**About the Data Set**

The data we chosen for the project of INDU 6310 is consists of several parameters and attributes below is the explanation about the data set we have and definitely there are many common questions about the data they will be counter in the paragraphs below.

A person who has a Parkinson disease or need a diagnostics of Parkinson disease must pass through various stages of tests as designed by doctors and their teams for better understanding and severity of patient having Parkinson’s disease.

For the study of Parkinson disease 32 peoples as a patient were selected and they passed through a series of test for better understanding of their problems. Each Patient out of 32 passed through 6 iterations of the same tests. The diagnosis stage or data collection stage involves the application of a pre-designed and verified measurement methods to all the speech signals.

# Column Wise Description of Data

From 1st column to 5th column a term MDVP is frequently used so it will need an explanation,

Diagnostic was performed using the software for better accuracy and precision of the data a MDVP Kay Pentax (A medical company design work station for the analysis of speech and ENT tests).

Multi-Dimensional Voice Program (MDVP) is the premier software tool for quantitative acoustic assessment of voice quality of a patient under observation in the laboratory, it has a capability of calculating more than 22 parameters on a single vocalization input by the patient voice signal. Based on multiple testing and verifications with normal and disordered voices, MDVP software is exclusive in its ability to work correctly over an extensive variety of pathological voices.

* MDVP(FO): Fundamental frequency (Fo) is the vibratory rate of the vocal folds. It can be measured in hertz or cycle per second (CPS). Average fundamental frequency during conversation for males ranges from 100 to 150 Hz, whereas for females it ranges from 180 to 250 Hz.
* MDVP(FHI): maximum FO
* MDVP(FLO): minimum FO
* MDVP (Jitter %): **Jitter** is a measure of frequency instability. A normal **voice** has a small amount of instability during sustained vowel production.Normal instabilities are influences by tissue and muscle properties. It is measured in %.
* MDVP (Jitter abs): Absolute jitter.
* MDVP(RAP): Relative measure of the pitch disturbance.
* MDVP(PPQ): Pitch perturbation quotient
* MDVP(Shimmer): Shimmer is a measure of amplitude instability.
* MDVP (Shimmer db): Shimmer in db
* Shimmer (APQ 3-5): Six measures of variation in amplitude perturbation quotient (APQ)
* (NHR): Noise-to-harmonics Ratio
* (DFA): Signal fractal scaling exponent
* Spread 1-2: Two nonlinear measures of fundamental frequency variation
* (RPDE): recurrence period density entropy
* (DFA): detrended fluctuation analysis
* (PPE): Pitch period entropy