ORIGINAL RAW DATA FILES

Not required for dataset creation, and not used:

1 file	README.txt	
1 file	features_info.txt	Shows information about the variables used on the feature vector.
18 files	Inertial Signals	Detailed measurements from smartphones

Used to create complete data set:

Use	File name	Rows	Columns	Range of values	Comments
Variable names	features.txt	561	1	names	Contains the complete list of 561 variables of each feature vector (row) in X_test.txt and X_train.txt. Splits into two columns in dataframe: rownumbers (1-561) and names.
Activity labels	activity_labels.txt	6	1	1 WALKING 2 WALKING_UPSTAIRS 3 WALKING_DOWNSTAIRS 4 SITTING 5 STANDING 6 LAYING	Links the activity labels with their activity codes in y_test.txt and y_training.txt.
Test dataset	X_test.txt	2,947	1		561 observations delimited by tabs
Activity codes	y_test.txt	2,947	1	1-6	Activity codes for test dataset
Subject ID's	subject_test.txt	2,947	1	2, 4, 9, 10, 12, 13 ,18, 20, 24	User ID's of the 9 subjects (30%) randomly selected for the test data set. Each row identifies the subject who performed the activity for each window sample.
Training dataset	X_train.txt	7,352	1		561 observations delimited by tabs
Activity codes	y_train.txt	7,352	1		Activity codes for training dataset
Subject ID's	subject_train.txt	7,352	1	1, 3, 5-8, 11, 14-17, 19, 21-23, 25-30	User ID's of the 21 subjects (70%) randomly selected for the training data set. Each row identifies the subject who performed the activity for each window sample.

Variable groups in complete data set (before extraction of mean and std columns)

Start c	End colu	Time	Variable Group	# vars	
1	40	t	BodyAcc	40	
41	80	t	GravityAcc	40	9x3: mean, std, mad, max,
81	120	t	BodyAccJerk	40	min, energy, igr, entropy,
121	160	t	BodyGyro	40	correlation; 1: sma; 12: arCoeff
161	200	t	BodyGyroJerk	40	
201	213	t	BodyAccMag	13	
214	226	t	GravityAccMag	13	
227	239	t	BodyAccJerkMag	13	
					9: mean, std, mad, max, min, energy, sma, igr, entropy; 4 arCoeff
240	252	t	BodyGyroMag	13	
253	265	t	BodyGyroJerkMag	13	
266	344	f	BodyAcc	79	sma (1), mean - entropy (8x3,
345	423	f	BodyAccJerk	79	no correlation), + maxInds-
424	502	f	BodyGyro	79	kurtosis (4x3) + bandsEnergy
503	515	f	BodyAccMag	13	mean, std, mad, max, min,
516	528	f	BodyBodyAccJerkMag	13	sma, energy, igr, entropy,
529	541	f	BodyBodyGyroMag	13	maxInds, meanFrew,
542	554	f	BodyBodyGyroJerkMag	13	skewness, kurtosis (9, no
555	555	f	angleangle(tBodyAccMean,gravity)	1	
556	556	f	angle(tBodyAccJerkMean),gravityMean)	1	
557	557	f	angle(tBodyGyroMean,gravityMean)	1	
558	558	f	angle(tBodyGyroJerkMean,gravityMean)	1	Unique
559	559	f	angle(X,gravityMean)	1	
560	560	f	angle(Y,gravityMean)	1	
561	561	f	angle(Z,gravityMean)	1	

KEY

mean(): Mean value
std(): Standard deviation
mad(): Median absolute deviation
max(): Largest value in array
min(): Smallest value in array
sma(): Signal magnitude area
energy(): Energy measure. Sum of the squares divided by the number of values.
iqr(): Interquartile range
entropy(): Signal entropy
arCoeff(): Autorregresion coefficients with Burg order equal to 4

correlation(): correlation coefficient between two signals
maxInds(): index of the frequency component with largest magnitude
meanFreq(): Weighted average of the frequency components to obtain a mean frequency
skewness(): skewness of the frequency domain signal
kurtosis(): kurtosis of the frequency domain signal
bandsEnergy(): Energy of a frequency interval within the 64 bins of the FFT of each window.
angle(): Angle between two vectors.