Code book – Tidydata

Getting and Cleaning Data Course – Course Project

Related documents

R code script – “run\_analysis.r”

Run\_analysis Readme file

Variable

[1] "ActivityDesc" - Activities WALKING, WALKING\_UPSTAIRS, WALKING\_DOWNSTAIRS, SITTING, STANDING and LAYING.

[2] "Subject" – Denotes the IDs for the 30 subjects that were measured.

The features selected for this database come from the accelerometer and gyroscope 3-axial raw signals tAcc-XYZ and tGyro-XYZ. These 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 (tBodyAcc-XYZ and tGravityAcc-XYZ) 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 (tBodyAccJerk-XYZ and tBodyGyroJerk-XYZ). Also the magnitude of these three-dimensional 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 fBodyAcc-XYZ, fBodyAccJerk-XYZ, fBodyGyro-XYZ, 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 3-axial signals in the X, Y and Z directions.

*The variables presented in the accompanying tidydata database denote only the mean and standard deviation measurements from the original datasets Training and Test. From the 561 original variables and the 128 variables of each of the 9 files of accelerometer and gyroscope measurements (a total of 1,716 variables), 66 variables representing the mean and standard deviation (std) measurements are shown below.*

*The total 10,299 observations on the 30 subjects performing 6 activities were condensed into 180 averages (rows).*

*The condensed variables in this dataset are collapsed averages of the mean and standard deviation measurements for each subject and for each activity:*

[3] "tBodyAcc-mean()-X"

[4] "tBodyAcc-mean()-Y"

[5] "tBodyAcc-mean()-Z"

[6] "tBodyAcc-std()-X"

[7] "tBodyAcc-std()-Y"

[8] "tBodyAcc-std()-Z"

[9] "tGravityAcc-mean()-X"

[10] "tGravityAcc-mean()-Y"

[11] "tGravityAcc-mean()-Z"

[12] "tGravityAcc-std()-X"

[13] "tGravityAcc-std()-Y"

[14] "tGravityAcc-std()-Z"

[15] "tBodyAccJerk-mean()-X"

[16] "tBodyAccJerk-mean()-Y"

[17] "tBodyAccJerk-mean()-Z"

[18] "tBodyAccJerk-std()-X"

[19] "tBodyAccJerk-std()-Y"

[20] "tBodyAccJerk-std()-Z"

[21] "tBodyGyro-mean()-X"

[22] "tBodyGyro-mean()-Y"

[23] "tBodyGyro-mean()-Z"

[24] "tBodyGyro-std()-X"

[25] "tBodyGyro-std()-Y"

[[26] "tBodyGyro-std()-Z"

[27] "tBodyGyroJerk-mean()-X"

[28] "tBodyGyroJerk-mean()-Y"

[29] "tBodyGyroJerk-mean()-Z"

[30] "tBodyGyroJerk-std()-X"

[31] "tBodyGyroJerk-std()-Y"

[32] "tBodyGyroJerk-std()-Z"

[33] "tBodyAccMag-mean()"

[34] "tBodyAccMag-std()"

[35] "tGravityAccMag-mean()"

[36] "tGravityAccMag-std()"

[37] "tBodyAccJerkMag-mean()"

[38]"tBodyAccJerkMag-std()"

[39] "tBodyGyroMag-mean()"

[40] "tBodyGyroMag-std()"

[41] "tBodyGyroJerkMag-mean()"

[42] "tBodyGyroJerkMag-std()"

[43] "fBodyAcc-mean()-X"

[44] "fBodyAcc-mean()-Y"

[45] "fBodyAcc-mean()-Z"

[46] "fBodyAcc-std()-X"

[47] "fBodyAcc-std()-Y"

[48] "fBodyAcc-std()-Z"

[49] "fBodyAccJerk-mean()-X"

[50] "fBodyAccJerk-mean()-Y"

[51] "fBodyAccJerk-mean()-Z"

[52] "fBodyAccJerk-std()-X"

[53] "fBodyAccJerk-std()-Y"

[54] "fBodyAccJerk-std()-Z"

[55] "fBodyGyro-mean()-X"

[56] "fBo dyGyro-mean()-Y"

[57] "fBodyGyro-mean()-Z"

[58] "fBodyGyro-std()-X"

[59] "fBodyGyro-std()-Y"

[60] "fBodyGyro-std()-Z"

[61] "fBodyAccMag-mean()"

[62] "fBodyAccMag-std()"

[63] "fBodyBodyAccJerkMag-mean()"

[64] "fBodyBodyAccJerkMag-std()"

[65] "fBodyBodyGyroMag-mean()"

[66] "fBodyBodyGyroMag-std()"

[67] "fBodyBodyGyroJerkMag-mean()"

[68] "fBodyBodyGyroJerkMag-std()"

The complete list of variables of each feature vector is available in 'features.txt'