

The background features a dark blue gradient with three glowing, translucent 3D rings. One ring is positioned behind the title text, another to the left, and a third to the right.

Parkinson's Disease Detection

Presentation

Introduction

- Parkinson's disease is a brain disorder that causes unintended or uncontrollable movements, such as shaking, stiffness and difficulty with balance and coordination
- Nerve cell damage in the brain causes dopamine levels to drop, leading to the symptoms of Parkinson's.
- Parkinson's often starts with a tremor in one hand. Other symptoms are slow movement, stiffness and loss of balance.
- Symptoms usually begin gradually and worsen over time. As the disease progresses, people may have difficulty walking and talking.

Objective

The Main objective of Parkinson's disease detection is to build a model using Machine learning to accurately detect the presence of Parkinson's disease in an individual.



Work Flow

1. Data



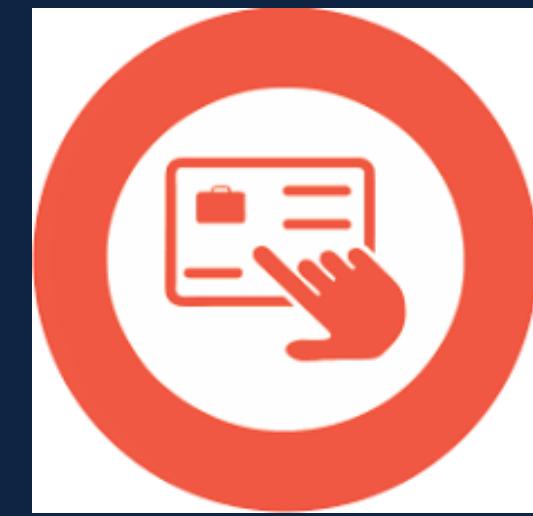
Parkinson's Data

2. Pre processing



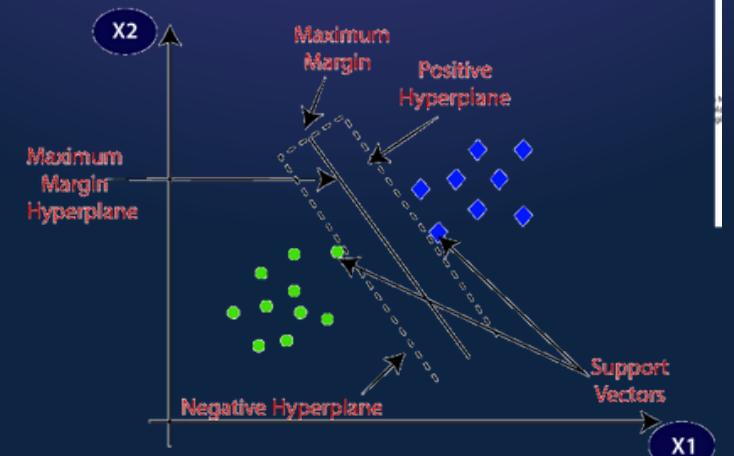
Data pre-processing

3. Train-test



train and test split

4. Model



SVM model

Model Used

- We have used Support vector machine(SVM) algorithm
- Svm is supervised learning algorithm that can be used for both classification Or regression
- Svm can classify data into two categories by finding the best hyperplane that separates the two categories.
- Our dataset contains over 195 entries .
- In our case,SVM classifies the data into two categories
- One is patients have parkinson's disease and another is patient is healthy

Code snippets

```
[68] # printing the first 5 rows of the dataframe
parkinsons_data.head()

   name  MDVP:Fo(Hz)  MDVP:Fhi(Hz)  MDVP:Flo(Hz)  MDVP:Jitter(%)  MDVP:Jitter(Abs)  MDVP:RAP  MDVP:PPQ  Jitter:DDP  MDVP:Shimmer  ...  Shimmer:DDA  NHR  HNR  status
0  phon_R01_S01_1    119.992      157.302       74.997     0.00784      0.00007    0.00370    0.00554    0.01109     0.04374  ...    0.06545  0.02211  21.033    1  0.4
1  phon_R01_S01_2    122.400      148.650      113.819     0.00968      0.00008    0.00465    0.00696    0.01394     0.06134  ...    0.09403  0.01929  19.085    1  0.4
2  phon_R01_S01_3    116.682      131.111      111.555     0.01050      0.00009    0.00544    0.00781    0.01633     0.05233  ...    0.08270  0.01309  20.651    1  0.4
3  phon_R01_S01_4    116.676      137.871      111.366     0.00997      0.00009    0.00502    0.00698    0.01505     0.05492  ...    0.08771  0.01353  20.644    1  0.4
4  phon_R01_S01_5    116.014      141.781      110.655     0.01284      0.00011    0.00655    0.00908    0.01966     0.06425  ...    0.10470  0.01767  19.649    1  0.4

5 rows × 24 columns
```

```
[69] #getting to know what inside the dataset and if there is some missing data inside
parkinsons_data.shape
parkinsons_data.info()
parkinsons_data.isnull().sum()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 195 entries, 0 to 194
Data columns (total 24 columns):
 #   Column           Non-Null Count  Dtype  
--- 
 0   name            195 non-null    object 
 1   MDVP:Fo(Hz)    195 non-null    float64
 2   MDVP:Fhi(Hz)   195 non-null    float64
 3   MDVP:Flo(Hz)   195 non-null    float64
 4   MDVP:Jitter(%) 195 non-null    float64
 5   MDVP:Jitter(Abs) 195 non-null    float64
 6   MDVP:RAP        195 non-null    float64
 7   MDVP:PPQ        195 non-null    float64
 8   Jitter:DDP      195 non-null    float64
 9   MDVP:Shimmer    195 non-null    float64
 10  Shimmer:DDA    195 non-null    float64
 11  NHR            195 non-null    float64
 12  HNR            195 non-null    float64
 13  status          195 non-null    int64 
 14  MDVP:Shimmer:DDA 195 non-null    float64
 15  MDVP:Jitter:DDP 195 non-null    float64
 16  MDVP:Shimmer:NHR 195 non-null    float64
 17  MDVP:Shimmer:HNR 195 non-null    float64
 18  MDVP:Shimmer:status 195 non-null    float64
 19  MDVP:Jitter:status 195 non-null    float64
 20  MDVP:Shimmer:MDVP:Shimmer 195 non-null    float64
 21  MDVP:Shimmer:MDVP:PPQ 195 non-null    float64
 22  MDVP:Shimmer:MDVP:RAP 195 non-null    float64
 23  MDVP:Shimmer:MDVP:Flo(Hz) 195 non-null    float64
 24  MDVP:Shimmer:MDVP:Fhi(Hz) 195 non-null    float64
 25  MDVP:Shimmer:MDVP:Fo(Hz) 195 non-null    float64
```

```
[1]
The Person has Parkinsons
/usr/local/lib/python3.10/dist-packages/warnings.warn()
```

Code snippets

parkinsons.data

File Edit View

name,MDVP:Fo(Hz),MDVP:Fhi(Hz),MDVP:Flo(Hz),MDVP:Jitter(%),MDVP:Jitter(Abs),MDVP:RAP,MDVP:PPQ,Jitter:DDP,MDVP:Shimmer,MDVP:Shimmer(dB),Shimmer:APQ3,Shimmer:APQ5,MDVP:APQ,Shimmer:DDA,NHR,HNR,status,RPDE,DFA,spread1,spread2,D2,PPE

phon_R01_S01_

1,119.99200,157.30200,74.99700,0.00784,0.00007,0.00370,0.00554,0.01109,0.04374,0.42600,0.02182,0.03130,0.02971,0.06545,0.02211,21.03300,1,
0.414783,0.815285,-4.813031,0.266482,2.301442,0.284654

phon_R01_S01_

2,122.40000,148.65000,113.81900,0.00968,0.00008,0.00465,0.00696,0.01394,0.06134,0.62600,0.03134,0.04518,0.04368,0.09403,0.01929,19.08500,1
,0.458359,0.819521,-4.075192,0.335590,2.486855,0.368674

phon_R01_S01_

3,116.68200,131.11100,111.55500,0.01050,0.00009,0.00544,0.00781,0.01633,0.05233,0.48200,0.02757,0.03858,0.03590,0.08270,0.01309,20.65100,1
,0.429895,0.825288,-4.443179,0.311173,2.342259,0.332634

phon_R01_S01_

4,116.67600,137.87100,111.36600,0.00997,0.00009,0.00502,0.00698,0.01505,0.05492,0.51700,0.02924,0.04005,0.03772,0.08771,0.01353,20.64400,1
,0.434969,0.819235,-4.117501,0.334147,2.405554,0.368975

phon_R01_S01_

5,116.01400,141.78100,110.65500,0.01284,0.00011,0.00655,0.00908,0.01966,0.06425,0.58400,0.03490,0.04825,0.04465,0.10470,0.01767,19.64900,1
,0.417356,0.823484,-3.747787,0.234513,2.332180,0.410335

phon_R01_S01_

6,120.55200,131.16200,113.78700,0.00968,0.00008,0.00463,0.00750,0.01388,0.04701,0.45600,0.02328,0.03526,0.03243,0.06985,0.01222,21.37800,1
,0.415564,0.825069,-4.242867,0.299111,2.187560,0.357775

phon_R01_S02_

1,120.26700,137.24400,114.82000,0.00333,0.00003,0.00155,0.00202,0.00466,0.01608,0.14000,0.00779,0.00937,0.01351,0.02337,0.00607,24.88600,1
,0.596040,0.764112,-5.634322,0.257682,1.854785,0.211756

phon_R01_S02_

2,107.33200,113.84000,104.31500,0.00290,0.00003,0.00144,0.00182,0.00431,0.01567,0.13400,0.00829,0.00946,0.01256,0.02487,0.00344,26.89200,1
,0.637420,0.763262,-6.167603,0.183721,2.064693,0.163755

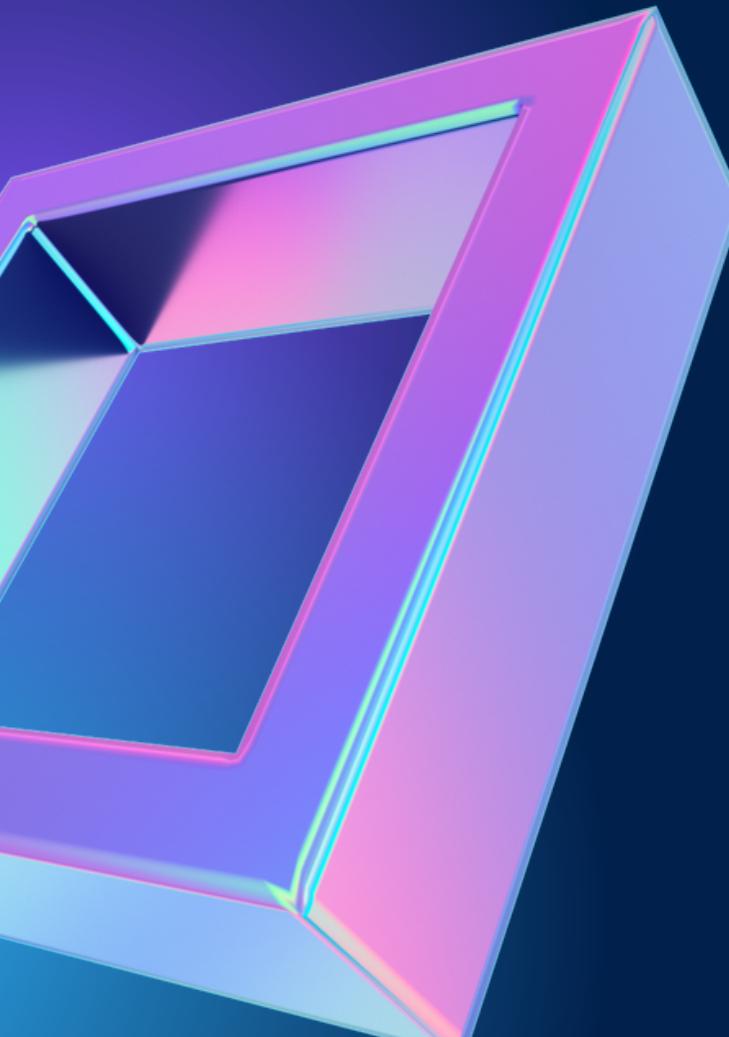
phon_R01_S02_

3,95.73000,132.06800,91.75400,0.00551,0.00006,0.00293,0.00332,0.00880,0.02093,0.19100,0.01073,0.01277,0.01717,0.03218,0.01070,21.81200,1,0
.....



Future Plans

- Multiiple disease detection:
Enhancing the model so it can detect multiple disease
- Cross-platform software:
Making version of software that can run on different platform.
- Increasing Accuracy:
Making model more accurate



Thank You

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