including k-nearest neighbour, random forest, support vector machine, Naive Bayes, and multi-layer perceptron, among others. In this essay, the effectiveness of handcrafted features in comparison to deep level features is analysed.

1.2 PURPOSE:

The main purpose of this project work is to find the best prediction model. i.e., the most effective machine learning method to tell a Parkinson's patient from a healthy individual. Building the diagnosis model with the most effective method after comparing it to other algorithms. Determining if the problem is a regression or classification type of problem. Understanding how to pre-process the image using various data pre-processing approaches. Learn how to automatically detect Parkinson's illness in hand-drawn spiral and wave images using Open CV and machine learning. To construct web apps using the Flask framework. To understand how to determine the model's accuracy.

Keywords: Parkinson’s Prediction, Symptoms and Convolution.

CHAPTER 2
LITERATURE SURVEY

2.1 EXISTING PROBLEM

In this section, we examine various current machine learning and deep learning methods for Parkinson disease diagnosis.

TITLE: PARKINSON'S DISEASE DETECTION ON MRI SCANNED IMAGES BY USING CONVOLUTIONAL NEURAL NETWORK

AUTHOR: SABYASACHI CHAKRABORTY ET AL.

YEAR OF PUBLICATION: 2020

In this article, a method for PD detection on MRI scanned pictures using convolutional neural network has been developed. The PPMI is used in this instance to collect the dataset. It is a multi-center imaging scan research that includes several scan reports. The MNIPD25-T1MPRAGE-1 employed in this study has the following specifications: dimensions of 193X229X193pls, inter slice gap of 0.0 mm, slice thickness of 1.0 mm, spacing of 1.0x1.0x1.0 mm, and plane-sagittal. The techniques utilised in this study can be broken down into four stages: (1) acquiring an MRI scan from the PPMI database; (2) pre-processing of the data; (3) registration; and (4) transformation. In this study, a convolutional neural network model and t1 weighted MRI scans are used to identify Parkinson's disease. Using the CNN network, 35 layers of input and output are included. The network architecture uses 12 3D convolutional layers to recognise the pattern and output feature forms from the input brain MRI data. The convolution layers are activated by applying the activation function. Following

training, the model performance that closely matched the outcomes was determined by the analysis of prior hypotheses. The network reports a 65% accuracy rate.

TITLE: PD DETECTION ON MR-IMAGES USING 3D-CONVOLUTIONAL NEURAL NETWORK AND MAINLY FOCUSSED ON MR IMAGES ALONG WITH THE DEEP LEARNING TECHNIQUES LIKE REGRESSION AND CLASSIFICATION FOR THE PD PATIENTS.

AUTHOR: SOHEIL ESMAEILZADEH ET AL.

YEAR OF PUBLICATION: 2020

They selected 3-D brain scans for the dataset and gathered them from the PPMI database. Three planes make up the brain images. Sagittal, coronal, and axial describe them. The cut points are located at x=36, y=10, and z=36. The skull, scalp, and dura are all described above along with the brain tissues. A total of 452 PD patients—292 men and 160 women—are impacted, while 204 images—134 men and 70 women—come from healthy situations. The patients are roughly 61 years old. Data pre-processing, data augmentation, and the creation of machine learning models are the stages. They stripped skulls as part of the pre-processing in the first stage. The skull, scalp, and dura—which are referred to as non-cerebral tissues—are removed at this step. They have stripped the cranium in order to increase diagnosis speed and accuracy. In many medical applications, the aforementioned technique serves as the initial step. In light of this, segmenting tissues may include this. They combined the BET (Brain Extraction Technique) and SPM (Statistical Parametric Mapping) techniques in this work. The aforementioned techniques will allow for the removal of the deleted version with stronger brain tissue and as a voxel-based method for segmenting and extracting brain images. They can lower the size of photos (980,100,108,1) [800,000 pixels] by employing skill-stripping. Data augmentation is the subsequent phase. Each patient's scan image (i.e., brain image) has its MR-Images flipped to the right and left

hemispheres in this instance. Therefore, the goal of the aforementioned strategy is to double the dataset's size so that they can play with a huge collection of the dataset. The dataset is now partitioned into training (85%), development (10%), and test set (5%) before being split into eight equal pieces. The 3D-CNN model is currently being created with a little padding and max-pooling layers. On validation, they had a 60% accuracy rate.

TITLE: PD DETECTION ON CT- SCAN WITH THE HELP OF MATLAB

AUTHOR: JOYJIT CHATTERJEE ET AL

YEAR OF PUBLICATION: 2022

Precision, recall, and F-Measure curacy are some of the different criteria employed in this work. Gey scale converter, pre processing, anisotropic filtering, picture segmentation, and bounding box are the algorithms utilised to identify Parkinson's disorders. The UCI is where the CT-Scan dataset is gathered. The first step in this study is (1) the input image, which is a scan from a CT report; in this case, the human brain image is in the form of a CT-Scan (computed tomography scan); and (2) a greyscale converter, which uses the grayscale to determine the intensity of the light at various levels. These are accomplished by using the pixels in the pictures, (3) image pre-processing, which helps to develop the texture of the scan and reduces noise in the image such as blur, etc., and is mostly used to extract the precise location of the damaged area in the brain. The segmentation of images, (6) Bounding box: Using MATLAB, a rectangle or square box is used to indicate the border of the Parkinson image's afflicted portion. 70% of the time in this case.

TITLE: DETECTION OF PARKINSON'S DISEASE IN MRI USING CNN

AUTHOR: PIR MASOOM SHAH ET AL

YEAR OF PUBLICATION: 2022

In this study, a convolution neural network is used to automatically diagnose Parkinson's disease (PD), and Parkinson's patients and healthy conditions are classified separately. The PPMI is used to gather data. For this categorization, an MRI scan with 500 mid-brain slices and a t2-weighted picture is chosen for both PD patients and healthy controls. The convolution neural network is an innovative method for biological investigation that can avoid the hand-crafted feature. The CNN model was built using a few phases. These three processes are data collection, pre-processing, and CNN modelling. Slice selection, image registration, and middle brain via ROI are all included in the pre-processing stage. Additionally, the sets are split into the following ratios: testing (20%), validation (10%), and training (70%). After that, loss functions are used to construct the CNN model. The dataset can be found and downloaded from the data acquisition. The CNN began to run on the NVIDIA GeForce 940MX GPU keras as part of the experiment's setup. The categorization accuracy across all experiments was 68%.

TITLE:ASURVEYON BIG DATA IN HEALTHCARE 2022

AUTHOR: SUMEET SHINDE ET AL

YEAR OF PUBLICATION: 2022

In this paper, they developed a computer-based analysis method that primarily uses convolutional neural networks (CNN). The dataset includes 35 healthy controls, 20 PD patients with APS (Atypical Parkinsonian Syndromes), MSA (Multiple System Atrophy), and PSP (Progressive Supra nuclear Palsy), and 55 patients with Parkinson's disease. The scanned images in this instance are in MR image format. The dispersed pictures are taken to rule out the likelihood of brain lesions. The scanned images were obtained using a 32-channel scanner for the high resolution contrast neuro-melanin sequence, in which the angle flip at 26/2.2 ms assisted in achieving the SPIR For the FLAIR recovery, The Matrix is rebuilt and scaled to 512. In this study, axial slices of the NMS-MRI with a boxed region surrounding the brainstem were provided as an input by 2D CNN. The input images are turned into probabilities and output vectors as they move through the convolutional layer chain. Using CNN architecture, the CNN model was created. The CNN architecture has a learning rate of 0.0001 and activates

liner units, or ReLUs. on which iterations are built. Additionally, to train the CNN model, each layer's weight is changed. Data augmentation was carried out, which multiplied the dataset by multiple, in order to lessen the awareness of over-fittingThe model is then trained and tested, followed by CR-ML and RA-ML. The CNN-DL classifier's accuracy in this paper was 67%.

2.2 REFERENCES

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2.3 PROBLEM STATEMENT DEFINITION

The handwriting examples included in this paper were taken from a small group of patients who exhibited noticeable, observable micrographia. The chosen patients were required to submit samples of their handwriting from both before and during the course of their PD. According to reports, serial signatures from rejected checks were the most prevalent sources. The "nature of data did not lend itself readily to quantification," according to McLennan et al., a problem that can now be fixed. In their case study of a patient with Parkinson's disease, Sandyk and Iacono included the patient's hand-drawn samples from both before and after magnetic field therapy. 10 Figure S2 (authors' personal collection) shows a typical example of micrographia created utilising the paper-and-pen method.

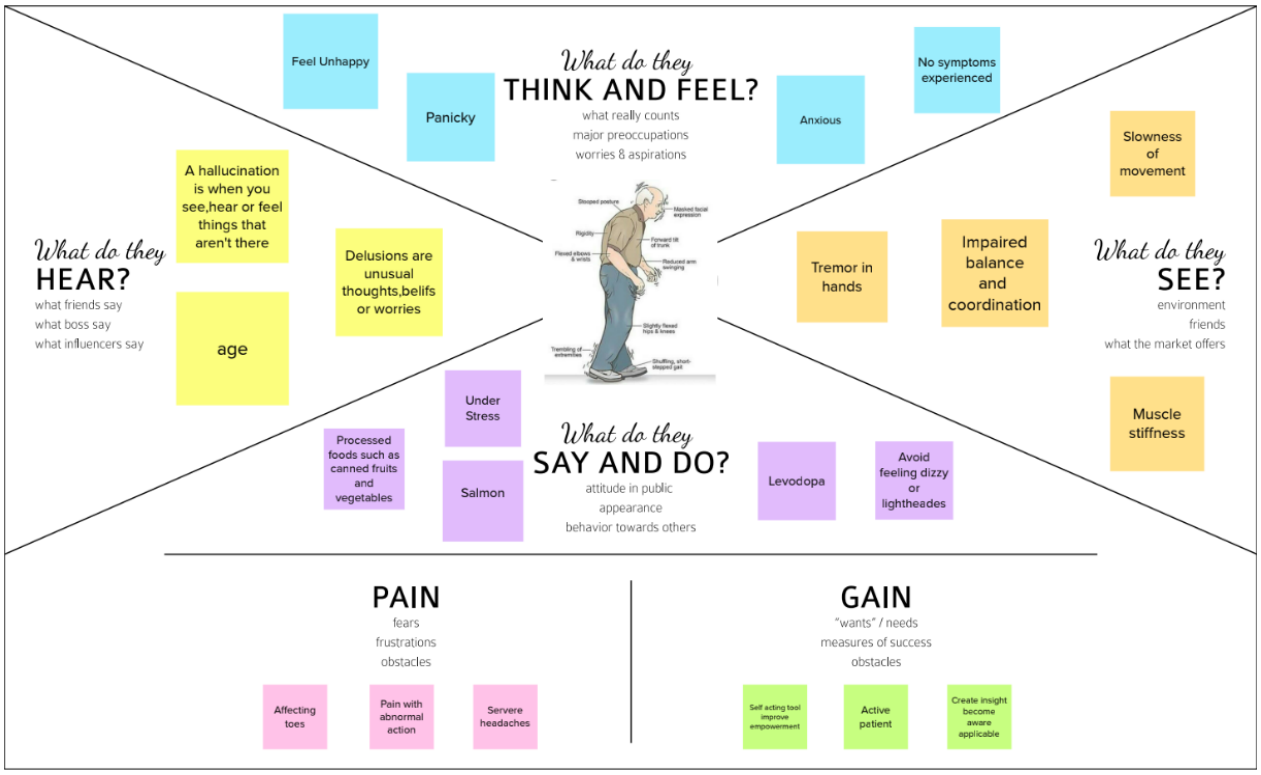
Even after the creation of digitising tablets, paper and pen still have a place in education. In order to examine the impact of visual feedback on micrographia in both the on-drug (on-drug) and off-drug (off) stages, Ondo and Satija gave patients the task of writing a simple sentence on paper with their eyes open and closed. In addition, Balas et al.11 included handwritten samples from patients with PD before and after stereotactic surgery.

CHAPTER 3

IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS

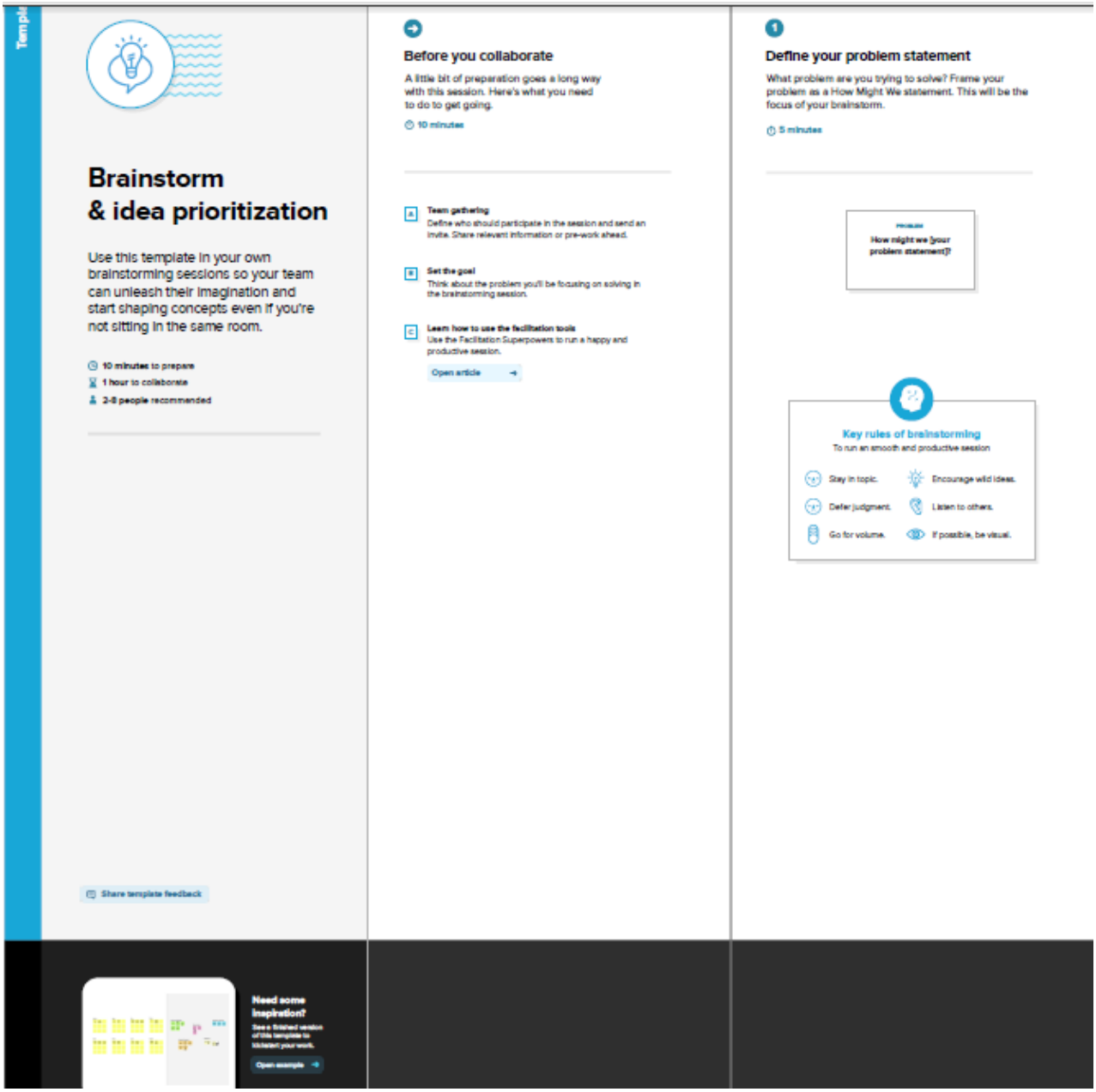
An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes. It is a useful tool to helps teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenge .



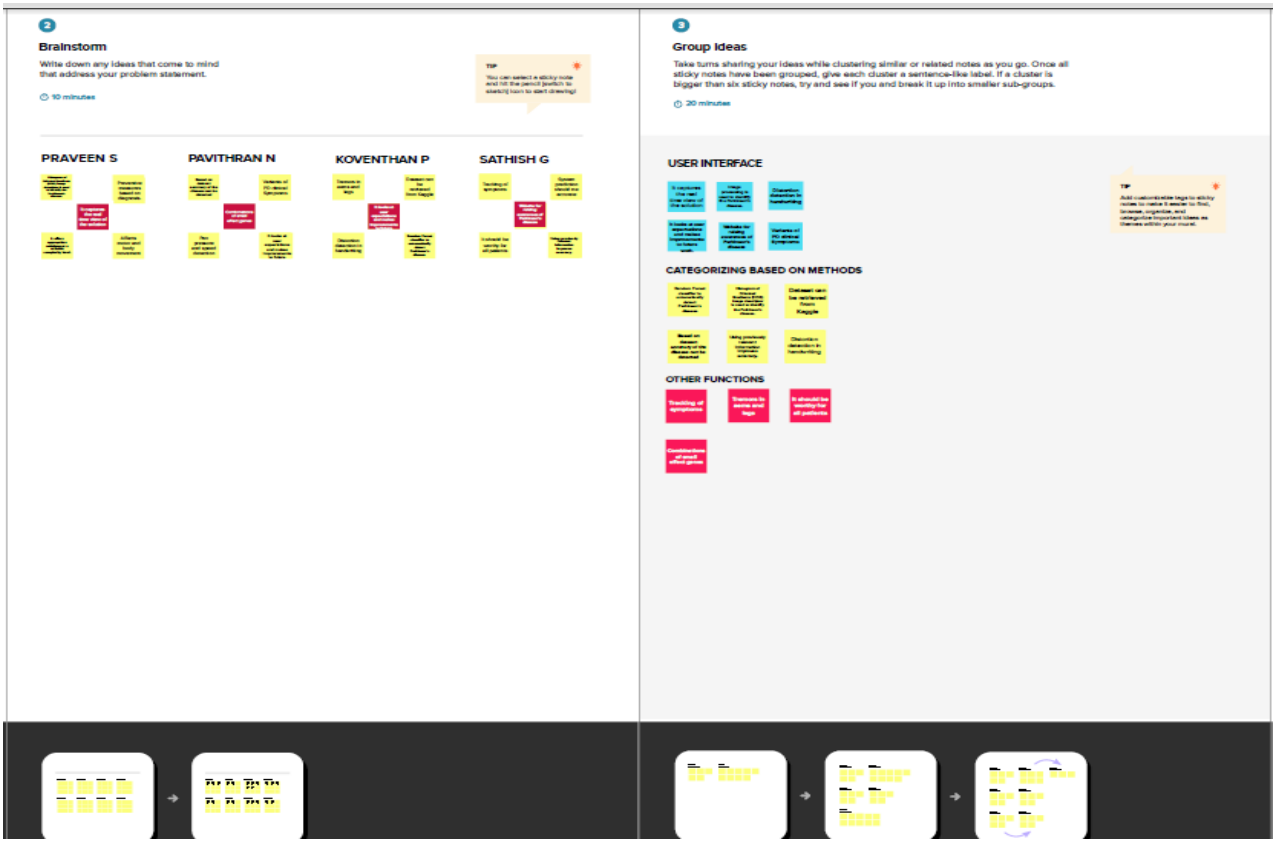
3.2 IDEATION & BRAINSTORMING

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value,out participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

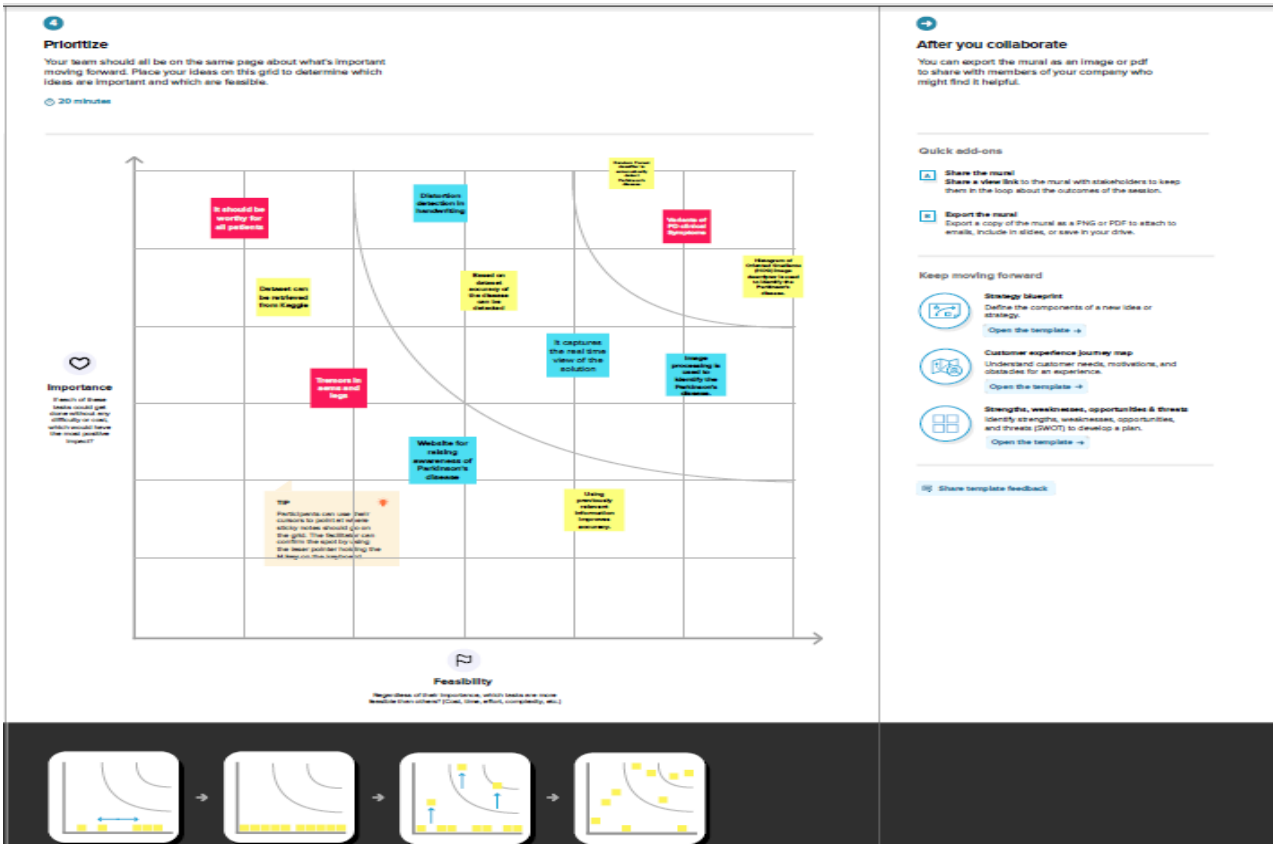
Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping



Step-3: Idea Prioritization



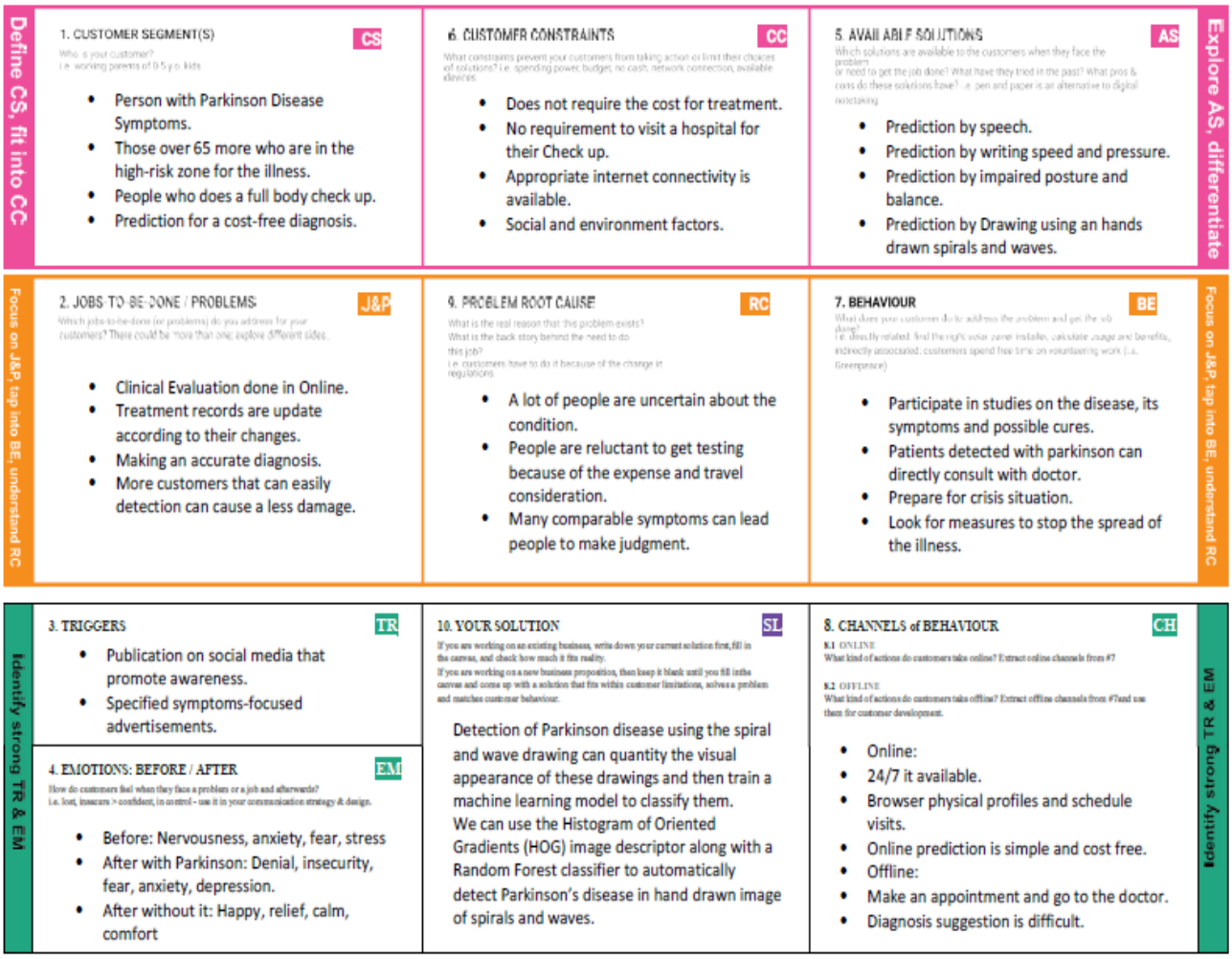
3.3 PROPOSED SOLUTION

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The main therapy for Parkinson's is levodopa. Nerve cells use levodopa to make dopamine to replenish the brain's dwindling supply. Usually, people take levodopa along with another medication called carbidopa.
2.	Idea / Solution description	Parkinson's disease can't be cured, but medications can help control the symptoms, often dramatically. In some more advanced cases, surgery may be advised.
3.	Novelty / Uniqueness	Young-onset Parkinson's disease (YOPD), defined as age at onset between 21 and 40 years, presents unique motor and non-motor features that differentiate this subtype from the typical late onset Parkinson's disease (LOPD), starting after age 61. Because it affects patients in the prime of their life, it often has an extraordinary impact on their family, social, and professional life.
4.	Social Impact / Customer Satisfaction	The social symptoms of PD can result in severe negative social consequences, including stigma, dehumanization, and loneliness, which might affect quality of life to an even greater extent than more well-recognized motor or cognitive symptoms.
5.	Business Model (Revenue Model)	The definitive cause and cure for Parkinson's Disease (PD) still eludes medical experts. Finding an effective strategy for managing PD's symptoms and preventing the onset of comorbidities is the most

		we can do to improve quality of life among sufferers.
6.	Scalability of the Solution	Parkinson's disease can't be cured, but medications can help control the symptoms, often dramatically. In some more advanced cases, surgery may be advised. Your health care provider may also recommend lifestyle changes, especially ongoing aerobic exercise.

3.4 PROBLEM SOLUTION FIT



CHAPTER 4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Authentication	The users must be registered first and can be only able to access the web application. This is to ensure that the web application is used for a good reason.
FR-2	Web Service Management Process	Web Service Management process by Web Portal admin in registering web client to do SSO or member data communication. The web page is hosted in cloud.
FR-3	Data Management	The Web server and Portal manager can have access to data to edit and update again to server.
FR-4	Testing	Applying the algorithms on the test data.
FR-5	Confirmation	Display the result with the description of having Parkinson's or not.

4.2 NON-FUNCTIONAL REQUIREMENT

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The webpage loading for users submitting their image input details at the web

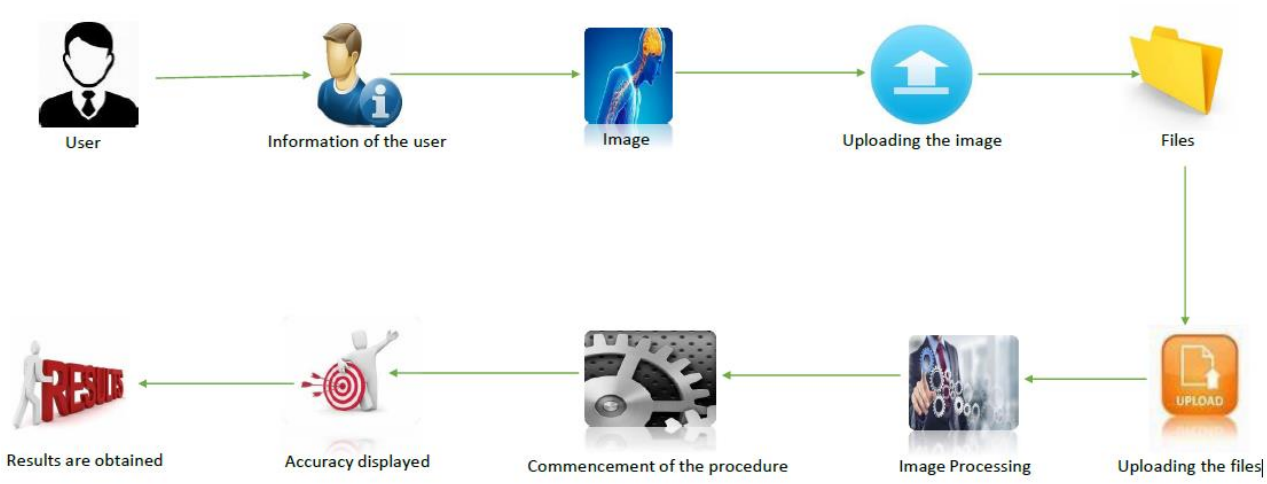
		application must be loaded fast than rendering more time.
NFR-2	Security	Authorization access scenarios and definitions, hand-over procedures for patient records. The image and other inputs of patients must be highly secured and can't be accessible to others.
NFR-3	Reliability	The prediction of the system must be with higher accuracy so that the output from the application can be trusted by the users without any doubts and can be used for further dragonising process with Doctors.
NFR-4	Performance	The landing page supporting 5,000 users per hour must provide 6 second or less response time in a Chrome desktop browser, including the rendering of text and images and over an LTE connection and the uploading of Data (image) must also should be fast and the output page should be rendered within seconds.
NFR-5	Availability	The web application should be available to all Doctors across the globe and can be implemented in every hospital so that the patients can use it effectively .
NFR-6	Scalability	The System must function using Cloud and during a down process also it must satisfy the maximum number of clients. . The system must use higher RAM and CPU processing in Server to handle multiple request at same time.

CHAPTER 5

PROJECT DESIGN

5.1 DATA FLOW DIAGRAM

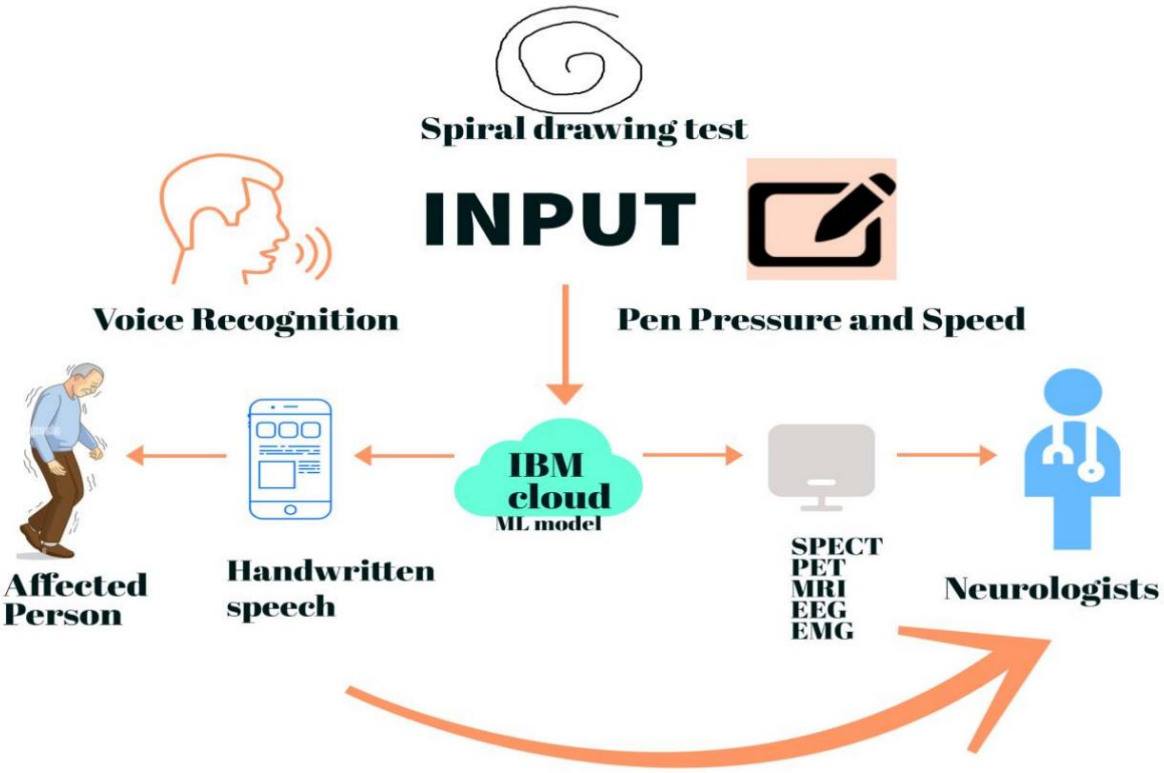
A data flow diagram shows how information flows through a process or system. This includes data input/output, data storage, and various sub processes through which data moves. DFDs are created using standardized symbols and notations to describe various entities and their relationships.



5.2 SOLUTION & TECHNICAL ARCHITRCTURE

To present your insights and analysis, IBM Cognos Analytics offers dashboards and stories. A view that includes visualizations, such as a graph, chart, plot, table, map, or any other type of visual representation of data, can be put together. Discover trends and correlations that have an influence on your business by exploring stunning data visualizations in IBM Cognos Analytics.

A displayhelps you keep track of events or activities quickly by displaying important data insights and analyses on one or more pages or screens.


Spiral drawing test
INPUT
Voice Recognition
Pen Pressure and Speed
IBM cloud
ML model
Affected Person
Handwritten speech
SPECT
PET
MRI
EEG
EMG
Neurologists

5.3 USER STORIES

A “user narrative” is a casual, generic explanation of a software feature written from the perspective of the client or end user. A user narrative explains how a piece of work will give the client a specific of a value.

User type	Functional requirement(Epic)	User story number	User story/task	Acceptance criteria	Priority	Release
User	Account creation	USN-1	User can connect to the application	User can access the account beingcreated	High	Sprint-1
Input data	Adding data	USN-2	Inputs can be given to the systemfor its learning purposes	Data entered could be verified bythe user	High	Sprint-1
Data validation	Checking accuracy	USN-3	Ability and accuracy of the modelcan be checked by the user	On logging in to account , thecapability could be checked	Medium	Sprint-2
Classification	Data classification	USN-4	Data can be viewed by the user	Verify the user data with real data	Medium	Sprint-2
App work	Work flow	USN-5	Working action of the application model could be viewed	Application working and responses to the actions imposedcan be viewed	Medium	Sprint-2
Image classification	Checking for the disease	USN-6	With the help of trained and testdata ,user can verify with application that the image is identified with the actual image	User can confirm that the data shows accurate results	Low	Sprint-3
User interaction	AI-Powered chatbot	USN-7	User can interact with the automated chatbot to engage mytime till the application processedthe accurate result	Results could be viewed fromthe interactions from the chatbot	Low	Sprint-3
Medical assistance	Medical suggestions	USN-8	User can get medical advises	Enough assistance could beobtained	High	Sprint-3
Data extraction	Obtaining the data	USN-9	User can retrieve the result datafrom the application for data storage	Result could be downloaded inthe form data to be shown to the medical teams	Medium	Sprint-4

CHAPTER 6

PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Home Page	USN-1	As a user, I can view the home page of the web application.	15	Low	Praveen S, Pavithran N
Sprint-2	Data Entry	USN-2	As a user, I can enter details like images of spiral scribbling or wave scribbling.	15	Medium	Praveen S, Koventhan P
Sprint-3	Parkinson's disease result display	USN-3	As a user, I can view final result whether I have Parkinson or not.	15	Medium	Praveen S, Pavithran N, Sathish G
Sprint-4	Parkinson disease value Prediction	USN-4	As a user, I expect the application to predict whether i have Parkinson or not accurately .	15	Medium	Praveen S, Pavithran N, Koventhan P, Sathish G

6.2 SPRINT DELIVERY SCHEDULE

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

CHAPTER 7

CODING &SOLUTION

7.1 FEATURE 1

HANDWRITING TASKS IN PARKINSON'S DISEASE:

In this study, we looked into the representativeness of a group of handwriting-related proposed features for PD detection and assessment. In particular, we classified healthy people and PD patients (PD detection), as well as mild and moderate PD patients, using a histogram and random forest algorithms (PD rating). High levels of accuracy, sensitivity, and specificity demonstrated by the implemented and evaluated methodologies demonstrated positive outcomes. These findings point to the viability of the suggested configuration for use in clinical settings to assist in diagnosing Parkinson's disease. Thus, the straightforward procedure continued after days and years.

7.2 FEATURE 2

Due to the necessity of lifting the pen from the paper's surface and repositioning it in order to continue writing, in-air movements continue to be a fascinating area of research. It is reasonable to suppose that individuals with PD would have much longer in-air times than controls due to their delay in initiating movements. The significance of the in-air manoeuvre has been stressed by and Rosenblum. Patients with PD apparently wrote in a smaller size, needed longer performance time, and exerted much less pressure to the writing surface than controls. It's interesting to note that the variance in stroke duration between groups

in the air was bigger than the variance in stroke duration on paper. By carefully differentiating between on-surface movement, in-air movement, and pressure and examining their respective contributions in differentiating patients with PD from healthy controls, were able to validate this. Employed a supervised machine learning support vector machine with a nonlinear radial basis function kernel to categorise samples as PD or controls. 46 An accuracy of about 90% may be attained using fundamental kinematics and pressure characteristics. 47 If the air stroke can be investigated similarly to the on-surface stroke, the question still has to be answered. It seems likely that PD patients' in-air stroke kinematic characteristics, such as velocity, acceleration, and jerk, would be different from those of healthy controls.

CHAPTER 8

TESTING

8.1 TEST CASES

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner.

8.2 USER ACCEPTANCE TESTING

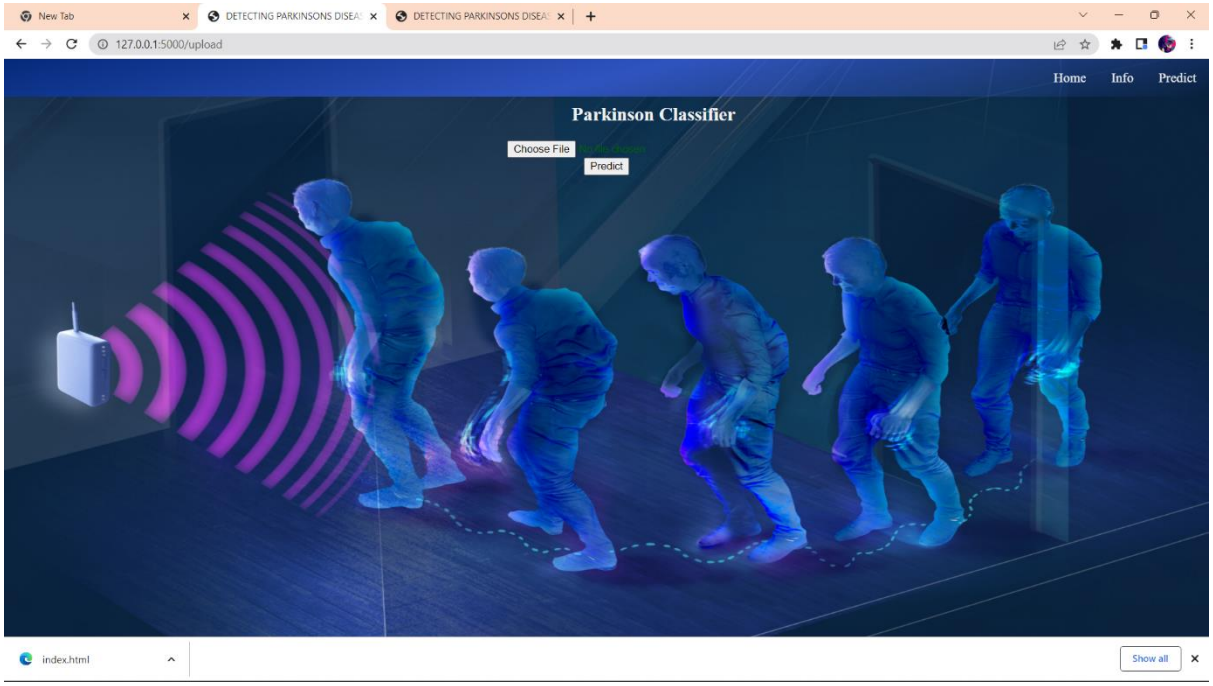
User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements. All test cases are run at this point to ensure that the program is right and complete.

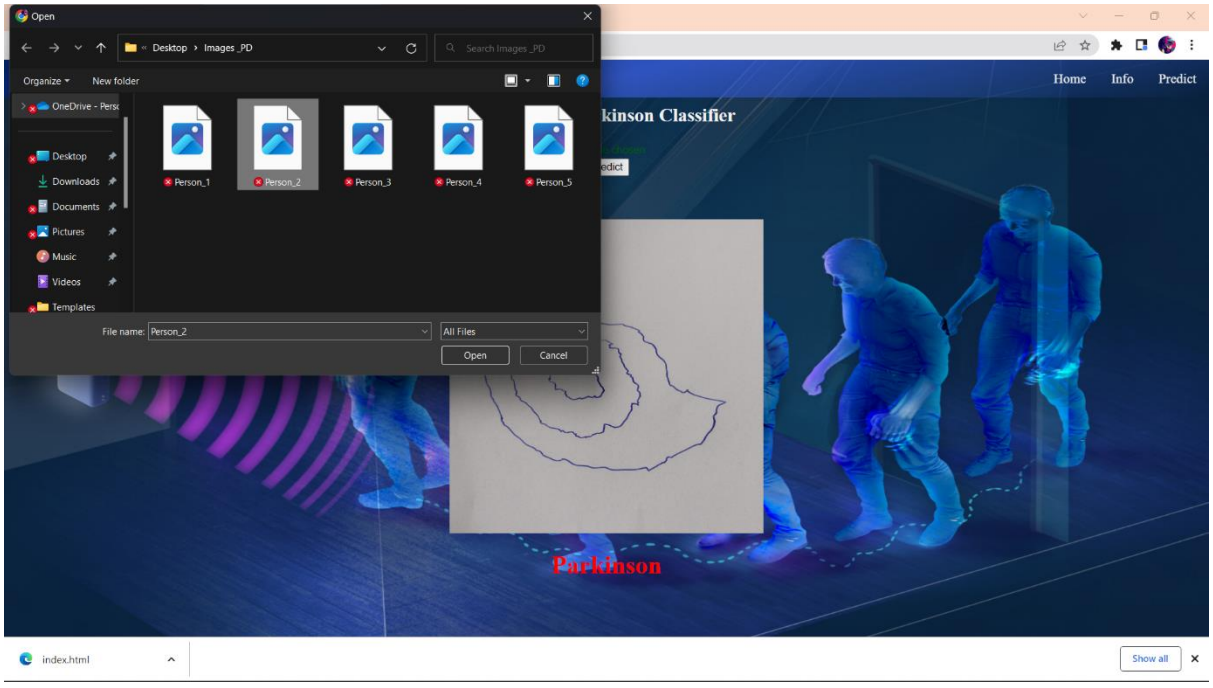
The test must be completed successfully before the program can be accepted by the customer. The customer formally approves the delivery of this system after customer workers have checked that the preliminary production statistics load is correct and that the test suite has been achieved with perfect results.

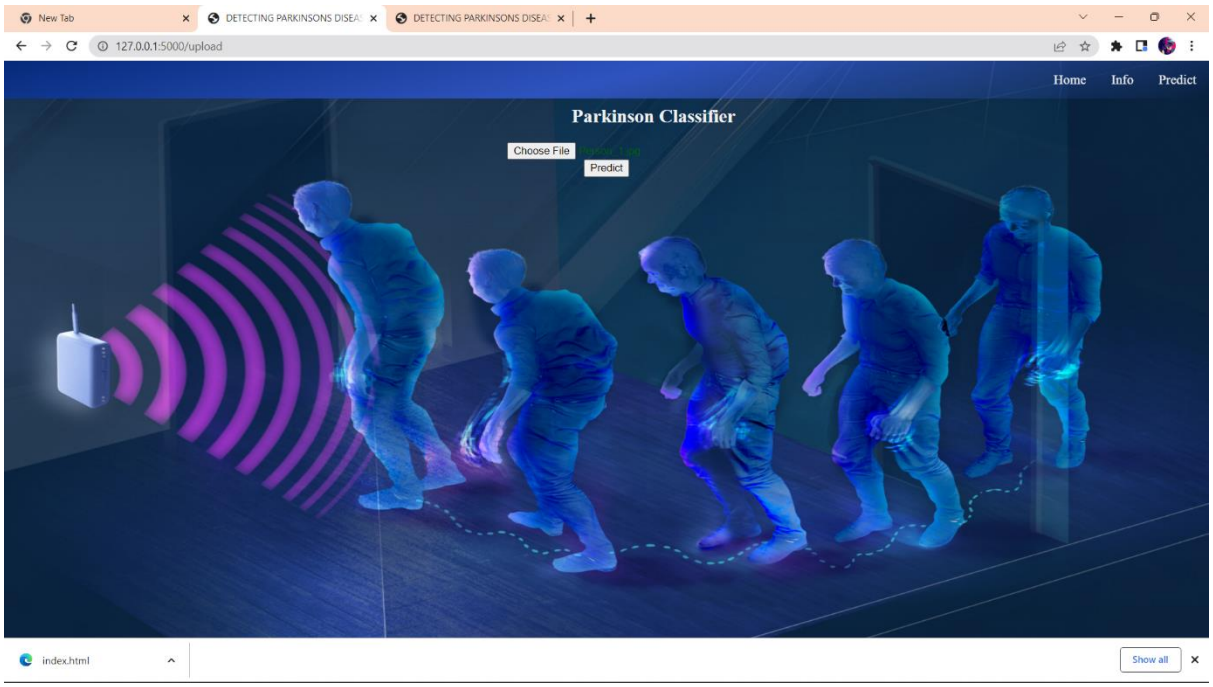
CHAPTER 9

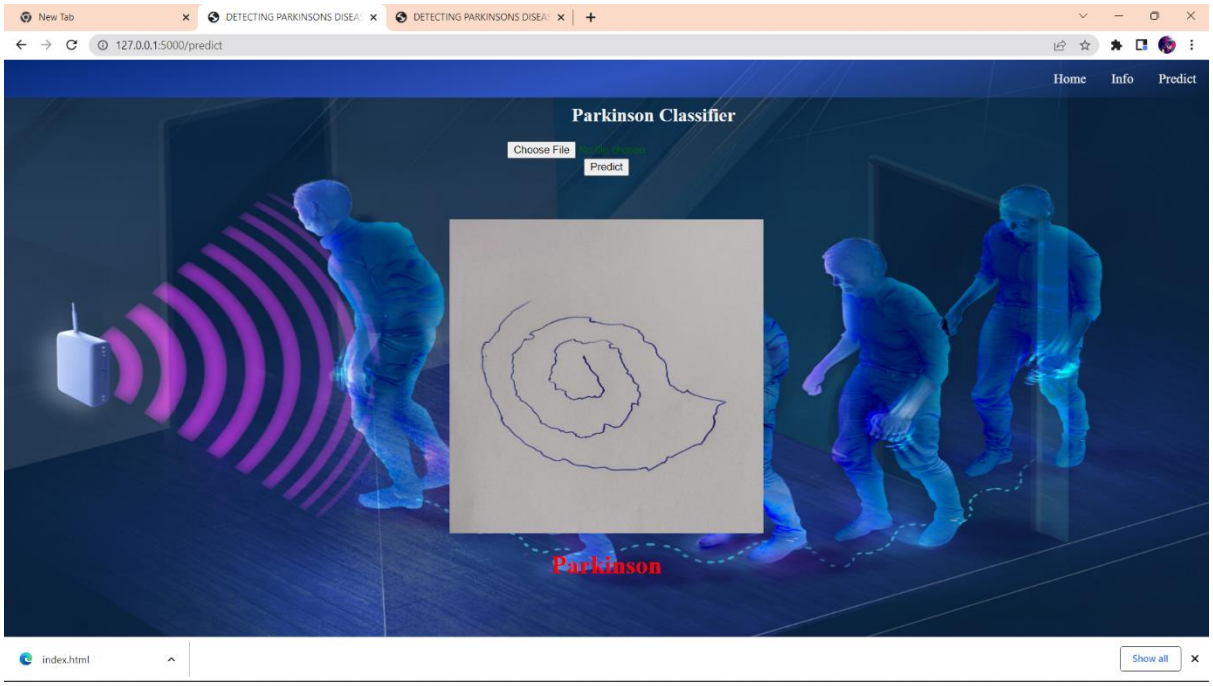
RESULTS

9.1 OUTPUT & RESULTS






New Tab
DETECTING PARKINSONS DISEA
DETECTING PARKINSONS DISEA
127.0.0.1:5000/upload
Home
Info
Predict
Parkinson Classifier
Choose File
Predict
index.html
Show all


New Tab
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DETECTING PARKINSONS DISEA
127.0.0.1:5000/predict
Home
Info
Predict
Parkinson Classifier
Choose File
Predict
Parkinson
index.html
Show all

CHAPTER 10

10.1 ADVANTAGES

1. Another significant indicator of illness progression may be handwriting.
2. Only image recognition allows for the effective automatic classification of PD.
3. We created the Archimedes spiral hand-drawing dataset without the use of templates or restrictions on application scenarios.
4. Our method has an accuracy rate for Parkinson's disease categorization of roughly 89.3%.
5. Due to the lack of the use of expensive tools, the cost of the material used is quite low.

10.2 DISAVANTAGES

1. The suggested approach is the best way to blend static and dynamic handwriting traits for various tasks.
2. The method is less efficient for PD categorization than the performance of the various handwriting modalities.
3. This approach does not always yield accurate findings.

CHAPTER 8

CONCLUSION

Previous research only focused on a single imaging modality, such MRI or PET, or a single type of dementia, like AD. The proposed method tried to cover a wider spectrum of imaging and machine learning technologies for the diagnosis of mental diseases in order to enable researchers in the domain to swiftly identify the state of the art in the field. In order to provide patients with therapy and support as soon as possible and lessen the disease's effects, we also emphasise the importance of early Parkinson's disease prediction and detection.

CHAPTER 12

FUTURE SCOPE

The non-invasive nature of this handwriting method makes it incredibly intriguing. Only specific figures must be drawn by the patient on a tablet. Medical decision support tools for PD identification and patient supervision can be created using this handwriting technique (after a positive diagnosis). In order to boost the accuracy of the diagnosis, it is now necessary to combine handwriting techniques based on symptoms like tremor, bradykinesia, and rigidity. In this situation, patient screening and the use of biomarkers can help to enhance healthcare. By doing so, doctors can concentrate on the patients who have the best chance of being diagnosed quickly. Early detection would enable

the creation of particular treatment plans for PD patients. The care of patients is crucial for tracking the development of PD.

CHAPTER 13

APPENDIX

13.1 SOURCE CODE

about.html

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-awesome/4.7.0/css/font-awesome.min.css">
<title>DETECTING PARKINSONS DISEASE</title>
<style>
body {
```

```
background-image:
url('https://www.telegraph.co.uk/content/dam/science/2019/06/19/TELEMMGLPICT000201206329_trans_NvBQzQNjv4BqHYnrW5_va2i5YQ7jbSeHyuC4yxA4SBURrqE8SKy5rSc.jpeg?imwidth=960');
background-repeat: no-repeat;
background-attachment: fixed;
background-size: 100% 100%;
margin: 0;
padding: 0;
}
.navbar {
overflow: hidden;
background:linear-gradient(-13deg, transparent,#3054bf,#052a7b);
position: fixed;
top: 0;
width: 100%;
}
.navbar a {
float: right;
display: block;
color: #f2f2f2;
text-align: center;
```

```
padding: 14px 16px;
text-decoration: none;
font-size: 17px;
}
.navbar a:hover {
background: #ddd;
color: black;
}
.title{
padding: 12px 12px;
color: #f2f2f2;
}
.div1
{
text-indent: 15ch;
color:#f2f2f2;
text-align: justify;
}
.des{
margin:5% 10%;
padding: 1%;
line-height: 2;
```

```
}
</style>
</head>
<body>
<div class="navbar">
<a href="/upload">Predict</a>
<a href="/info">Info</a>
<a href="#">Home </a>
</div>
<br>
<div class="div1">
<h2 style="text-align: center;margin-top: 5%;"> Detecting Parkinson Disease using ML </h2>
<p style=font-size:large class="des"><I>
```

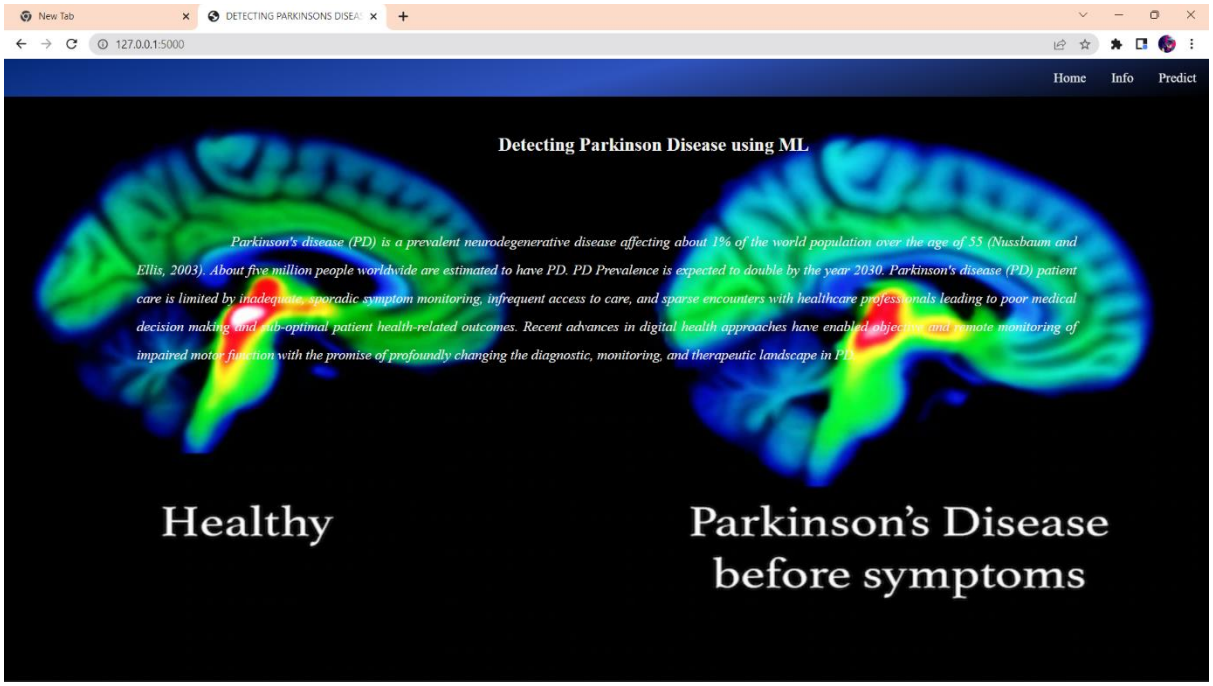
Parkinson's disease (PD) is a prevalent neurodegenerative disease affecting about 1% of the world population over the age of 55 (Nussbaum and Ellis, 2003). About five million people worldwide are estimated to have PD. PD Prevalence is expected to double by the year 2030. Parkinson's disease (PD) patient care is limited by inadequate, sporadic symptom monitoring, infrequent access to care, and sparse encounters with healthcare professionals leading to poor medical decision making and sub-optimal patient health-related outcomes. Recent advances in digital health approaches have enabled objective and remote monitoring of impaired motor function with the promise of profoundly changing the diagnostic, monitoring, and therapeutic landscape in PD.

</I></p>

</body>

</html>

Output:



info.html

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-awesome/4.7.0/css/font-awesome.min.css">

```
<title>DETECTING PARKINSONS DISEASE</title>

<style>

body {

background-image:
url('https://www.telegraph.co.uk/content/dam/science/2019/06/19/TELEMMGLPICT000201206329_trans_NvBQzQNjv4BqHYnrW5_va2i5YQ7jbSeHyuC4yxA4SBURrqE8SKy5rSc.jpeg?imwidth=960');

background-repeat: no-repeat;

background-attachment: fixed;

background-size: 100% 100%;

margin: 0;

padding: 0;

}

.navbar {

overflow: hidden;

background:linear-gradient(-13deg, transparent,#3054bf,#052a7b);

position: fixed;

top: 0;

width: 100%;

}

.navbar a {

float: right;
```

```
display: block;
color: #f2f2f2;
text-align: center;
padding: 14px 16px;
text-decoration: none;
font-size: 17px;
}
.navbar a:hover {
background: #ddd;
color: black;
}
.title{
padding: 12px 12px;
color: #f2f2f2;
}
.div1
{
text-indent: 15ch;
color:#f2f2f2;
text-align: justify;
}
.split {
```

```
height: 90%;
width: 40%;
position: fixed;
z-index: 1;
top: 0;
overflow-x: hidden;
padding-top: 20px;
}
.left {
left: 0;
}
.right {
right: 0;
}
.centered {
position: absolute;
top: 50%;
left: 50%;
transform: translate(-50%, -50%);
text-align: center;
}
.centered img {
```

```
margin-top: 55px;
margin-left:40px;
margin-right:40px;
width:500px;
height:450px;
}
.spilt-right{
height:200px;
margin: 20% 20%;
}
</style>
</head>
<body>
<div class="navbar">
<a href="Predict.html">Predict</a>
<a href="#">Info</a>
<a href="#">Home </a>
</div>
<br>
<div class="div1">
<h2 style="text-align: center;margin-top: 3%;" > Prevention is better than Cure!!!
</h2>
```

```
</div>

<div class="split left">

<div class="centered">

<img src="../static/download.jpg">

</div>

</div>

<div class="split-right">

<div class="centered">

<img src="../static/hoehn-and-Yahr.png" alt="Avatar man">

</div>

</div>

</body>

</html>
```

Output:

index.html

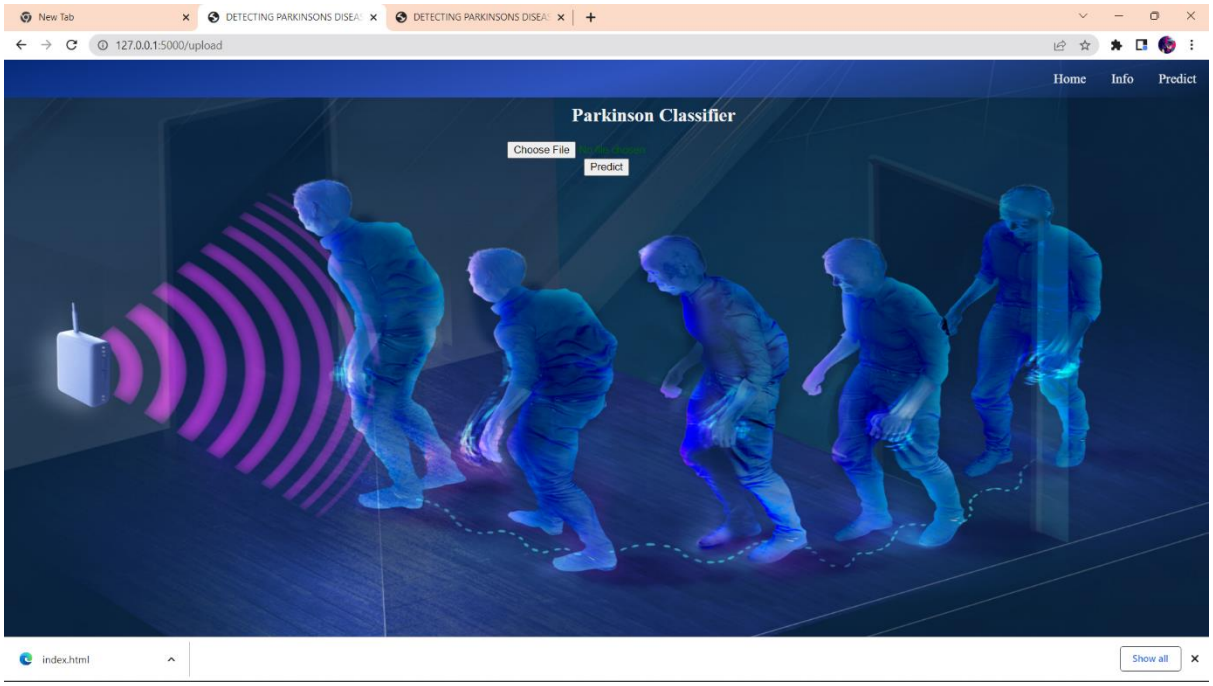
```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-awesome/4.7.0/css/font-awesome.min.css">
<title>DETECTING PARKINSONS DISEASE</title>
<style>
body {
background-image: url('https://news.mit.edu/sites/default/files/images/202209/MIT-Monitoring-Parkinsons-01-PRESS.jpg');
background-repeat: no-repeat;
background-attachment: fixed;
background-size: 100% 100%;
margin: 0;
padding: 0;
}
.navbar {
```

```
overflow: hidden;
background:linear-gradient(-13deg, transparent,#3054bf,#052a7b);
position: fixed;
top: 0;
width: 100%;
}
.navbar a {
float: right;
display: block;
color: #f2f2f2;
text-align: center;
padding: 14px 16px;
text-decoration: none;
font-size: 17px;
}
.navbar a:hover {
background: #ddd;
color: black;
}
.title{
padding: 12px 12px;
color: #f2f2f2;
```

```
}
.div1
{
text-indent: 15ch;
color:#f2f2f2;
text-align: justify;
}
.div2
{
color: darkgreen;
text-align: center;
}
.div3
{
color:white;
text-align: center;
}
</style>
</head>
<body>
<div class="navbar">
<a href="#">Predict</a>
```

```
<a href="#">Info</a>

<a href="#">Home </a>

</div>

<br>

<div class="div1">

</br>

<h2 style="text-align: center"> Parkinson Classifier</h2>

</div>

<div class="div2">

<form action = "/predict" method = "POST" enctype = "multipart/form-data">

<input type="file" id="myfile" name="myfile">

<br>

<input type="submit" value="Predict"  name="submit" >

</form>

</br></br></br>

</div>

</body>

</html>
```

Output:



result.html:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/font-awesome/4.7.0/css/font-awesome.min.css">

<title>DETECTING PARKINSONS DISEASE</title>

<style>

body {

```
background-image:
url('https://news.mit.edu/sites/default/files/images/202209/MIT-Monitoring-Parkinsons-01-PRESS.jpg');
background-repeat: no-repeat;
background-attachment: fixed;
background-size: 100% 100%;
margin: 0;
padding: 0;
}
.navbar {
overflow: hidden;
background:linear-gradient(-13deg, transparent,#3054bf,#052a7b);
position: fixed;
top: 0;
width: 100%;
}
.navbar a {
float: right;
display: block;
color: #f2f2f2;
text-align: center;
padding: 14px 16px;
```

```
text-decoration: none;
font-size: 17px;
}
.navbar a:hover {
background: #ddd;
color: black;
}
.title{
padding: 12px 12px;
color: #f2f2f2;
}
.div1
{
text-indent: 15ch;
color:#f2f2f2;
text-align: justify;
}
.div2
{
color: darkgreen;
text-align: center;
}
```

```
.div3
{
color:white;
text-align: center;
}
</style>
</head>
<body>
<div class="navbar">
<a href="#">Predict</a>
<a href="#">Info</a>
<a href="#">Home </a>
</div>
<br>
<div class="div1">
</br>
<h2 style="text-align: center"> Parkinson Classifier</h2>
</div>
<div class="div2">
<form action = "/predict" method = "POST" enctype = "multipart/form-data">
<input type="file" id="myfile" name="myfile">
<br>
```

```
<input type="submit" value="Predict"  name="submit" >

</form>

</br></br></br>

</div>

<div style="display: flex; justify-content:center;flex-direction:column;">

<img  style="width: 400px; height: 400px; margin: auto;" src="{{path}}">

<h1 style="text-align:center; color:{{col}};">{{res}}</h1>

</div>

</body>

</body>

</html>
```

13.2 GITHUB & PROJECT DEMO LINK

https://github.com/IBM-EPBL/IBM-Project-1201-1658378351