BUILDING THE MODEL

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PROJECT TITLE: Detecting Parkinson's Disease using Machine Learning

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The RandomForestClassifier machine learning model was used for this application. Complete code is uploaded in the file "Model Building.ipynb" in Sprint1.

Code and outputs:

Initializing and training the model:

In [98]:
```
model = RandomForestClassifier(n_estimators=100)
model.fit(x_train, y_train)
```

Out[98]:
```
RandomForestClassifier(bootstrap=True, class_weight=None, criterion='gini',
                       max_depth=None, max_features='auto', max_leaf_nodes=None,
                       min_impurity_decrease=0.0, min_impurity_split=None,
                       min_samples_leaf=1, min_samples_split=2,
                       min_weight_fraction_leaf=0.0, n_estimators=100,
                       n_jobs=None, oob_score=False, random_state=None,
                       verbose=0, warm_start=False)
```

Testing and evaluating the model:

In [101…
```
predictions = model.predict(x_test)    # predictions on the testing data

cm = confusion_matrix(y_test, predictions).flatten ()    # computing the confusion matrix
print(cm)
(tn, fp, fn, tp) = cm

accuracy = (tp + tn) / float(cm.sum())     # computing the accuracy
print(accuracy)
```

```
[14  1  6  9]
0.7666666666666667
```

Saving the model:

In [102…
```
pickle.dump(model,open('parkinson.pkl', 'wb'))
```