Introduction:

The data captures the information from an experiment carried on 30 people wearing a smartphone on their waist. The data captures 3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hz. A vector of features from the time and frequency domain has been calculated for the two sets of data labeled test and training.

The source of the original data is here.

https://d396qusza40orc.cloudfront.net/getdata%2Fprojectfiles%2FUCI%20HAR%20Dataset.zip

The description of the original data is here.

http://archive.ics.uci.edu/ml/datasets/Human+Activity+Recognition+Using+Smartphones

Process:

The test and the training data set were read and appended together. The features.txt was used to name the variables. The variable names were made more descriptive for further processing. The activity labels were applied using the activity_labels.txt. The mean and std statistic variables are kept in the final dataset and the mean of those variable is calculated for retained variables by subject_id and the activity.

Variables:

The variables in the final tidy data set are explained below.

No.	Original Variable Name	Final Variable Name	Description	Type
1		activity	Activity that was performed. Acceptable values are WALKING, WALKING_UPSTAIRS, WALKING_DOWNSTAIRS, SITTING, STANDING, LAYING	Character
2		subject_id	Id of the person performing the activity. Accepatable values are from 1-30	Integer

3	tBodyAcc-mean()-X	time_body_acceleration_mean_x	mean of time attribute of body acceleration in x	double
4	tBodyAcc-mean()-Y	time_body_acceleration_mean_y	mean of time attribute of body acceleration in y	double
5	tBodyAcc-mean()-Z	time_body_acceleration_mean_z	mean of time attribute of body acceleration in z	double
6	tBodyAcc-std()-X	time_body_acceleration_std_x	standard deviation of time attribute of body acceleration in x	double
7	tBodyAcc-std()-Y	time_body_acceleration_std_y	standard deviation of time attribute of body acceleration in y	double
8	tBodyAcc-std()-Z	time_body_acceleration_std_z	standard deviation of time attribute of body acceleration in z	double
9	tGravityAcc-mean()-X	time_gravity_acceleration_mean_x	mean of time attribute of gravity acceleration in x	double
10	tGravityAcc-mean()-Y	time_gravity_acceleration_mean_y	mean of time attribute of gravity acceleration in y	double
11	tGravityAcc-mean()-Z	time_gravity_acceleration_mean_z	mean of time attribute of gravity acceleration in z	double
12	tGravityAcc-std()-X	time_gravity_acceleration_std_x	standard deviation of time attribute of gravity acceleration in x	double
13	tGravityAcc-std()-Y	time_gravity_acceleration_std_y	standard deviation of time attribute of gravity acceleration in y	double
14	tGravityAcc-std()-Z	time_gravity_acceleration_std_z	standard deviation of time attribute of gravity acceleration in z	double
15	tBodyAccJerk-mean()-X	time_body_acceleration_jerk_mean_x	mean of time attribute of body acceleration jerk in x	double
16	tBodyAccJerk-mean()-Y	time_body_acceleration_jerk_mean_y	mean of time attribute of body acceleration jerk in y	double
17	tBodyAccJerk-mean()-Z	time_body_acceleration_jerk_mean_z	mean of time attribute of body acceleration jerk in z	double
18	tBodyAccJerk-std()-X	time_body_acceleration_jerk_std_x	standard deviation of time attribute of body acceleration jerk in x	double

19	tBodyAccJerk-std()-Y	time_body_acceleration_jerk_std_y	standard deviation of time attribute of body acceleration jerk in y	double
20	tBodyAccJerk-std()-Z	time_body_acceleration_jerk_std_z	standard deviation of time attribute of body acceleration jerk in z	double
21	tBodyGyro-mean()-X	time_body_gyro_mean_x	mean of time attribute of body gyro in x	double
22	tBodyGyro-mean()-Y	time_body_gyro_mean_y	mean of time attribute of body gyro in y	double
23	tBodyGyro-mean()-Z	time_body_gyro_mean_z	mean of time attribute of body gyro in z	double
24	tBodyGyro-std()-X	time_body_gyro_std_x	standard deviation of time attribute of body gyro in x	double
25	tBodyGyro-std()-Y	time_body_gyro_std_y	standard deviation of time attribute of body gyro in y	double
26	tBodyGyro-std()-Z	time_body_gyro_std_z	standard deviation of time attribute of body gyro in z	double
27	tBodyGyroJerk-mean()-X	time_body_gyrojerk_mean_x	mean of time attribute of body gyro jerk in x	double
28	tBodyGyroJerk-mean()-Y	time_body_gyrojerk_mean_y	mean of time attribute of body gyro jerk in y	double
29	tBodyGyroJerk-mean()-Z	time_body_gyrojerk_mean_z	mean of time attribute of body gyro jerk in z	double
30	tBodyGyroJerk-std()-X	time_body_gyrojerk_std_x	standard deviation of time attribute of body gyro jerk in x	double
31	tBodyGyroJerk-std()-Y	time_body_gyrojerk_std_y	standard deviation of time attribute of body gyro jerk in y	double
32	tBodyGyroJerk-std()-Z	time_body_gyrojerk_std_z	standard deviation of time attribute of body gyro jerk in z	double
33	tBodyAccMag-mean()	time_body_acceleration_mag_mean	mean of time attribute of body acceleration magnitude in	double
34	tBodyAccMag-std()	time_body_acceleration_mag_std	standard deviation of time attribute of body acceleration magnitude in	double

35	tGravityAccMag-mean()	time_gravity_acceleration_mag_mean	mean of time attribute of body acceleration magnitude in	double
36	tGravityAccMag-std()	time_gravity_acceleration_mag_std	standard deviation of time attribute of body acceleration magnitude in	double
37	tBodyAccJerkMag-mean()	time_body_acceleration_jerkmag_mean	mean of time attribute of body acceleration jerk magnitude in	double
38	tBodyAccJerkMag-std()	time_body_acceleration_jerkmag_std	standard deviation of time attribute of body acceleration jerk magnitude in	double
39	tBodyGyroMag-mean()	time_body_gyromag_mean	mean of time attribute of body acceleration jerk magnitude in	double
40	tBodyGyroMag-std()	time_body_gyromag_std	standard deviation of time attribute of body acceleration jerk magnitude in	double
41	tBodyGyroJerkMag-mean()	time_body_gyrojerkmag_mean	mean of time attribute of body acceleration jerk magnitude in	double
42	tBodyGyroJerkMag-std()	time_body_gyrojerkmag_std	standard deviation of time attribute of body acceleration jerk magnitude in	double
43	fBodyAcc-mean()-X	freq_body_acceleration_mean_x	mean of frequency attribute of body acceleration in x	double
44	fBodyAcc-mean()-Y	freq_body_acceleration_mean_y	mean of frequency attribute of body acceleration in y	double
45	fBodyAcc-mean()-Z	freq_body_acceleration_mean_z	mean of frequency attribute of body acceleration in z	double
46	fBodyAcc-std()-X	freq_body_acceleration_std_x	standard deviation of frequency attribute of body acceleration in x	double
47	fBodyAcc-std()-Y	freq_body_acceleration_std_y	standard deviation of frequency attribute of body acceleration in y	double
48	fBodyAcc-std()-Z	freq_body_acceleration_std_z	standard deviation of frequency attribute of body acceleration in z	double

49	fBodyAccJerk-mean()-X	freq_body_acceleration_jerk_mean_x	mean of frequency attribute of body acceleration jerk in x	double
50	fBodyAccJerk-mean()-Y	freq_body_acceleration_jerk_mean_y	mean of frequency attribute of body acceleration jerk in y	double
51	fBodyAccJerk-mean()-Z	freq_body_acceleration_jerk_mean_z	mean of frequency attribute of body acceleration jerk in z	double
52	fBodyAccJerk-std()-X	freq_body_acceleration_jerk_std_x	standard deviation of frequency attribute of body acceleration jerk in x	double
53	fBodyAccJerk-std()-Y	freq_body_acceleration_jerk_std_y	standard deviation of frequency attribute of body acceleration jerk in y	double
54	fBodyAccJerk-std()-Z	freq_body_acceleration_jerk_std_z	standard deviation of frequency attribute of body acceleration jerk in z	double
55	fBodyGyro-mean()-X	freq_body_gyro_mean_x	mean of frequency attribute of body gyro in x	double
56	fBodyGyro-mean()-Y	freq_body_gyro_mean_y	mean of frequency attribute of body gyro in y	double
57	fBodyGyro-mean()-Z	freq_body_gyro_mean_z	mean of frequency attribute of body gyro in z	double
58	fBodyGyro-std()-X	freq_body_gyro_std_x	standard deviation of frequency attribute of body gyro in x	double
59	fBodyGyro-std()-Y	freq_body_gyro_std_y	standard deviation of frequency attribute of body gyro in y	double
60	fBodyGyro-std()-Z	freq_body_gyro_std_z	standard deviation of frequency attribute of body gyro in z	double
61	fBodyAccMag-mean()	freq_body_acceleration_mag_mean	mean of frequency attribute of body acceleration magnitude in	double
62	fBodyAccMag-std()	freq_body_acceleration_mag_std	standard deviation of frequency attribute of body acceleration magnitude in	double

63	fBodyBodyAccJerkMag-mean()	freq_body_acceleration_jerkmag_mean	mean of frequency attribute of body acceleration jerk magnitude in	double
64	fBodyBodyAccJerkMag-std()	freq_body_acceleration_jerkmag_std	standard deviation of frequency attribute of body acceleration jerk magnitude in	double
65	fBodyBodyGyroMag-mean()	freq_body_gyromag_mean	mean of frequency attribute of body gyro magnitude in	double
66	fBodyBodyGyroMag-std()	freq_body_gyromag_std	standard deviation of frequency attribute of body gyro magnitude in	double
67	fBodyBodyGyroJerkMag-mean()	freq_body_gyrojerkmag_mean	mean of frequency attribute of body gyro jerk magnitude in	double
68	fBodyBodyGyroJerkMag-std()	freq_body_gyrojerkmag_std	standard deviation of frequency attribute of body acceleration in	double