```
#Importing Libraries

import numpy as np
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn import svm
from sklearn.metrics import accuracy_score
```

Parkinson Disease Prediction Using Support Vector Machine Model

```
#Reading the CSV File
data = pd.read_csv('Parkinsons_Dataset.csv')
data

                 name  MDVP:Fo(Hz)  MDVP:Fhi(Hz)  MDVP:Flo(Hz)
MDVP:Jitter(%)  \
0     phon_R01_S01_1      119.992        157.302        74.997
0.00784
1     phon_R01_S01_2      122.400        148.650       113.819
0.00968
2     phon_R01_S01_3      116.682        131.111       111.555
0.01050
3     phon_R01_S01_4      116.676        137.871       111.366
0.00997
4     phon_R01_S01_5      116.014        141.781       110.655
0.01284
..               ...          ...            ...           ...
...
190   phon_R01_S50_2      174.188        230.978        94.261
0.00459
191   phon_R01_S50_3      209.516        253.017        89.488
0.00564
192   phon_R01_S50_4      174.688        240.005        74.287
0.01360
193   phon_R01_S50_5      198.764        396.961        74.904
0.00740
194   phon_R01_S50_6      214.289        260.277        77.973
0.00567

      MDVP:Jitter(Abs)  MDVP:RAP  MDVP:PPQ  Jitter:DDP
MDVP:Shimmer   ...  \
0              0.00007   0.00370   0.00554     0.01109
0.04374   ...
1              0.00008   0.00465   0.00696     0.01394
0.06134   ...
2              0.00009   0.00544   0.00781     0.01633
0.05233   ...
3              0.00009   0.00502   0.00698     0.01505
```

```
0.05492  ...
4            0.00011   0.00655   0.00908      0.01966
0.06425  ...
..              ...       ...       ...          ...          ... ...
190          0.00003   0.00263   0.00259      0.00790
0.04087  ...
191          0.00003   0.00331   0.00292      0.00994
0.02751  ...
192          0.00008   0.00624   0.00564      0.01873
0.02308  ...
193          0.00004   0.00370   0.00390      0.01109
0.02296  ...
194          0.00003   0.00295   0.00317      0.00885
0.01884  ...
```

	Shimmer:DDA	NHR	HNR	status	RPDE	DFA	spread1
0	0.06545	0.02211	21.033	1	0.414783	0.815285	-4.813031
1	0.09403	0.01929	19.085	1	0.458359	0.819521	-4.075192
2	0.08270	0.01309	20.651	1	0.429895	0.825288	-4.443179
3	0.08771	0.01353	20.644	1	0.434969	0.819235	-4.117501
4	0.10470	0.01767	19.649	1	0.417356	0.823484	-3.747787
..	...	...	...	...	...	...	...
190	0.07008	0.02764	19.517	0	0.448439	0.657899	-6.538586
191	0.04812	0.01810	19.147	0	0.431674	0.683244	-6.195325
192	0.03804	0.10715	17.883	0	0.407567	0.655683	-6.787197
193	0.03794	0.07223	19.020	0	0.451221	0.643956	-6.744577
194	0.03078	0.04398	21.209	0	0.462803	0.664357	-5.724056

	spread2	D2	PPE
0	0.266482	2.301442	0.284654
1	0.335590	2.486855	0.368674
2	0.311173	2.342259	0.332634
3	0.334147	2.405554	0.368975
4	0.234513	2.332180	0.410335
..	...	...	...
190	0.121952	2.657476	0.133050

```
191  0.129303  2.784312  0.168895
192  0.158453  2.679772  0.131728
193  0.207454  2.138608  0.123306
194  0.190667  2.555477  0.148569

[195 rows x 24 columns]
```

#Checking for null values
data.isnull().sum()

```
name                  0
MDVP:Fo(Hz)           0
MDVP:Fhi(Hz)          0
MDVP:Flo(Hz)          0
MDVP:Jitter(%)        0
MDVP:Jitter(Abs)      0
MDVP:RAP              0
MDVP:PPQ              0
Jitter:DDP            0
MDVP:Shimmer          0
MDVP:Shimmer(dB)      0
Shimmer:APQ3          0
Shimmer:APQ5          0
MDVP:APQ              0
Shimmer:DDA           0
NHR                   0
HNR                   0
status                0
RPDE                  0
DFA                   0
spread1               0
spread2               0
D2                    0
PPE                   0
dtype: int64
```

#Removing different statistic values
data.describe()

	MDVP:Fo(Hz)	MDVP:Fhi(Hz)	MDVP:Flo(Hz)	MDVP:Jitter(%)	\
count	195.000000	195.000000	195.000000	195.000000	
mean	154.228641	197.104918	116.324631	0.006220	
std	41.390065	91.491548	43.521413	0.004848	
min	88.333000	102.145000	65.476000	0.001680	
25%	117.572000	134.862500	84.291000	0.003460	
50%	148.790000	175.829000	104.315000	0.004940	
75%	182.769000	224.205500	140.018500	0.007365	
max	260.105000	592.030000	239.170000	0.033160	

| | MDVP:Jitter(Abs) | MDVP:RAP | MDVP:PPQ | Jitter:DDP |

```
MDVP:Shimmer   \
count        195.000000   195.000000   195.000000   195.000000
195.000000
mean           0.000044     0.003306     0.003446     0.009920
0.029709
std            0.000035     0.002968     0.002759     0.008903
0.018857
min            0.000007     0.000680     0.000920     0.002040
0.009540
25%            0.000020     0.001660     0.001860     0.004985
0.016505
50%            0.000030     0.002500     0.002690     0.007490
0.022970
75%            0.000060     0.003835     0.003955     0.011505
0.037885
max            0.000260     0.021440     0.019580     0.064330
0.119080

        MDVP:Shimmer(dB)   ...   Shimmer:DDA          NHR          HNR
status  \
count        195.000000   ...    195.000000   195.000000   195.000000
195.000000
mean           0.282251   ...      0.046993     0.024847    21.885974
0.753846
std            0.194877   ...      0.030459     0.040418     4.425764
0.431878
min            0.085000   ...      0.013640     0.000650     8.441000
0.000000
25%            0.148500   ...      0.024735     0.005925    19.198000
1.000000
50%            0.221000   ...      0.038360     0.011660    22.085000
1.000000
75%            0.350000   ...      0.060795     0.025640    25.075500
1.000000
max            1.302000   ...      0.169420     0.314820    33.047000
1.000000

              RPDE          DFA      spread1      spread2           D2
PPE
count  195.000000   195.000000   195.000000   195.000000   195.000000
195.000000
mean     0.498536     0.718099    -5.684397     0.226510     2.381826
0.206552
std      0.103942     0.055336     1.090208     0.083406     0.382799
0.090119
min      0.256570     0.574282    -7.964984     0.006274     1.423287
0.044539
25%      0.421306     0.674758    -6.450096     0.174351     2.099125
0.137451
```

```
50%        0.495954     0.722254     -5.720868     0.218885     2.361532
0.194052
75%        0.587562     0.761881     -5.046192     0.279234     2.636456
0.252980
max        0.685151     0.825288     -2.434031     0.450493     3.671155
0.527367

[8 rows x 23 columns]
```

```python
#1 -> Parkinson Positive
#0 -> Healthy

data['status'].value_counts()
```

```
status
1    147
0     48
Name: count, dtype: int64
```

```python
#Data Pre-processing

x = data.drop(columns=['name','status'],axis=1)
y = data['status']
print(x)
print(y)
```

```
     MDVP:Fo(Hz)  MDVP:Fhi(Hz)  MDVP:Flo(Hz)  MDVP:Jitter(%)  \
0        119.992       157.302        74.997         0.00784
1        122.400       148.650       113.819         0.00968
2        116.682       131.111       111.555         0.01050
3        116.676       137.871       111.366         0.00997
4        116.014       141.781       110.655         0.01284
..           ...           ...           ...             ...
190      174.188       230.978        94.261         0.00459
191      209.516       253.017        89.488         0.00564
192      174.688       240.005        74.287         0.01360
193      198.764       396.961        74.904         0.00740
194      214.289       260.277        77.973         0.00567

     MDVP:Jitter(Abs)  MDVP:RAP  MDVP:PPQ  Jitter:DDP  MDVP:Shimmer  \
0             0.00007   0.00370   0.00554     0.01109       0.04374
1             0.00008   0.00465   0.00696     0.01394       0.06134
2             0.00009   0.00544   0.00781     0.01633       0.05233
3             0.00009   0.00502   0.00698     0.01505       0.05492
4             0.00011   0.00655   0.00908     0.01966       0.06425
..                ...       ...       ...         ...           ...
190           0.00003   0.00263   0.00259     0.00790       0.04087
191           0.00003   0.00331   0.00292     0.00994       0.02751
192           0.00008   0.00624   0.00564     0.01873       0.02308
193           0.00004   0.00370   0.00390     0.01109       0.02296
194           0.00003   0.00295   0.00317     0.00885       0.01884
```

```
     MDVP:Shimmer(dB)  ...  MDVP:APQ  Shimmer:DDA      NHR     HNR
RPDE  \
0                0.426  ...   0.02971      0.06545  0.02211  21.033
0.414783
1                0.626  ...   0.04368      0.09403  0.01929  19.085
0.458359
2                0.482  ...   0.03590      0.08270  0.01309  20.651
0.429895
3                0.517  ...   0.03772      0.08771  0.01353  20.644
0.434969
4                0.584  ...   0.04465      0.10470  0.01767  19.649
0.417356
..                 ...  ...       ...          ...      ...     ...
...
190              0.405  ...   0.02745      0.07008  0.02764  19.517
0.448439
191              0.263  ...   0.01879      0.04812  0.01810  19.147
0.431674
192              0.256  ...   0.01667      0.03804  0.10715  17.883
0.407567
193              0.241  ...   0.01588      0.03794  0.07223  19.020
0.451221
194              0.190  ...   0.01373      0.03078  0.04398  21.209
0.462803

          DFA    spread1   spread2        D2       PPE
0    0.815285  -4.813031  0.266482  2.301442  0.284654
1    0.819521  -4.075192  0.335590  2.486855  0.368674
2    0.825288  -4.443179  0.311173  2.342259  0.332634
3    0.819235  -4.117501  0.334147  2.405554  0.368975
4    0.823484  -3.747787  0.234513  2.332180  0.410335
..        ...        ...       ...       ...       ...
190  0.657899  -6.538586  0.121952  2.657476  0.133050
191  0.683244  -6.195325  0.129303  2.784312  0.168895
192  0.655683  -6.787197  0.158453  2.679772  0.131728
193  0.643956  -6.744577  0.207454  2.138608  0.123306
194  0.664357  -5.724056  0.190667  2.555477  0.148569

[195 rows x 22 columns]
0      1
1      1
2      1
3      1
4      1
      ..
190    0
191    0
192    0
193    0
```

```
194    0
Name: status, Length: 195, dtype: int64

#Spliting the data into training data and testing data

x_train,x_test,y_train,y_test =
train_test_split(x,y,test_size=0.2,random_state=2)
print(x_train)
print(x_test)

     MDVP:Fo(Hz)  MDVP:Fhi(Hz)  MDVP:Flo(Hz)  MDVP:Jitter(%)  \
123      182.018       197.173        79.187         0.00842
160      114.238       124.393        77.022         0.00581
94       157.821       172.975        68.401         0.00358
57       117.274       129.916       110.402         0.00752
41       184.055       196.537       166.977         0.00258
..           ...           ...           ...             ...
43       241.404       248.834       232.483         0.00281
22       167.930       193.221        79.068         0.00442
72       120.080       139.710       111.208         0.00405
15       142.167       217.455        83.159         0.00369
168      197.569       217.627        90.794         0.00803

     MDVP:Jitter(Abs)  MDVP:RAP  MDVP:PPQ  Jitter:DDP  MDVP:Shimmer  \
123           0.00005   0.00506   0.00449     0.01517       0.02503
160           0.00005   0.00299   0.00316     0.00896       0.04009
94            0.00002   0.00196   0.00196     0.00587       0.03716
57            0.00006   0.00299   0.00469     0.00898       0.02293
41            0.00001   0.00134   0.00147     0.00403       0.01463
..                ...       ...       ...         ...           ...
43            0.00001   0.00157   0.00173     0.00470       0.01760
22            0.00003   0.00220   0.00247     0.00661       0.04351
72            0.00003   0.00180   0.00220     0.00540       0.01706
15            0.00003   0.00157   0.00203     0.00471       0.01503
168           0.00004   0.00490   0.00448     0.01470       0.02177

     MDVP:Shimmer(dB)  ...  MDVP:APQ  Shimmer:DDA      NHR     HNR
RPDE  \
123             0.231  ...   0.01931      0.04115  0.01813  18.784
0.589956
160             0.406  ...   0.04114      0.04736  0.02073  20.437
0.653139
94              0.307  ...   0.02764      0.06185  0.00850  22.219
0.502380
57              0.221  ...   0.01948      0.03568  0.00681  22.817
0.530529
41              0.132  ...   0.01234      0.02226  0.00257  26.453
0.306443
..                ...  ...       ...          ...      ...     ...
...
```

```
43                0.154   ...   0.01251      0.03017  0.00675  23.145
0.457702
22                0.377   ...   0.04246      0.06685  0.01280  22.468
0.619060
72                0.152   ...   0.01345      0.02921  0.00442  25.742
0.495954
15                0.126   ...   0.01359      0.02316  0.00839  25.175
0.565924
168               0.189   ...   0.01439      0.03836  0.01337  19.269
0.372222

          DFA    spread1    spread2        D2       PPE
123  0.732903  -5.445140  0.142466  2.174306  0.215558
160  0.694571  -5.185987  0.259229  2.151121  0.244948
94   0.712170  -6.251425  0.188056  2.143851  0.160812
57   0.817756  -4.608260  0.290024  2.021591  0.314464
41   0.759203  -7.044105  0.063412  2.361532  0.115730
..        ...        ...       ...       ...       ...
43   0.634267  -6.793547  0.158266  2.256699  0.117399
22   0.679834  -4.330956  0.262384  2.916777  0.285695
72   0.762959  -5.791820  0.329066  2.205024  0.188180
15   0.658245  -5.340115  0.210185  2.205546  0.234589
168  0.725216  -5.736781  0.164529  2.882450  0.202879

[156 rows x 22 columns]
     MDVP:Fo(Hz)  MDVP:Fhi(Hz)  MDVP:Flo(Hz)  MDVP:Jitter(%)  \
10        88.333        112.240        84.072         0.00505
79       100.770        115.697        85.545         0.01038
164      102.273        142.830        85.902         0.00907
142      198.458        219.290       148.691         0.00376
186      116.556        592.030        86.228         0.00496
133      118.747        123.723       109.836         0.00331
35       201.464        210.565       195.708         0.00198
137      113.166        130.270       100.673         0.00502
25       104.400        206.002        77.968         0.00633
2        116.682        131.111       111.555         0.01050
12       136.926        159.866       131.276         0.00293
128      119.031        127.533       109.216         0.00440
144      202.544        241.350       164.168         0.00254
3        116.676        137.871       111.366         0.00997
48       122.188        128.611       115.765         0.00524
29       162.568        198.346        77.630         0.00502
14       152.845        163.305        75.836         0.00294
119      217.116        233.481        93.978         0.00404
6        120.267        137.244       114.820         0.00333
23       173.917        192.735        86.180         0.00476
108      151.989        157.339       132.857         0.00174
143      202.805        231.508        86.232         0.00370
129      120.078        126.632       105.667         0.00270
```

	MDVP			
174	117.004	144.466	99.923	0.00353
45	242.852	255.034	227.911	0.00225
120	128.940	479.697	88.251	0.00581
173	113.715	116.443	96.913	0.00349
125	145.174	198.109	80.637	0.00733
9	95.056	120.103	91.226	0.00532
163	112.150	131.669	97.527	0.00519
54	108.807	134.656	102.874	0.00761
13	139.173	179.139	76.556	0.00390
109	193.030	208.900	80.297	0.00766
194	214.289	260.277	77.973	0.00567
78	95.385	102.145	90.264	0.00608
114	206.327	226.355	92.020	0.00495
44	243.439	250.912	232.435	0.00210
82	100.960	110.019	95.628	0.00606
158	126.144	154.284	97.543	0.00975

	MDVP:Jitter(Abs)	MDVP:RAP	MDVP:PPQ	Jitter:DDP	MDVP:Shimmer \
10	0.000060	0.00254	0.00330	0.00763	0.02143
79	0.000100	0.00622	0.00576	0.01865	0.03121
164	0.000090	0.00493	0.00461	0.01480	0.02814
142	0.000020	0.00182	0.00215	0.00546	0.03527
186	0.000040	0.00254	0.00263	0.00762	0.01660
133	0.000030	0.00168	0.00171	0.00504	0.01043
35	0.000010	0.00105	0.00115	0.00314	0.01194
137	0.000040	0.00257	0.00312	0.00772	0.05279
25	0.000060	0.00316	0.00375	0.00948	0.03767
2	0.000090	0.00544	0.00781	0.01633	0.05233
12	0.000020	0.00118	0.00153	0.00355	0.01259
128	0.000040	0.00214	0.00192	0.00641	0.01033
144	0.000010	0.00100	0.00133	0.00301	0.02662
3	0.000090	0.00502	0.00698	0.01505	0.05492
48	0.000040	0.00169	0.00203	0.00507	0.01613
29	0.000030	0.00280	0.00253	0.00841	0.01791
14	0.000020	0.00121	0.00149	0.00364	0.01828
119	0.000020	0.00127	0.00128	0.00381	0.01299
6	0.000030	0.00155	0.00202	0.00466	0.01608
23	0.000030	0.00221	0.00258	0.00663	0.04192
108	0.000010	0.00075	0.00096	0.00225	0.01024
143	0.000020	0.00189	0.00211	0.00568	0.01997
129	0.000020	0.00116	0.00135	0.00349	0.01022
174	0.000030	0.00176	0.00218	0.00528	0.01657
45	0.000009	0.00117	0.00139	0.00350	0.01494
120	0.000050	0.00241	0.00314	0.00723	0.02008
173	0.000030	0.00171	0.00203	0.00514	0.01472
125	0.000050	0.00414	0.00422	0.01242	0.02362
9	0.000060	0.00268	0.00332	0.00803	0.02838
163	0.000050	0.00291	0.00284	0.00873	0.01756
54	0.000070	0.00349	0.00486	0.01046	0.02719

13	0.000030	0.00165	0.00208	0.00496	0.01642
109	0.000040	0.00450	0.00389	0.01351	0.03044
194	0.000030	0.00295	0.00317	0.00885	0.01884
78	0.000060	0.00331	0.00332	0.00994	0.03202
114	0.000020	0.00302	0.00246	0.00905	0.02105
44	0.000009	0.00109	0.00137	0.00327	0.01419
82	0.000060	0.00351	0.00348	0.01053	0.02427
158	0.000080	0.00593	0.00454	0.01778	0.02852

	MDVP:Shimmer(dB)	...	MDVP:APQ	Shimmer:DDA	NHR	HNR	RPDE \
10	0.197	...	0.01892	0.03237	0.01166	21.118	0.611137
79	0.361	...	0.02139	0.05320	0.02220	19.200	0.594387
164	0.272	...	0.02073	0.04736	0.03882	18.447	0.671378
142	0.297	...	0.02530	0.06165	0.01728	18.702	0.606273
186	0.154	...	0.01491	0.02460	0.01397	23.958	0.566424
133	0.099	...	0.00903	0.01471	0.00504	25.619	0.482296
35	0.107	...	0.00957	0.01758	0.00135	31.732	0.344252
137	0.476	...	0.04134	0.08689	0.03690	16.747	0.625362
25	0.381	...	0.03780	0.05197	0.02887	22.066	0.522746
2	0.482	...	0.03590	0.08270	0.01309	20.651	0.429895
12	0.112	...	0.01140	0.01968	0.00581	25.703	0.460600
128	0.098	...	0.00811	0.01614	0.01724	26.842	0.457541
144	0.228	...	0.02006	0.04426	0.01049	20.680	0.497480
3	0.517	...	0.03772	0.08771	0.01353	20.644	0.434969
48	0.143	...	0.01433	0.02566	0.00839	23.162	0.579597
29	0.168	...	0.01799	0.02380	0.01170	25.678	0.427785
14	0.158	...	0.01246	0.03191	0.00609	24.922	0.474791
119	0.124	...	0.01075	0.02038	0.00681	24.581	0.462516
6	0.140	...	0.01351	0.02337	0.00607	24.886	0.596040

23	0.364	...	0.03772	0.06562	0.01840	20.422
0.537264						
108	0.093	...	0.00993	0.01364	0.00238	29.928
0.311369						
143	0.180	...	0.01506	0.03350	0.02010	18.687
0.536102						
129	0.090	...	0.00903	0.01428	0.00487	26.369
0.491345						
174	0.145	...	0.01318	0.02643	0.00590	25.445
0.387482						
45	0.134	...	0.01014	0.02542	0.00476	25.032
0.431285						
120	0.221	...	0.01734	0.02548	0.02350	24.743
0.487756						
173	0.133	...	0.01148	0.02245	0.00478	26.547
0.380253						
125	0.233	...	0.01944	0.03706	0.01874	18.857
0.637518						
9	0.255	...	0.02444	0.04324	0.01022	21.862
0.547037						
163	0.155	...	0.01363	0.02902	0.01435	21.219
0.557045						
54	0.255	...	0.02067	0.04450	0.01036	21.028
0.536009						
13	0.154	...	0.01797	0.02184	0.01041	24.889
0.430166						
109	0.275	...	0.02084	0.05312	0.00947	21.934
0.497554						
194	0.190	...	0.01373	0.03078	0.04398	21.209
0.462803						
78	0.263	...	0.02455	0.05408	0.01062	21.875
0.644954						
114	0.209	...	0.01604	0.03320	0.01048	21.864
0.331508						
44	0.126	...	0.01033	0.02330	0.00454	25.368
0.438296						
82	0.216	...	0.01751	0.04114	0.01237	20.536
0.554610						
158	0.266	...	0.02157	0.04499	0.03828	21.534
0.635015						

	DFA	spread1	spread2	D2	PPE
10	0.776156	-5.249770	0.391002	2.407313	0.249740
79	0.790117	-4.913885	0.265699	2.398422	0.277948
164	0.674562	-2.929379	0.396746	2.560422	0.367233
142	0.661735	-5.585259	0.310746	2.465528	0.209863
186	0.667654	-6.431119	0.153310	2.161936	0.120605
133	0.723096	-6.448134	0.178713	2.034827	0.141422
35	0.742737	-7.777685	0.170183	2.447064	0.057610

```
137   0.708617 -4.654894   0.304107   2.672362   0.274387
25    0.737948 -5.571843   0.236853   2.846369   0.219514
2     0.825288 -4.443179   0.311173   2.342259   0.332634
12    0.646846 -6.547148   0.152813   2.041277   0.138512
128   0.699787 -6.890021   0.152941   2.328513   0.112856
144   0.630409 -6.132663   0.220617   2.576563   0.159777
3     0.819235 -4.117501   0.334147   2.405554   0.368975
48    0.733659 -6.439398   0.266392   2.079922   0.133867
29    0.723797 -6.635729   0.209866   1.957961   0.135242
14    0.654027 -6.105098   0.203653   2.125618   0.170100
119   0.582710 -5.517173   0.389295   2.925862   0.220657
6     0.764112 -5.634322   0.257682   1.854785   0.211756
23    0.686894 -5.248776   0.210279   2.547508   0.253556
108   0.676066 -6.739151   0.160686   2.296873   0.115130
143   0.632631 -5.898673   0.213353   2.470746   0.189032
129   0.718839 -5.892061   0.195976   2.108873   0.183572
174   0.756482 -6.012559   0.229298   1.872946   0.163118
45    0.638928 -6.995820   0.102083   2.365800   0.102706
120   0.684130 -6.186128   0.279933   2.686240   0.152428
173   0.766700 -5.943501   0.192150   1.852542   0.179677
125   0.735546 -5.594275   0.127950   1.765957   0.222716
9     0.798463 -5.011879   0.325996   2.432792   0.271362
163   0.673086 -5.617124   0.184896   1.871871   0.212386
54    0.819032 -4.649573   0.205558   1.986899   0.316700
13    0.665833 -5.660217   0.254989   2.519422   0.199889
109   0.740539 -5.845099   0.278679   2.608749   0.185668
194   0.664357 -5.724056   0.190667   2.555477   0.148569
78    0.779612 -5.115212   0.249494   2.017753   0.260015
114   0.715121 -6.729713   0.181701   2.938114   0.115515
44    0.635285 -7.057869   0.091608   2.330716   0.091470
82    0.787896 -5.022288   0.146948   2.428306   0.264666
158   0.627337 -5.070096   0.280091   2.892300   0.249703

[39 rows x 22 columns]

scalar = StandardScaler()
scalar.fit(x_train)

StandardScaler()

x_train = scalar.transform(x_train)
x_test = scalar.transform(x_test)

#Model Training
model = svm.SVC(kernel='linear')
model.fit(x_train,y_train)

SVC(kernel='linear')

#Model Evaluation
x_train_prediction = model.predict(x_train)
```

```
x_train_data_accuracy = accuracy_score(y_train,x_train_prediction)
print("Accuracy Score : ", x_train_data_accuracy)

Accuracy Score :  0.8846153846153846

x_test_prediction = model.predict(x_test)
x_test_data_accuracy = accuracy_score(y_test,x_test_prediction)
print("Accuracy Score : ",x_test_data_accuracy)

Accuracy Score :  0.8717948717948718

#Predicting from a User Data

input_data
=(95.05600,120.10300,91.22600,0.00532,0.00006,0.00268,0.00332,0.00803,
0.02838,0.25500,0.01441,0.01725,0.02444,0.04324,0.01022,21.86200,0.547
037,0.798463,-5.011879,0.325996,2.432792,0.271362)
input = np.asarray(input_data)
input_reshaped =  input.reshape(1,-1)
standard_data  = scalar.transform(input_reshaped)
prediction = model.predict(standard_data)
print(prediction)
if(prediction[0] == 1):
    print("Person has Parkinson")
else:
    print("Person does not have Parkinson")

[1]
Person has Parkinson

c:\Users\RUPESH SHAH\AppData\Local\Programs\Python\Python312\Lib\site-
packages\sklearn\base.py:493: UserWarning: X does not have valid
feature names, but StandardScaler was fitted with feature names
  warnings.warn(

#Checking for Person with Not Parkinson Positive
input_data
=(114.56300,119.16700,86.64700,0.00327,0.00003,0.00146,0.00184,0.00439
,0.01185,0.10600,0.00557,0.00721,0.01095,0.01672,0.00703,24.77500,0.55
5303,0.659132,-6.710219,0.149694,1.913990,0.121777)
input = np.asarray(input_data)
input_reshaped =  input.reshape(1,-1)
standard_data  = scalar.transform(input_reshaped)
prediction = model.predict(standard_data)
print(prediction)
if(prediction[0] == 1):
    print("Person has Parkinson")
else:
    print("Person does not have Parkinson")
```

```
[0]
Person does not have Parkinson

c:\Users\RUPESH SHAH\AppData\Local\Programs\Python\Python312\Lib\site-
packages\sklearn\base.py:493: UserWarning: X does not have valid
feature names, but StandardScaler was fitted with feature names
  warnings.warn(
```