Code Book

Human Activity Recognition Using Smartphones Dataset

Data Science Specialization

Course: Getting and Cleaning Data

Course Project

Date: "Friday, November 21, 2014"

General Description:

This document contains the description of the variables included in the analysis made on the "Human Activity Recognition Using Smartphones Dataset" [1], the result of the analysis is the file: "tidy data.txt"

Data set description:

The experiments have been carried out with a group of 30 volunteers within an age bracket of 19-48 years. Each person performed six activities (WALKING, WALKING_UPSTAIRS, WALKING_DOWNSTAIRS, SITTING, STANDING, LAYING) wearing a smartphone (Samsung Galaxy S II) on the waist. Using its embedded accelerometer and gyroscope, we captured 3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hz. The experiments have been video-recorded to label the data manually. The obtained dataset has been randomly partitioned into two sets, where 70% of the volunteers was selected for generating the training data and 30% the test data.

The "tidy_data.txt" creates a second, independent tidy data set with the average of each variable for each activity and each subject.

Variables:

VARIABLE NAME

subject activity

VARIABLE

ID of the subject that make part of the experiment Activity performed by the subject

tBodyAcc-mean()-X tBodyAcc-mean()-Y tBodyAcc-mean()-Z tGravityAcc-mean()-X tGravityAcc-mean()-Y tGravityAcc-mean()-Z tBodyAccJerk-mean()-X tBodyAccJerk-mean()-Y tBodyAccJerk-mean()-Z tBodyGyro-mean()-X tBodyGyro-mean()-Y tBodyGyro-mean()-Z tBodyGyroJerk-mean()-X tBodyGyroJerk-mean()-Y tBodyGyroJerk-mean()-Z tBodyAccMag-mean() tGravityAccMag-mean() tBodyAccJerkMag-mean() tBodyGyroMag-mean() tBodyGyroJerkMag-mean()

Mean of the variable tBodyAcc-mean-X Mean of the variable tBodyAcc-mean-Y Mean of the variable tBodyAcc-mean-Z Mean of the variable tGravityAcc-mean-X Mean of the variable tGravityAcc-mean-Y Mean of the variable tGravityAcc-mean-Z Mean of the variable tBodyAccJerk-mean-X Mean of the variable tBodyAccJerk-mean-Y Mean of the variable tBodyAccJerk-mean-Z Mean of the variable tBodyGyro-mean-X Mean of the variable tBodyGyro-mean-Y Mean of the variable tBodyGyro-mean-Z Mean of the variable tBodyGyroJerk-mean-X Mean of the variable tBodyGyroJerk-mean-Y Mean of the variable tBodyGyroJerk-mean-Z Mean of the variable tBodyAccMag-mean Mean of the variable tGravityAccMag-mean Mean of the variable tBodyAccJerkMag-mean Mean of the variable tBodyGyroMag-mean Mean of the variable tBodyGyroJerkMag-mean

VALUE OR DESCRIPTION

1 to 30
WALKING
WALKING_UPSTAIRS
WALKING_DOWNSTAIRS
SITTING
STANDING
LAYING

Calculated value from the original data set Calculated value from the original data set

VARIABLE NAME

fBodyAcc-mean()-X fBodyAcc-mean()-Y fBodyAcc-mean()-Z fBodyAcc-meanFreq()-X fBodyAcc-meanFreq()-Y fBodyAcc-meanFreq()-Z fBodyAccJerk-mean()-X fBodyAccJerk-mean()-Y fBodyAccJerk-mean()-Z fBodyAccJerk-meanFreg()-X fBodyAccJerk-meanFreq()-Y fBodyAccJerk-meanFreq()-Z fBodyGyro-mean()-X fBodyGyro-mean()-Y fBodyGyro-mean()-Z fBodyGyro-meanFreg()-X fBodyGyro-meanFreq()-Y fBodyGyro-meanFreq()-Z fBodyAccMag-mean() fBodyAccMag-meanFreq() fBodyBodyAccJerkMag-mean() fBodyBodyAccJerkMagmeanFreq() fBodyBodyGyroMag-mean() fBodyBodyGyroMag-meanFreq() fBodyBodyGyroJerkMag-mean() fBodyBodyGyroJerkMagmeanFreq() tBodyAcc-std()-X

tBodyAcc-std()-Y

VARIABLE

Mean of the variable fBodyAcc-mean-X Mean of the variable fBodyAcc-mean-Y Mean of the variable fBodyAcc-mean-Z Mean of the variable fBodyAcc-meanFreq-X Mean of the variable fBodyAcc-meanFreg-Y Mean of the variable fBodyAcc-meanFreq-Z Mean of the variable fBodyAccJerk-mean-X Mean of the variable fBodyAccJerk-mean-Y Mean of the variable fBodyAccJerk-mean-Z Mean of the variable fBodyAccJerk-meanFreg-X Mean of the variable fBodyAccJerk-meanFreq-Y Mean of the variable fBodyAccJerk-meanFreg-Z Mean of the variable fBodyGyro-mean-X Mean of the variable fBodyGyro-mean-Y Mean of the variable fBodyGyro-mean-Z Mean of the variable fBodyGyro-meanFreq-X Mean of the variable fBodyGyro-meanFreg-Y Mean of the variable fBodyGyro-meanFreq-Z Mean of the variable fBodyAccMag-mean Mean of the variable fBodyAccMag-meanFreq Mean of the variable fBodyBodyAccJerkMag-mean

Mean of the variable fBodyBodyAccJerkMag-meanFreq Mean of the variable fBodyBodyGyroMag-mean Mean of the variable fBodyBodyGyroMag-meanFreq Mean of the variable fBodyBodyGyroJerkMag-mean

Mean of the variable fBodyBodyGyroJerkMag-meanFreq Mean of the variable tBodyAcc-std-X Mean of the variable tBodyAcc-std-Y

VALUE OR DESCRIPTION

Calculated value from the original data set Calculated value from the original data set

Calculated value from the original data set Calculated value from the original data set Calculated value from the original data set Calculated value from the original data set

Calculated value from the original data set Calculated value from the original data set Calculated value from the original data set

VARIABLE NAME

VARIABLE

tBodyAcc-std()-Z Mean of the variable tBodyAcc-std-Z tGravityAcc-std()-X Mean of the variable tGravityAcc-std-X

tGravityAcc-std()-Y Mean of the variable tGravityAcc-std-Y tGravityAcc-std()-Z Mean of the variable tGravityAcc-std-Z

tBodyAccJerk-std()-X Mean of the variable tBodyAccJerk-std-X

tBodyAccJerk-std()-Y Mean of the variable tBodyAccJerk-std-Y

tBodyAccJerk-std()-Z

Mean of the variable tBodyAccJerk-std-Z

tBodyGyro-std()-X Mean of the variable tBodyGyro-std-X tBodyGyro-std()-Y Mean of the variable tBodyGyro-std-Y

tBodyGyro-std()-Z Mean of the variable tBodyGyro-std-Z

tBodyGyroJerk-std()-X

Mean of the variable tBodyGyroJerk-std-X

tBodyGyroJerk-std()-Y Mean of the variable tBodyGyroJerk-std-Y

tBodyGyroJerk-std()-Z Mean of the variable tBodyGyroJerk-std-Z

tBodyAccMag-std() Mean of the variable tBodyAccMag-std

tGravityAccMag-std() Mean of the variable tGravityAccMag-std

tBodyAccJerkMag-std()

Mean of the variable tBodyAccJerkMag-std

tBodyGyroMag-std() Mean of the variable tBodyGyroMag-std

tBodyGyroJerkMag-std() Mean of the variable tBodyGyroJerkMag-std

fBodyAcc-std()-X Mean of the variable fBodyAcc-std-X

fBodyAcc-std()-Y Mean of the variable fBodyAcc-std-Y

fBodyAcc-std()-Z Mean of the variable fBodyAcc-std-Z

fBodyAccJerk-std()-X Mean of the variable fBodyAccJerk-std-X

fBodyAccJerk-std()-Y Mean of the variable fBodyAccJerk-std-Y

fBodyAccJerk-std()-Z Mean of the variable fBodyAccJerk-std-Z

fBodyGyro-std()-X Mean of the variable fBodyGyro-std-X

fBodyGyro-std()-Y Mean of the variable fBodyGyro-std-Y

fBodyGyro-std()-Z Mean of the variable fBodyGyro-std-Z

fBodyAccMag-std() Mean of the variable fBodyAccMag-std

fBodyBodyAccJerkMag-std() Mean of the variable fBodyBodyAccJerkMag-std

fBodyBodyGyroMag-std() Mean of the variable fBodyBodyGyroMag-std

VALUE OR DESCRIPTION

Calculated value from the original data set Calculated value from the original data set

VARIABLE NAME	VARIABLE	VALUE OR DESCRIPTION
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fBodyBodyGyroJerkMag-std() Mean of the variable fBodyBodyGyroJerkMag-std Calculated value from the original data set

REFFERENCES

[1] 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