DATA DICTIONARY – HAR TIDY DATA

All the measurements shown are means taken over the groupings of subject and Activity. Some of the original numbers are means and some are standard deviations, all normalised; all the numbers in this dataset are means of those observations

Accelerometer measurements were filtered using a median filter and a 3rd order low pass Butterworth filter with a corner frequency of 20 Hz to remove noise.

The acceleration signal was then separated into body and gravity acceleration signals (TimeDomainBodyAcc-XYZ and TimeDomainGravityAcc-XYZ) using another low pass Butterworth filter with a corner frequency of 0.3 Hz

The column number shown is the column in the tidy data file. I have attempted to put the columns in a useful order as best I understand the nature of the data.

column number	column name	definition
1	subject	The person being measured, represented by a number
2	Activity	What the person was doing: (WALKING, WALKING_UPSTAIRS, WALKING_DOWNSTAIRS, SITTING, STANDING, LAYING (this last should by "lying")
	Time Domain Body Accelerometer measurements	
3	TimeDomainBodyAcc.mean.X	body linear acceleration X axis, mean of means
4	TimeDomainBodyAcc.mean.Y	body linear acceleration Y axis, mean of means
5	TimeDomainBodyAcc.mean.Z	body linear acceleration Z axis, mean of means
49	TimeDomainBodyAcc.std.X	body linear acceleration X axis, mean of standard deviation
50	TimeDomainBodyAcc.std.Y	body linear acceleration Y axis, mean of standard deviation
51	TimeDomainBodyAcc.std.Z	body linear acceleration Z axis, mean of standard deviation
18	TimeDomainBodyAccMag.mean	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
64	TimeDomainBodyAccMag.std	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
	Time Domain Gravity Accelerometer measurements	
6	TimeDomainGravityAcc.mean.X	gravity component, linear acceleration X axis, mean of means
7	TimeDomainGravityAcc.mean.Y	gravity component, linear acceleration Y axis, mean of means
8	TimeDomainGravityAcc.mean.Z	gravity component, linear acceleration Z axis, mean of means
52	TimeDomainGravityAcc.std.X	gravity component, linear acceleration X axis, mean of standard deviation
53	TimeDomainGravityAcc.std.Y	gravity component, linear acceleration Y axis, mean of standard deviation
54	TimeDomainGravityAcc.std.Z	gravity component, linear acceleration Z axis, mean of standard deviation
19	TimeDomainGravityAccMag.mean	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
65	TimeDomainGravityAccMag.std	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
	"Jerk" measurements are the time derivatives, dx/dt, of the Body measurements above	
9	TimeDomainBodyAccJerk.mean.X	body linear acceleration X axis, derived in time, mean of means
10	TimeDomainBodyAccJerk.mean.Y	body linear acceleration Y axis, derived in time, mean of means
11	TimeDomainBodyAccJerk.mean.Z	body linear acceleration Z axis, derived in time, mean of means

55	TimeDomainBodyAccJerk.std.X	body linear acceleration X axis, derived in time, mean of standard deviation
56	TimeDomainBodyAccJerk.std.Y	body linear acceleration Y axis, derived in time, mean of standard deviation
57	TimeDomainBodyAccJerk.std.Z	body linear acceleration Z axis, derived in time, mean of standard deviation
20	TimeDomainBodyAccJerkMag.mean	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
66	TimeDomainBodyAccJerkMag.std	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
	Time Domain Body Gyroscope 3-Axial Raw Signal Measurements	
12	TimeDomainBodyGyro.mean.X	body gyroscope X axis, mean of means
13	TimeDomainBodyGyro.mean.Y	body gyroscope Y axis, mean of means
14	TimeDomainBodyGyro.mean.Z	body gyroscope Z axis, mean of means
58	TimeDomainBodyGyro.std.X	body gyroscope X axis, mean of standard deviation
59	TimeDomainBodyGyro.std.Y	body gyroscope Y axis, mean of standard deviation
60	TimeDomainBodyGyro.std.Z	body gyroscope Z axis, mean of standard deviation
21	TimeDomainBodyGyroMag.mean	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
67	TimeDomainBodyGyroMag.std	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
	“Jerk” measurements are the time derivatives, dx/dt, of the Body measurements above	
15	TimeDomainBodyGyroJerk.mean.X	body gyroscope X axis, derived in time, mean of means
16	TimeDomainBodyGyroJerk.mean.Y	body gyroscope Y axis, derived in time, mean of means
17	TimeDomainBodyGyroJerk.mean.Z	body gyroscope Z axis, derived in time, mean of means
61	TimeDomainBodyGyroJerk.std.X	body gyroscope X axis, derived in time, mean of standard deviation
62	TimeDomainBodyGyroJerk.std.Y	body gyroscope Y axis, derived in time, mean of standard deviation
63	TimeDomainBodyGyroJerk.std.Z	body gyroscope Z axis, derived in time, mean of standard deviation
22	TimeDomainBodyGyroJerkMag.mean	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
68	TimeDomainBodyGyroJerkMag.std	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
	Frequency Domain estimates are produced via Fast Fourier Transform (FFT) of the Time Domain measurements	
	Frequency Domain Body Acceleration Estimates	
23	FreqDomainBodyAcc.mean.X	body linear acceleration X axis, mean of means
24	FreqDomainBodyAcc.mean.Y	body linear acceleration Y axis, mean of means
25	FreqDomainBodyAcc.mean.Z	body linear acceleration Z axis, mean of means
26	FreqDomainBodyAcc.meanFreq.X	weighted average of the frequency components
27	FreqDomainBodyAcc.meanFreq.Y	weighted average of the frequency components
28	FreqDomainBodyAcc.meanFreq.Z	weighted average of the frequency components
69	FreqDomainBodyAcc.std.X	body linear acceleration X axis, mean of standard deviation
70	FreqDomainBodyAcc.std.Y	body linear acceleration Y axis, mean of standard deviation
71	FreqDomainBodyAcc.std.Z	body linear acceleration Z axis, mean of standard deviation
41	FreqDomainBodyAccMag.mean	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)

42	FreqDomainBodyAccMag.meanFreq	magnitude of 3-dimensional signals calculated using the Euclidian norm,weighted average of the frequency components
78	FreqDomainBodyAccMag.std	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
	"Jerk" measurements are the time derivatives, dx/dt, of the Body measurements above	
29	FreqDomainBodyAccJerk.mean.X	body linear acceleration X axis, derived in time, mean of means
30	FreqDomainBodyAccJerk.mean.Y	body linear acceleration Y axis, derived in time, mean of means
31	FreqDomainBodyAccJerk.mean.Z	body linear acceleration Z axis, derived in time, mean of means
32	FreqDomainBodyAccJerk.meanFreq.X	weighted average of the frequency components
33	FreqDomainBodyAccJerk.meanFreq.Y	weighted average of the frequency components
34	FreqDomainBodyAccJerk.meanFreq.Z	weighted average of the frequency components
72	FreqDomainBodyAccJerk.std.X	body linear acceleration X axis, derived in time, mean of standard deviation
73	FreqDomainBodyAccJerk.std.Y	body linear acceleration Y axis, derived in time, mean of standard deviation
74	FreqDomainBodyAccJerk.std.Z	body linear acceleration Z axis, derived in time, mean of standard deviation
43	FreqDomainBodyBodyAccJerkMag.mean	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
44	FreqDomainBodyBodyAccJerkMag.meanFreq	magnitude of 3-dimensional signals calculated using the Euclidian norm,weighted average of the frequency components
79	FreqDomainBodyBodyAccJerkMag.std	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
	Frequency Domain Body Gyroscope 3-Axial	
35	FreqDomainBodyGyro.mean.X	body gyroscope X axis, mean of means
36	FreqDomainBodyGyro.mean.Y	body gyroscope Y axis, mean of means
37	FreqDomainBodyGyro.mean.Z	body gyroscope Z axis, mean of means
38	FreqDomainBodyGyro.meanFreq.X	weighted average of the frequency components
39	FreqDomainBodyGyro.meanFreq.Y	weighted average of the frequency components
40	FreqDomainBodyGyro.meanFreq.Z	weighted average of the frequency components
75	FreqDomainBodyGyro.std.X	body gyroscope X axis, mean of standard deviation
76	FreqDomainBodyGyro.std.Y	body gyroscope Y axis, mean of standard deviation
77	FreqDomainBodyGyro.std.Z	body gyroscope Z axis, mean of standard deviation
45	FreqDomainBodyBodyGyroMag.mean	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
46	FreqDomainBodyBodyGyroMag.meanFreq	magnitude of 3-dimensional signals calculated using the Euclidian norm,weighted average of the frequency components
80	FreqDomainBodyBodyGyroMag.std	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
	"Jerk" measurements are the time derivatives, dx/dt, of the Body measurements above	
47	FreqDomainBodyBodyGyroJerkMag.mean	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)
48	FreqDomainBodyBodyGyroJerkMag.meanFreq	magnitude of 3-dimensional signals calculated using the Euclidian norm,weighted average of the frequency components
81	FreqDomainBodyBodyGyroJerkMag.std	magnitude of 3-dimensional signals calculated using the Euclidian norm (mean of means)