HIGH LEVEL DOCUMENT

Parkinson's Disease Prediction

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Abstract

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Parkinson's disease(PD) is a central nervous system degenerative disease that affects the quality of life of millions of seniors around the world. Because of the variability of the condition, symptoms of Parkinson's disease might progress differently from person to person. Patients with Parkinson's disease may experience tremorous , which occur mostly during rest. Tremors in the hands. Limb rigidity, and gait and balance issues are all possibilities. Generally, two types of symptoms of PD can be distinguished: movement-related (i.e.. Motor) and unrelated to movement (non-motor). Patients with non-motor symptoms are actually more affected than those with motor symptoms. Depression, sleep behaviour abnormalities, loss of smell. And cognitive impairment are examples of non-motor symptoms. It should be mentioned that early discovery of Parkinson's disease allows for faster treatment and a significant reduction in symptoms. Asa result detecting PD at an early stage is critical for slowing its progression and, when available, may provide patients with the opportunity to receive disease-modifying therapy.

1.Introduction

Why this High-Level Design Documentation

The purpose of this High-Level Design (HLD) Document is to add the necessary detail to the current project description to represent a suitable model for coding. This document is also intended to help detect contradictions prior to coding, and can be used as a reference manual for how the modules interact at a high level.

The HLD will:

• Present all of the design aspects and define them in detail

• Describe the user interface being implemented

• Describe the hardware and software interfaces

• Describe the performance requirements

• Include design features and the architecture of the project

• List and describe the non-functional attributes like:

        o Security o Reliability

        o Maintainability

        o Portability

        o Reusability

        o Application compatibility

        o Resource utilization

        o Serviceability

SCOPE

This software system will be a web application, this system will be designed to predicts the Parkinson's Disease Prediction based on the user's input in which there are several categories to fill in like the Fo, Fh , Flo, Shimmer, HNR, RPDE, Spread1, D2.

2 General Description

Product Perspective

This Parkinson's Disease system is deep learning, based model which will predict the disease of the person.

Problem statement

Parkinson's disease(PD) is a central nervous system degenerative disease that affects the quality of life of millions of seniors around the world. Because of the variability of the condition, symptoms of Parkinson's disease might progress differently from person to person. Patients with Parkinson's disease may experience tremorous , which occur mostly during rest. Tremors in the hands. Limb rigidity, and gait and balance issues are all possibilities. Generally, two types of symptoms of PD can be distinguished: movement-related (i.e.. Motor) and unrelated to movement (non-motor). Patients with non-motor symptoms are actually more affected than those with motor symptoms. Depression, sleep behaviour abnormalities, loss of smell. And cognitive impairment are examples of non-motor symptoms. It should be mentioned that early discovery of Parkinson's disease allows for faster treatment and a significant reduction in symptoms. Asa result detecting PD at an early stage is critical for slowing its progression and, when available, may provide patients with the opportunity to receive disease-modifying therapy.

Proposed Solution

This system requires like feature provided by the system like Fo, Fh, Shimmer, HNR, RPDE, Spread1 etc..

Further Improvements

AS the data is not very huge our main is to complete this use case with deep learning algorithm as a best optimized solution, In future if we are expected to get more data and different categories, if needed we might use deep learning algorithm to get best solution.

Data Requirements

Data requirements completely depend on our problem statement.

Tools Used

- **Python**
- **Flask**
- **Pandas**

Constraints

This project is based on Health Care domain, These system can get excepted results.
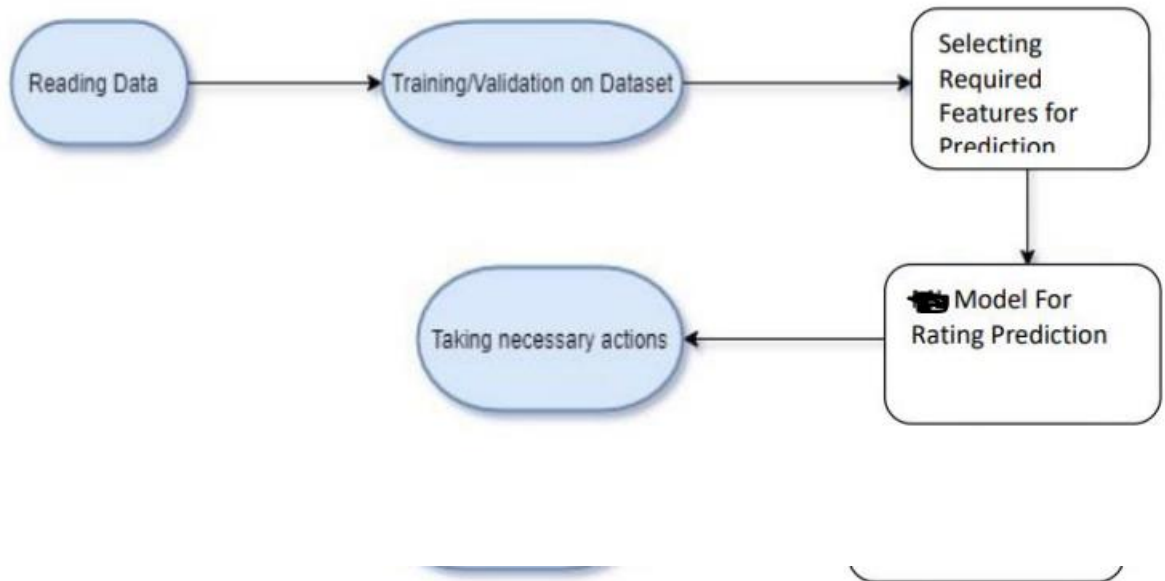
Assumptions

The main objective of the project is to implement the use case as previously mentioned (2.2 problem statement). This system will help us to predict the Parkinson's disease whether a user has disease or not.
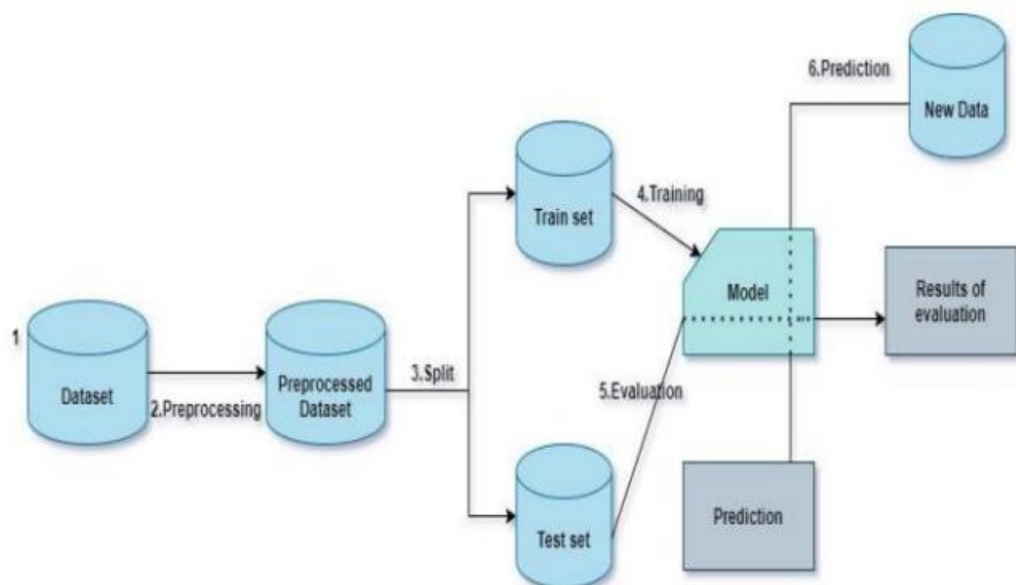
3 Design Details

Process flow

Based on the use-case, we will use a machine learning base model. Below the Process flow .
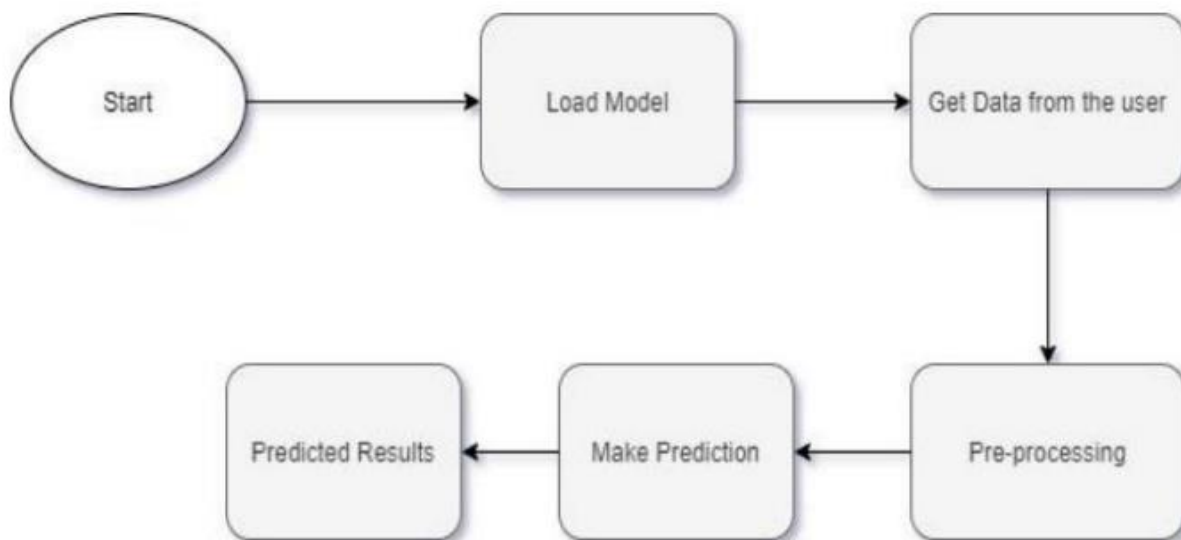
Proposed Methodology

Model Training and Evaluation

Deployment Process

Event Log

The system should log every event so that the user will know what process is running internally.

Initial Step-step description:

• The system identifies at what step logging required

• The system should be able to log each and every system flow.

• Developer can choose logging method. We chose File logging.

 • System should not hang as we have used file logging. Logging just because we can easily debug issues so logging is mandatory to do.

Error Handling

Should error be encountered, an explanation will be displayed as to what went wrong? An error will be defined as anything that falls outside the normal and intended usage.

4 Performance

Reusability

The code written and the components used has the ability to be reused with no problems if there is similar problem statement.

Application Compatibility

The different components for this project will be using Python as an interface between them. Each component will have its own task to perform, and it is the job of the Python to ensure proper transfer of information.

Resource Utilization

When any task is performed, it will likely use all the processing power available until that function is finished.

Deployment

5. Conclusion

The system predicts the disease of the user whether he has disease or not, it shows two outputs one is Healthy And other one is Parkinson's disease.