

**Project Design Phase-I**  
**Proposed Solution**

Date	29 September 2022
Team ID	PNT2022TMID14058
Project Name	Detecting Parkinson's Disease using Machine Learning
Team Leader	Rithikasri R
Team Members	Rajendhiran S Sakthi Praba V Thanush S
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Maximum Marks	2 Marksquill

**Proposed Solution:**

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Dopamine, a chemical that enables brain cells to connect with one another, is disrupted in Parkinson's disease-causing brain cells. It is a degenerative central nervous system illness that impairs movement and causes tremors and rigidity. The symptoms usually emerge slowly, and as the disease worsens, non-motor symptoms become more common. The most obvious early symptoms are tremor, rigidity, slowness of movement, and difficulty with walking.
2.	Idea / Solution description	The project's goal is to use the Python modules scikit-learn, numpy, pandas, and xgboost to offer a method for detecting Parkinson's illness. After loading the data, obtaining the features and labels, scaling the features, splitting the dataset, and creating an XGBClassifier, we will determine the model's correctness. The major goal of the implementation is to create a model using XGBoost that can be used to categorise a person as Healthy or having Parkinson's disease.
3.	Novelty / Uniqueness	A sparsity-aware split discovery technique is incorporated into the XGBoost algorithm for detecting Parkinson's disease in order to accommodate various sparsity patterns in the data. The XGBoost algorithm's out-of-core computing function maximises and optimises the use of the available disc space.

4.	Social Impact / Customer Satisfaction	The likelihood of the disease progressing, limiting the impact of PD on QoL, and possibly lowering long-term treatment costs are all dependent on the early diagnosis and treatment of PD. The suggested remedy tries to use a variety of indicators to predict early Parkinson disease in patients.
5.	Business Model (Revenue Model)	<p>Key partners:</p> <ul style="list-style-type: none"> <li>• Distributors</li> <li>• Academia</li> <li>• Platforms</li> </ul> <p>Key activities:</p> <ul style="list-style-type: none"> <li>• Development of solutions</li> <li>• Data acquisition</li> <li>• Platform operation</li> <li>• Clinical Trials</li> </ul> <p>Key Resources:</p> <ul style="list-style-type: none"> <li>• Data</li> <li>• People</li> </ul> <p>Value Propositions:</p> <ul style="list-style-type: none"> <li>• Uniqueness</li> <li>• Performance</li> <li>• Cost reduction</li> </ul> <p>Customer Segments:</p> <ul style="list-style-type: none"> <li>• Clinics,Hospitals</li> <li>• Software/platform developers</li> </ul>
6.	Scalability of the Solution	With various calculations, XGBooster's exactness, correctness, review, and other qualities are quite good. In terms of performance, XGBooster not only keeps up with but outperforms all those other algorithms. Real-world scale issues can be resolved using XGBoost with the least amount of resources.