Variable description for data.final

Measurements from the accelerometer and gyroscope of a Samsung Galaxy S II smartphone worn by 30 volunteers (ages 19-48 years) engaged in six activities.

3-axis linear acceleration and 3-axis angular velocity were recorded at 50Hz. The acceleration signal was split into Body and Gravity components using a 0.3Hz Butterworth low-pass filter. The signals were pre-processed with noise filters and measured in 128 fixed width sliding windows (2.56 sec) with 50% overlap.

Jerk signals were derived in time (time) from the Body linear acceleration and angular velocity signals. The magnitude (Mag) of the 3-d signal was estimated using the Euclidean norm. Although not given in the source data, acceleration signals are typically reported in meters/second^2, Jerk signals are in meters/second^3, and angular velocity is in degrees/second.

A fast Fourier transform (fft) was applied to certain signals.

The angle variable contains measurements obtained by averaging signals in a single time window.

Variable	Description
subject	Subject identification by number, 1-30
activity	Activity being measured: WALKING WALKING_UPSTAIRS WALKING_DOWNSTAIRS SITTING STANDING LAYING
time BodyAcc-mean()-X	Mean of the time series for Body acceleration, along the phone x-axis
time BodyAcc-mean()-Y	Mean of the time series for Body acceleration, along the phone y-axis
time BodyAcc-mean()-Z	Mean of the time series for Body acceleration, along the phone z-axis
time BodyAcc-std()-X	standard deviation of the time series for Body acceleration, along the phone x-axis
time BodyAcc-std()-Y	standard deviation of the time series for Body acceleration, along the phone y-axis
time BodyAcc-std()-Z	standard deviation of the time series for Body acceleration, along the phone z-axis
time GravityAcc-mean()-X	Mean of the time series for Gravity acceleration, along the phone x-axis

time GravityAcc-mean()-Y	Mean of the time series for Gravity acceleration, along the phone y-axis
time GravityAcc-mean()-Z	Mean of the time series for Gravity acceleration, along the phone z-axis
time GravityAcc-std()-X	Standard deviation of the time series for Gravity acceleration, along the phone x-axis
time GravityAcc-std()-Y	Standard deviation of the time series for Gravity acceleration, along the phone y-axis
time GravityAcc-std()-Z	Standard deviation of the time series for Gravity acceleration, along the phone z-axis
time BodyAccJerk-mean()-X	Mean of the time series for Body acceleration jerk, along the phone x-axis
time BodyAccJerk-mean()-Y	Mean of the time series for Body acceleration jerk, along the phone y-axis
time BodyAccJerk-mean()-Z	Mean of the time series for Body acceleration jerk, along the phone z-axis
time BodyAccJerk-std()-X	Standard deviation of the time series for Body acceleration jerk, along the phone x-axis
time BodyAccJerk-std()-Y	Standard deviation of the time series for Body acceleration jerk, along the phone y-axis
time BodyAccJerk-std()-Z	Standard deviation of the time series for Body acceleration jerk, along the phone z-axis
time BodyGyro-mean()-X	Mean of the time series for Body gyroscope, along the phone x-axis
time BodyGyro-mean()-Y	Mean of the time series for Body gyroscope, along the phone y-axis
time BodyGyro-mean()-Z	Mean of the time series for Body gyroscope, along the phone z-axis
time BodyGyro-std()-X	Standard deviation of the time series for Body gyroscope, along the phone x-axis
time BodyGyro-std()-Y	Standard deviation of the time series for Body gyroscope, along the phone y-axis
time BodyGyro-std()-Z	Standard deviation of the time series for Body gyroscope, along the phone z-axis
time BodyGyroJerk-mean()-X	Mean of the time series for Body gyroscope jerk, along the

	phone x-axis
time BodyGyroJerk-mean()-Y	Mean of the time series for Body gyroscope jerk, along the phone y-axis
time BodyGyroJerk-mean()-Z	Mean of the time series for Body gyroscope jerk, along the phone z-axis
time BodyGyroJerk-std()-X	Standard deviation of the time series for Body gyroscope jerk, along the phone x-axis
time BodyGyroJerk-std()-Y	Standard deviation of the time series for Body gyroscope jerk, along the phone y-axis
time BodyGyroJerk-std()-Z	Standard deviation of the time series for Body gyroscope jerk, along the phone z-axis
time BodyAccMag-mean()	Mean of the time series for Body acceleration magnitude
time BodyAccMag-std()	Standard deviation of the time series for Body acceleration magnitude
time GravityAccMag-mean()	Mean of the time series for Gravity acceleration magnitude
time GravityAccMag-std()	Standard deviation of the time series for Gravity acceleration magnitude
time BodyAccJerkMag-mean()	Mean of the time series for Body acceleration jerk magnitude
time BodyAccJerkMag-std()	Standard deviation of the time series for Body acceleration jerk magnitude
time BodyGyroMag-mean()	Mean of the time series for Body gyroscope magnitude
time BodyGyroMag-std()	Standard deviation of the time series for Body gyroscope magnitude
time BodyGyroJerkMag-mean()	Mean of the time series for Body gyroscope jerk magnitude
time BodyGyroJerkMag-std()	Standard deviation of the time series for Body gyroscope jerk magnitude
fft BodyAcc-mean()-X	Mean of the fast Fourier transform for Body acceleration, along the phone x-axis
fft BodyAcc-mean()-Y	Mean of the fast Fourier transform for Body acceleration, along the phone y-axis
fft BodyAcc-mean()-Z	Mean of the fast Fourier transform for Body acceleration, along the phone z-axis
fft BodyAcc-std()-X	standard deviation of the fast Fourier transform for Body

	acceleration, along the phone x-axis
fft BodyAcc-std()-Y	standard deviation of the fast Fourier transform for Body acceleration, along the phone y-axis
fft BodyAcc-std()-Z	standard deviation of the fast Fourier transform for Body acceleration, along the phone z-axis
fft BodyAcc-meanFreq()-X	Mean of the fast Fourier transform for Body acceleration, along the phone x-axis
fft BodyAcc-meanFreq()-Y	Mean of the fast Fourier transform for Body acceleration, along the phone y-axis
fft BodyAcc-meanFreq()-Z	Mean of the fast Fourier transform for Body acceleration, along the phone z-axis
fft BodyAccJerk-mean()-X	Mean of the fast Fourier transform for Body acceleration jerk, along the phone x-axis
fft BodyAccJerk-mean()-Y	Mean of the fast Fourier transform for Body acceleration jerk, along the phone y-axis
fft BodyAccJerk-mean()-Z	Mean of the fast Fourier transform for Body acceleration jerk, along the phone z-axis
fft BodyAccJerk-std()-X	standard deviation of the fast Fourier transform for Body acceleration jerk, along the phone x-axis
fft BodyAccJerk-std()-Y	Standard deviation of the fast Fourier transform for Body acceleration jerk, along the phone y-axis
fft BodyAccJerk-std()-Z	Standard deviation of the fast Fourier transform for Body acceleration jerk, along the phone z-axis
fft BodyAccJerk-meanFreq()-X	Mean of the fast Fourier transform for Body acceleration jerk, along the phone x-axis
fft BodyAccJerk-meanFreq()-Y	Mean of the fast Fourier transform for Body acceleration jerk, along the phone y-axis
fft BodyAccJerk-meanFreq()-Z	Mean of the fast Fourier transform for Body acceleration jerk, along the phone z-axis
fft BodyGyro-mean()-X	Mean of the fast Fourier transform for Body gyroscope, along the phone x-axis
fft BodyGyro-mean()-Y	Mean of the fast Fourier transform for Body gyroscope, along the phone y-axis
fft BodyGyro-mean()-Z	Mean of the fast Fourier transform for Body gyroscope, along the phone z-axis

fft BodyGyro-std()-X	Standard deviation of the fast Fourier transform for Body gyroscope, along the phone x-axis
fft BodyGyro-std()-Y	Standard deviation of the fast Fourier transform for Body gyroscope, along the phone y-axis
fft BodyGyro-std()-Z	Standard deviation of the fast Fourier transform for Body gyroscope, along the phone z-axis
fft BodyGyro-meanFreq()-X	Mean of the fast Fourier transform for Body gyroscope, along the phone x-axis
fft BodyGyro-meanFreq()-Y	Mean of the fast Fourier transform for Body gyroscope, along the phone y-axis
fft BodyGyro-meanFreq()-Z	Mean of the fast Fourier transform for Body gyroscope, along the phone z-axis
fft BodyAccMag-mean()	Mean of the fast Fourier transform for Body acceleration magnitude
fft BodyAccMag-std()	Standard deviation of the fast Fourier transform for Body acceleration magnitude
fft BodyAccMag-meanFreq()	Mean of the fast Fourier transform for Body acceleration magnitude
fft BodyBodyAccJerkMag-mean()	Mean of the fast Fourier transform for Body acceleration jerk magnitude
fft BodyBodyAccJerkMag-std()	Standard deviation of the fast Fourier transform for Body acceleration jerk magnitude
fft BodyBodyAccJerkMag-meanFreq()	Mean of the fast Fourier transform for Body acceleration jerk magnitude
fft BodyBodyGyroMag-mean()	Mean of the fast Fourier transform for Body gyroscope magnitude
fft BodyBodyGyroMag-std()	Standard deviation of the fast Fourier transform for Body gyroscope magnitude
fft BodyBodyGyroMag-meanFreq()	Mean of the fast Fourier transform for Body gyroscope magnitude
fft BodyBodyGyroJerkMag-mean()	Mean of the fast Fourier transform for Body gyroscope jerk magnitude
fft BodyBodyGyroJerkMag-std()	Standard deviation of the fast Fourier transform for Body gyroscope jerk magnitude
fft BodyBodyGyroJerkMag-meanFreq()	Mean of the fast Fourier transform for Body gyroscope jerk

	magnitude
angle(time BodyAccMean,gravity)	Time series average of the BodyAccMean and gravity signal averaged in a single window.
angle(time BodyAccJerkMean),gravityMean)	Time series average of the BodyAccJerkMean and gravityMean signal averaged in a single window
angle(time BodyGyroMean,gravityMean)	Time series average of the BodyGyroMean and gravityMean signal averaged in a single window
angle(time BodyGyroJerkMean,gravityMean)	Time series average of the BodyGyroJerkMean and gravityMean signal averaged in a single window
angle(X,gravityMean)	Time series average along the x-axis of the gravityMean signal averaged in a single window
angle(Y,gravityMean)	Time series average along the y-axis of the gravityMean signal averaged in a single window
angle(Z,gravityMean)	Time series average along the z-axis of the gravityMean signal averaged in a single window