**Codebook**

**subject** . Person who performed the activity, it is an integer value in the range 1 to 30

**activityname** . Each of the six activities under experiment: LAYING, SITTING, STANDING, WALKING, WALKING\_DOWNSTAIRS, WALKING\_UPSTAIRS.

At the beginning of the description of original HAR dataset it is said:

The features selected for this database come from the accelerometer and gyroscope 3axial raw signals tAccXYZ and tGyroXYZ. These are time domain signals (prefix **'t'** to denote time) were captured at a constant rate of 50 Hz. Then they were filtered using a median filter and a 3rd order low pass Butterworth filter with a corner frequency of 20 Hz to remove noise. Similarly, the acceleration signal was then separated into body and gravity acceleration signals (tBodyAccXYZ and tGravityAccXYZ) using another low pass Butterworth filter with a corner frequency of 0.3 Hz.

Subsequently, the body linear acceleration and angular velocity were derived in time to obtain Jerk signals (tBodyAccJerkXYZ and tBodyGyroJerkXYZ). Also the magnitude of these threedimensional signals were calculated using the Euclidean norm (tBodyAccMag, tGravityAccMag, tBodyAccJerkMag, tBodyGyroMag, tBodyGyroJerkMag).

Finally a Fast Fourier Transform (FFT) was applied to some of these signals producing fBodyAccXYZ, fBodyAccJerkXYZ, fBodyGyroXYZ, fBodyAccJerkMag, fBodyGyroMag, fBodyGyroJerkMag. (Note the **'f'** to indicate frequency domain signals).

These signals were used to estimate variables of the feature vector for each pattern:

'XYZ' is used to denote 3axial signals in the X, Y and Z directions.

Authors of the original dataset estimated additional values from these signals such as mean: Mean value, std: Standard deviation, mad: Median absolute deviation, max: Largest value in array. However, **variables included in the tidy dataset** are those related to calculations of **means** and **standard deviations**, such that attribute names have either “mean” or “std” as part of their names.

The whole list of 79 variables contained is:

|  |
| --- |
| "tBodyAccmeanX" "tBodyAccmeanY"  "tBodyAccmeanZ"  "tGravityAccmeanX"  "tGravityAccmeanY" "tGravityAccmeanZ"  "tBodyAccJerkmeanX" "tBodyAccJerkmeanY"  "tBodyAccJerkmeanZ"  "tBodyGyromeanX"  "tBodyGyromeanY" "tBodyGyromeanZ"  "tBodyGyroJerkmeanX" "tBodyGyroJerkmeanY"  "tBodyGyroJerkmeanZ"  "tBodyAccMagmean"  "tGravityAccMagmean"  "tBodyAccJerkMagmean"  "tBodyGyroMagmean" "tBodyGyroJerkMagmean"  "fBodyAccmeanX" "fBodyAccmeanY"  "fBodyAccmeanZ"  "fBodyAccmeanFreqX"  "fBodyAccmeanFreqY" "fBodyAccmeanFreqZ"  "fBodyAccJerkmeanX" "fBodyAccJerkmeanY"  "fBodyAccJerkmeanZ"  "fBodyAccJerkmeanFreqX"  "fBodyAccJerkmeanFreqY" "fBodyAccJerkmeanFreqZ"  "fBodyGyromeanX" "fBodyGyromeanY"  "fBodyGyromeanZ"  "fBodyGyromeanFreqX"  "fBodyGyromeanFreqY" "fBodyGyromeanFreqZ"    "fBodyAccMagmean" "fBodyAccMagmeanFreq"    "fBodyBodyAccJerkMagmean" "fBodyBodyAccJerkMagmeanFreq"  "fBodyBodyGyroMagmean" "fBodyBodyGyroMagmeanFreq"  "fBodyBodyGyroJerkMagmean" "fBodyBodyGyroJerkMagmeanFreq"  "tBodyAccstdX" "tBodyAccstdY"  "tBodyAccstdZ"  "tGravityAccstdX"  "tGravityAccstdY" "tGravityAccstdZ"  "tBodyAccJerkstdX" "tBodyAccJerkstdY"  "tBodyAccJerkstdZ"  "tBodyGyrostdX"  "tBodyGyrostdY" "tBodyGyrostdZ"  "tBodyGyroJerkstdX" "tBodyGyroJerkstdY"  "tBodyGyroJerkstdZ"  "tBodyAccMagstd"  "tGravityAccMagstd"  "tBodyAccJerkMagstd"  "tBodyGyroMagstd" "tBodyGyroJerkMagstd"  "fBodyAccstdX" "fBodyAccstdY"  "fBodyAccstdZ"  "fBodyAccJerkstdX"  "fBodyAccJerkstdY" "fBodyAccJerkstdZ"  "fBodyGyrostdX" "fBodyGyrostdY"  "fBodyGyrostdZ"  "fBodyAccMagstd"  "fBodyBodyAccJerkMagstd" "fBodyBodyGyroMagstd"  "fBodyBodyGyroJerkMagstd" |