Background

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The data in file analysis_result.txt contains the analysis done on the UCI Human Activity Recognition Using Smartphones Dataset
Analysis carried out by Darui Xu
For the course project "Getting and Cleaning Data" John Hopkins Coursera

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The HAR data set has 30 participants. Each wears a smartphone (Samsung Galaxy S II) on the waist, while performing six activities: WALKING, WALKING_UPSTAIRS, WALKING_DOWNSTAIRS, SITTING, STANDING, AND LAYING.
The embedded accelerometer and gyroscope captured 3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hzfrom the participants. For detailed description of the experiment, please refer to the following publication:
Davide Anguita, Alessandro Ghio, Luca Oneto, Xavier Parra and Jorge L. Reyes-Ortiz. Human Activity Recognition on Smartphones using a Multiclass Hardware-Friendly Support Vector Machine. International Workshop of Ambient Assisted Living (IWAAL 2012). Vitoria-Gasteiz, Spain. Dec 2012

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Specification for the assignment:

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For this Assignment, extracted the mean and standard deviation (std) measurements out of the 561 features captured in the HAR dataset. There are a total of 79 features in the analysis_result.txt dataset. Each row represents the mean value of the specified feature for each participant while performing a specific activity. Since there are 30 participants, 6 activities and 79 features, there are a total of 14220 (30*6*79) observations.

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Description of features:

Note: according to the original dataset description, each feature is normalized. Therefore, **there is no unit for each value. Each value will fall between -1 and 1.**

1 tBodyAcc-mean()-X	X- cord. of the mean value of time domain signal from the accelerometer
2 tBodyAcc-mean()-Y	Y-cord. of the mean value of time domain signal from the accelerometer
3 tBodyAcc-mean()-Z	Z-cord. of the mean value of time domain signal from the accelerometer
4 tBodyAcc-std()-X	X- cord. of the std value of time domain signal from the accelerometer
5 tBodyAcc-std()-Y	Y- cord. of the std value of time domain signal from the accelerometer

6 tBodyAcc-std()-Z	Z- cord. of the std value of time domain signal from the accelerometer
7 tGravityAcc-mean()-X:	X- cord. of the mean value of time domain signal from the gravity acc.
8 tGravityAcc-mean()-Y	Y-cord. of the mean value of time domain signal from the gravity acc.
9 tGravityAcc-mean()-Z	Z-cord. of the mean value of time domain signal from the gravity acc.
10 tGravityAcc-std()-X	X- cord. of the std value of time domain signal from the gravity acc.
11 tGravityAcc-std()-Y	Y- cord. of the std value of time domain signal from the gravity acc.
12 tGravityAcc-std()-Z	Z- cord. of the std value of time domain signal from the gravity acc.
13 tBodyAccJerk-mean()-X	X- cord. of the mean value of Jerk signal from the accelerometer
14 tBodyAccJerk-mean()-Y	Y-cord. of the mean value of Jerk signal from the accelerometer
15 tBodyAccJerk-mean()-Z	Z-cord. of the mean value of Jerk signal from the accelerometer
16 tBodyAccJerk-std()-X	X- cord. of the std value of Jerk signal from the accelerometer
17 tBodyAccJerk-std()-Y	Y- cord. of the std value of Jerk signal from the accelerometer
18 tBodyAccJerk-std()-Z	Z- cord. of the std value of Jerk signal from the accelerometer
19 tBodyGyro-mean()-X	X- cord. of the mean value of time domain signal from the gyroscope
20 tBodyGyro-mean()-Y	Y-cord. of the mean value of time domain signal from the gyroscope
21 tBodyGyro-mean()-Z	Z-cord. of the mean value of time domain signal from the gyroscope
22 tBodyGyro-std()-X	X- cord. of the std value of time domain signal from the gyroscope
23 tBodyGyro-std()-Y	Y- cord. of the std value of time domain signal from the gyroscope
24 tBodyGyro-std()-Z	Z- cord. of the std value of

	time domain signal from the gyroscope
25 tBodyGyroJerk-mean()-X	X- cord. of the mean value of Jerk signal from the gyroscope
26 tBodyGyroJerk-mean()-Y	Y-cord. of the mean value of Jerk signal from the gyroscope
27 tBodyGyroJerk-mean()-Z	Z-cord. of the mean value of Jerk signal from the gyroscope
28 tBodyGyroJerk-std()-X	X- cord. of the std value of Jerk signal from the gyroscope
29 tBodyGyroJerk-std()-Y	Y- cord. of the std value of Jerk signal from the gyroscope
30 tBodyGyroJerk-std()-Z	Z- cord. of the std value of Jerk signal from the gyroscope
31 tBodyAccMag-mean()	Magnitude of the mean value of time domain signal from the accelerometer
32 tBodyAccMag-std()	Magnitude of the std value of time domain signal from the accelerometer
33 tGravityAccMag-mean()	Magnitude of the mean value of time domain signal from the gravity acc.
34 tGravityAccMag-std()	Magnitude of the std. value of time domain signal from the gravity acc.
35 tBodyAccJerkMag-mean()	Magnitude of the mean value of Jerk signal from the accelerometer.
36 tBodyAccJerkMag-std()	Magnitude of the std value of Jerk signal from the accelerometer
37 tBodyGyroMag-mean()	Magnitude of the mean value of time domain signal from gyroscope
38 tBodyGyroMag-std()	Magnitude of the std. value of time domain signal from gyroscope
39 tBodyGyroJerkMag-mean()	Magnitude of the mean value of Jerk signal from gyroscope
40 tBodyGyroJerkMag-std()	Magnitude of the std. value of Jerk signal from gyroscope
41 fBodyAcc-mean()-X	X-coord. FFT of the mean value of time domain signal from the accelerometer
42 fBodyAcc-mean()-Y	Y-coord. FFT. of the mean value of time domain signal from the accelerometer
43 fBodyAcc-mean()-Z	Z-coord. FFT. of the mean value of time domain signal from the accelerometer
44 fBodyAcc-std()-X	X-coord. FFT of the std value of time domain signal from the accelerometer

45 fBodyAcc-std()-Y	Y-coord. FFT of the std value of time domain signal from the accelerometer
46 fBodyAcc-std()-Z	Z-coord. FFT of the std value of time domain signal from the accelerometer
47 fBodyAcc-meanFreq()-X	X-coord. Weighted average of the frequency components, FFT of the mean value from accelerometer
48 fBodyAcc-meanFreq()-Y	Y-coord. Weighted average of the frequency components, FFT of the mean value from accelerometer
49 fBodyAcc-meanFreq()-Z	Z-coord. Weighted average of the frequency components, FFT of the mean value from accelerometer
50 fBodyAccJerk-mean()-X	X- cord. FFT of the mean value of Jerk signal from the accelerometer
51 fBodyAccJerk-mean()-Y	Y-cord. FFT of the mean value of Jerk signal from the accelerometer
52 fBodyAccJerk-mean()-Z	Z-cord. FFT of the mean value of Jerk signal from the accelerometer
53 fBodyAccJerk-std()-X	X- cord. FFT of the std value of Jerk signal from the accelerometer
54 fBodyAccJerk-std()-Y	Y-cord. FFT of the std value of Jerk signal from the accelerometer
55 fBodyAccJerk-std()-Z	Z-cord. FFT of the std value of Jerk signal from the accelerometer
56 fBodyAccJerk-meanFreq()-X	X-coord. Weighted average of the frequency components, FFT of the mean value, Jerk Signals
57 fBodyAccJerk-meanFreq()-Y	Y-coord. Weighted average of the frequency components, FFT of the mean value. Jerk Signal
58 fBodyAccJerk-meanFreq()-Z	Z-coord. Weighted average of the frequency components, FFT of the mean value, Jerk Signal
59 fBodyGyro-mean()-X	X-coord. FFT of the mean value, from gyroscope
60 fBodyGyro-mean()-Y	Y-coord. FFT of the mean value, from gyroscope
61 fBodyGyro-mean()-Z	Z-coord. FFT of the mean value, from gyroscope
62 fBodyGyro-std()-X	X-coord., FFT of the std. value, from gyroscope
63 fBodyGyro-std()-Y	Y-coord. FFT of the std. value, from gyroscope
64 fBodyGyro-std()-Z	Z-coord. FFT of the std. value, from gyroscope

65 fBodyGyro-meanFreq()-X	X-coord., Weighted average of the frequency components, FFT of the std. value, from gyroscope
66 fBodyGyro-meanFreq()-Y	Y-coord. Weighted average of the frequency components, FFT of the std. value, from gyroscope
67 fBodyGyro-meanFreq()-Z	Z-coord. Weighted average of the frequency components, FFT of the std. value, from gyroscope
68 fBodyAccMag-mean()	FFT of magnitude of the mean value of time domain signal from the accelerometer
69 fBodyAccMag-std()	FFT of magnitude of the std. value of time domain signal from the accelerometer
70 fBodyAccMag-meanFreq()	FFT of magnitude of the weighted average of the frequency components of time domain signal from the accelerometer
71 fBodyBodyAccJerkMag-mean()	FFT of magnitude of the mean value of Jerk signal from the accelerometer
72 fBodyBodyAccJerkMag-std()	FFT of magnitude of the std. value of Jerk signal from the accelerometer
73 fBodyBodyAccJerkMag-meanFreq()	FFT of magnitude of the weighted average of the frequency components of Jerk signal from the accelerometer
74 fBodyBodyGyroMag-mean()	FFT of magnitude of the mean value of signal from the gyroscope
75 fBodyBodyGyroMag-std()	FFT of magnitude of the std. value of signal from the gyroscope
76 fBodyBodyGyroMag-meanFreq()	FFT of magnitude of the weighted average of the frequency components of signal from the gyroscope
77 fBodyBodyGyroJerkMag-mean()	FFT of magnitude of the mean value of Jerk signal from the gyroscope
78 fBodyBodyGyroJerkMag-std()	FFT of magnitude of the std. value of Jerk signal from the gyroscope
79 fBodyBodyGyroJerkMag-meanFreq()	FFT of magnitude of the weighted average of the frequency components of Jerk signal from the gyroscope