Codebook for Processing of Human Activity Recognition Using Smartphones Dataset into 'tidy' format

Output file is a text file "final_file.txt" in the WCProj directory

The file is space delimeted

File dimensions are 11,880 observations of 6 factors and and one response variable

The factors are:

Field Name	Description	Category	Number of Levels	Values		Other information
subject	An identifier of the subject who carried out the experiment	character/ factor	30	1 to 30		
activity name	activity name	character/ factor	6	1	WALKING	
				2	WALKING_UPSTAIRS	
				3	WALKING_DOWNSTAIRS	
				4	SITTING	
				5	STANDING	
				6	LAYING	
sensor	sensor from phone	character/ factor	17	1	tBodyAcc	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.
				2	tGravityAcc	
				3	tBodyAccJerk	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).
				4	tBodyGyro	
				5	tBodyGyroJerk	
				6	tBodyAccMag	
				7	tGravityAccMag	
				8	tBodyAccJerkMag	
				9	tBodyGyroMag	
				10	tBodyGyroJerkMag	
				11	fBodyAcc	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).
				12	fBodyAccJerk	
				13	fBodyGyro	
				14	fBodyAccMag	
				15	fBodyBodyAccJerkMag	
				16	fBodyBodyGyroMag	
				17	fBodyBodyGyroJerkMag	
axis	axis of phone	character/ factor	4	1	X	**'-XYZ' is used to denote 3-axial signals in the X, Y and Z directions.**
				2	Y	
				3	Z	
				4	NULL	
statistic	statistic of observation	character/ factor		1	mean()	mean(): Mean value
				2	std()	std(): Standard deviation
mean	mean value of statistic for all observations relating to this combination of factors	numeric		Triaxial acceleration from the accelerometer (total acceleration) and the estimated body acceleration		The response variable is the mean of all observations for each combination of factors - with each observation being normalized and bounded within [-1,1].