TIDY DATASET FOR

HUMAN ACTIVITY RECOGNITION USING SMARTPHONES DATA SET

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CODEBOOK

OVERVIEW

One of the most exciting areas in all of data science right now is wearable computing. Companies like Fitbit, Nike, and Jawbone Up are racing to develop the most advanced algorithms to attract new users.

An example is available **here**, **a** Human Activity Recognition database built from the recordings of 30 subjects performing activities of daily living (ADL) while carrying a waist-mounted smartphone with embedded inertial sensors. This database was originally composed of 561 attributes and 10.299 instances, divided in training and testing sets.

R code available as part of this repository (run_analysis.R) has summarized our 561 attributes to 68 attributes, including subject and activity (class) attribute. Next we describe obtained variables for our tidy dataset.

DESCRIPTION OF VARIABLES

No.	VARIABLE NAME	VARIABLE TYPE	VALUES OR EXPLANATION
1	subject	Numeric	Identification of the subject who was involved in the study. A number between 1 and 30.
2	activity	Character	The activity performed. One of the following: - LAYING - SITTING - STANDING - WALKING - WALKING_DOWNSTAIRS - WALKING_UPSTAIRS
3	mean(tBodyAcc_mean_X)	Decimal	A number indicating the mean of mean body acceleration in the X direction, for the subject-activity.
4	mean(tBodyAcc_mean_Y)	Decimal	A number indicating the mean of mean body acceleration in the Y direction, for the subject-activity.
5	mean(tBodyAcc_mean_Z)	Decimal	A number indicating the mean of mean body acceleration in the Z direction, for the subject-activity.

No.	VARIABLE NAME	VARIABLE TYPE	VALUES OR EXPLANATION
6	mean(tBodyAcc_std_X)	Decimal	A number indicating the mean of standard deviation of the body acceleration in the X direction, for the subject-activity.
7	mean(tBodyAcc_std_Y)	Decimal	A number indicating the mean of standard deviation of the body acceleration in the Y direction, for the subject-activity.
8	mean(tBodyAcc_std_Z)	Decimal	A number indicating the mean of standard deviation of the body acceleration in the Z direction, for the subject-activity.
9	mean(tGravityAcc_mean_X)	Decimal	A number indicating the mean of mean gravity acceleration in the X direction, for the subject-activity.
10	mean(tGravityAcc_mean_Y)	Decimal	A number indicating the mean of mean gravity acceleration in the Y direction, for the subject-activity.
11	mean(tGravityAcc_mean_Z)	Decimal	A number indicating the mean of mean gravity acceleration in the Z direction, for the subject-activity.
12	mean(tGravityAcc_std_X)	Decimal	A number indicating the mean of standard deviation of the gravity acceleration in the X direction, for the subject-activity.
13	mean(tGravityAcc_std_Y)	Decimal	A number indicating the mean of standard deviation of the gravity acceleration in the Y direction, for the subject-activity.
14	mean(tGravityAcc_std_Z)	Decimal	A number indicating the mean of standard deviation of the gravity acceleration in the Z direction, for the subject-activity.
15	mean(tBodyAccJerk_mean_X)	Decimal	A number indicating the mean of mean body acceleration Jerk in

No.	VARIABLE NAME	VARIABLE TYPE	VALUES OR EXPLANATION
			the X direction, for the subject-activity.
16	mean(tBodyAccJerk_mean_Y)	Decimal	A number indicating the mean of mean body acceleration Jerk in the Y direction, for the subject-activity.
17	mean(tBodyAccJerk_mean_Z)	Decimal	A number indicating the mean of mean body acceleration Jerk in the Z direction, for the subject-activity.
18	mean(tBodyAccJerk_std_X)	Decimal	A number indicating the mean of standard deviation of the body acceleration Jerk in the X direction, for the subject-activity.
19	mean(tBodyAccJerk_std_Y)	Decimal	A number indicating the mean of standard deviation of the body acceleration Jerk in the Y direction, for the subject-activity.
20	mean(tBodyAccJerk_std_Z)	Decimal	A number indicating the mean of standard deviation of the body acceleration Jerk in the Z direction, for the subject-activity.
21	mean(tBodyGyro_mean_X)	Decimal	A number indicating the mean of mean body gyro in the X direction, for the subject-activity.
22	mean(tBodyGyro_mean_Y)	Decimal	A number indicating the mean of mean body gyro in the Y direction, for the subject-activity.
23	mean(tBodyGyro_mean_Z)	Decimal	A number indicating the mean of mean body gyro in the Z direction, for the subject-activity.
24	mean(tBodyGyro_std_X)	Decimal	A number indicating the mean of standard deviation of the body gyro in the X direction, for the subject-activity.
25	mean(tBodyGyro_std_Y)	Decimal	A number indicating the mean of standard deviation of the body gyro in the Y direction, for the

No.	VARIABLE NAME	VARIABLE TYPE	VALUES OR EXPLANATION
			subject-activity.
26	mean(tBodyGyro_std_Z)	Decimal	A number indicating the mean of standard deviation of the body gyro in the Z direction, for the subject-activity.
27	mean(tBodyGyroJerk_mean_X)	Decimal	A number indicating the mean of mean body gyro Jerk in the X direction, for the subject-activity.
28	mean(tBodyGyroJerk_mean_Y)	Decimal	A number indicating the mean of mean body gyro Jerk in the Y direction, for the subject-activity.
29	mean(tBodyGyroJerk_mean_Z)	Decimal	A number indicating the mean of mean body gyro Jerk in the Z direction, for the subject-activity.
30	mean(tBodyGyroJerk_std_X)	Decimal	A number indicating the mean of standard deviation of the body gyro Jerk in the X direction, for the subject-activity.
31	mean(tBodyGyroJerk_std_Y)	Decimal	A number indicating the mean of standard deviation of the body gyro Jerk in the Y direction, for the subject-activity.
32	mean(tBodyGyroJerk_std_Z)	Decimal	A number indicating the mean of standard deviation of the body gyro Jerk in the Z direction, for the subject-activity.
33	mean(tBodyAccMag_mean)	Decimal	A number indicating the mean of mean body acceleration Mag, for the subject-activity.
34	mean(tBodyAccMag_std)	Decimal	A number indicating the mean of standard deviation of the body acceleration Mag, for the subject-activity.
35	mean(tGravityAccMag_mean)	Decimal	A number indicating the mean of mean gravity acceleration Mag, for the subject-activity.
36	mean(tGravityAccMag_std)	Decimal	A number indicating the

No.	VARIABLE NAME	VARIABLE TYPE	VALUES OR EXPLANATION
			mean of standard deviation of the gravity acceleration Mag, for the subject-activity.
37	mean(tBodyAccJerkMag_mean)	Decimal	A number indicating the mean of mean body acceleration Jerk Mag, for the subject-activity.
38	mean(tBodyAccJerkMag_std)	Decimal	A number indicating the mean of standard deviation of the body acceleration Jerk Mag, for the subject-activity.
39	mean(tBodyGyroMag_mean)	Decimal	A number indicating the mean of mean body gyro Mag, for the subject-activity.
40	mean(tBodyGyroMag_std)	Decimal	A number indicating the mean of standard deviation of the body gyro Mag, for the subject-activity.
41	mean(tBodyGyroJerkMag_mean)	Decimal	A number indicating the mean of mean body gyro Jerk Mag, for the subject-activity.
42	mean(tBodyGyroJerkMag_std)	Decimal	A number indicating the mean of standard deviation of the body gyro Jerk Mag, for the subject-activity.
43	mean(fBodyAcc_mean_X)	Decimal	A number indicating the (frequency) mean of mean body acceleration in the X direction, for the subject-activity.
44	mean(fBodyAcc_mean_Y)	Decimal	A number indicating the (frequency) mean of mean body acceleration in the Y direction, for the subject-activity.
45	mean(fBodyAcc_mean_Z)	Decimal	A number indicating the (frequency) mean of mean body acceleration in the Z direction, for the subject-activity.
46	mean(fBodyAcc_std_X)	Decimal	A number indicating the mean of standard deviation of the body acceleration in the X direction, for the

No.	VARIABLE NAME	VARIABLE TYPE	VALUES OR EXPLANATION
			subject-activity.
47	mean(fBodyAcc_std_Y)	Decimal	A number indicating the (frequency) mean of standard deviation of the body acceleration in the Y direction, for the subject-activity.
48	mean(fBodyAcc_std_Z)	Decimal	A number indicating the (frequency) mean of standard deviation of the body acceleration in the Z direction, for the subject-activity.
49	mean(fBodyAccJerk_mean_X)	Decimal	A number indicating the (frequency) mean of mean body acceleration Jerk in the X direction, for the subject-activity.
50	mean(fBodyAccJerk_mean_Y)	Decimal	A number indicating the (frequency) mean of mean body acceleration Jerk in the Y direction, for the subject-activity.
51	mean(fBodyAccJerk_mean_Z)	Decimal	A number indicating the (frequency) mean of mean body acceleration Jerk in the Z direction, for the subject-activity.
52	mean(fBodyAccJerk_std_X)	Decimal	A number indicating the (frequency) mean of standard deviation of the body acceleration Jerk in the X direction, for the subject-activity.
53	mean(fBodyAccJerk_std_Y)	Decimal	A number indicating the (frequency) mean of standard deviation of the body acceleration Jerk in the Y direction, for the subject-activity.
54	mean(fBodyAccJerk_std_Z)	Decimal	A number indicating the (frequency) mean of standard deviation of the body acceleration Jerk in the Z direction, for the subject-activity.
55	mean(fBodyGyro_mean_X)	Decimal	A number indicating the (frequency) mean of

No.	VARIABLE NAME	VARIABLE TYPE	VALUES OR EXPLANATION
			mean body gyro in the X direction, for the subject-activity.
56	mean(fBodyGyro_mean_Y)	Decimal	A number indicating the (frequency) mean of mean body gyro in the Y direction, for the subject-activity.
57	mean(fBodyGyro_mean_Z)	Decimal	A number indicating the (frequency) mean of mean body gyro in the Z direction, for the subject-activity.
58	mean(fBodyGyro_std_X)	Decimal	A number indicating the (frequency) mean of standard deviation of the body gyro in the X direction, for the subject-activity.
59	mean(fBodyGyro_std_Y)	Decimal	A number indicating the (frequency) mean of standard deviation of the body gyro in the Y direction, for the subject-activity.
60	mean(fBodyGyro_std_Z)	Decimal	A number indicating the (frequency) mean of standard deviation of the body gyro in the Z direction, for the subject-activity.
61	mean(fBodyAccMag_mean)	Decimal	A number indicating the (frequency) mean of mean body acceleration Mag, for the subject-activity.
62	mean(fBodyAccMag_std)	Decimal	A number indicating the (frequency) mean of standard deviation of the body acceleration Mag, for the subject-activity.
63	mean(fBodyBodyAccJerkMag_mean)	Decimal	A number indicating the (frequency) mean of mean gravity acceleration Mag, for the subject-activity.
64	mean(fBodyBodyAccJerkMag_std)	Decimal	A number indicating the (frequency) mean of standard deviation of the gravity acceleration Mag, for the subject-activity.
65	mean(fBodyBodyGyroMag_mean)	Decimal	A number indicating the

No.	VARIABLE NAME	VARIABLE TYPE	VALUES OR EXPLANATION
			(frequency) mean of mean body acceleration Jerk Mag, for the subject-activity.
66	mean(fBodyBodyGyroMag_std)	Decimal	A number indicating the (frequency) mean of standard deviation of the body acceleration Jerk Mag, for the subject-activity.
67	mean(fBodyBodyGyroJerkMag_mean)	Decimal	A number indicating the (frequency) mean of mean body gyro Mag, for the subject-activity.
68	mean(fBodyBodyGyroJerkMag_std)	Decimal	A number indicating the (frequency) mean of standard deviation of the body gyro Mag, for the subject-activity.