**Code Book or Data Dictionary for "Getting and Cleaning Data"**

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**Overview of Data Set:**

* 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 wearing a smartphone (Samsung Galaxy S II) on the waist.
* Using its embedded accelerometer and gyroscope,3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hz were captured.
* The sensor signals (accelerometer and gyroscope) were pre-processed by applying noise filters and then sampled in fixed-width sliding windows of 2.56 sec and 50% overlap (128 readings/window).
* The sensor acceleration signal, which has gravitational and body motion components, was separated using a Butterworth low-pass filter into body acceleration and gravity.
* The gravitational force is assumed to have only low frequency components; therefore a filter with 0.3 Hz cutoff frequency was used.

**Data Attributes:**

**Though the attributes / observations are recorded separately for documentation purposes the 3 axis are grouped together**

|  |  |
| --- | --- |
| **Attribute / Column** | **Description** |
| Subject | Subject / Volunteer whose measurements are recorded in the data set. To maintain anonymity the values here are ID numbers |
| Activity | Activity, the subject was performing at the time of measurement  WALKING  WALKING\_UPSTAIRS  WALKING\_DOWNSTAIRS  SITTING  STANDING  LAYING |
| tBodyAccdX  tBodyAccMeanY  tBodyAccMeanZ | Means for 3 separate Mean measurements of Body Acceleration along X, Y and Z axis |
| tBodyAccStdX  tBodyAccStdY  tBodyAccStdZ | Means for 3 separate Standard Deviation measurements of Body Acceleration along X, Y and Z axis |
| tGravityAccMeanX  tGravityAccMeanY  tGravityAccMeanZ | Means for 3 separate Mean measurements of Gravity Acceleration along X, Y and Z axis |
| tGravityAccStdX  tGravityAccStdY  tGravityAccStdZ | Means for 3 separate Standard Deviation measurements of Gravity Acceleration along X, Y and Z axis |
| tBodyAccJerkMeanX  tBodyAccJerkMeanY  tBodyAccJerkMeanZ | Means for 3 separate Mean measurements of Body Acceleration Jerk along X, Y and Z axis |
| tBodyAccJerkStdX  tBodyAccJerkStdY  tBodyAccJerkStdZ | Means for 3 separate Standard Deviation measurements of Body Acceleration Jerk along X, Y and Z axis |
| tBodyGyroMeanX  tBodyGyroMeanY  tBodyGyroMeanZ | Means for 3 separate Mean measurements of Body Gyro along X, Y and Z axis |
| tBodyGyroStdX  tBodyGyroStdY  tBodyGyroStdZ | Means for 3 separate Standard Deviation measurements of Body Gyro along X, Y and Z axis |
| tBodyGyroJerkMeanX  tBodyGyroJerkMeanY  tBodyGyroJerkMeanZ | Means for 3 separate Mean measurements of Gyro Jerk along X, Y and Z axis |
| tBodyGyroJerkStdX  tBodyGyroJerkStdY  tBodyGyroJerkStdZ | Means for 3 separate Standard Deviation measurements of Gyro Jerk along X, Y and Z axis |
| tBodyAccMagMean  tBodyAccMagStd | This is where a sample explanation for this column or attribute would be entered |
| tGravityAccMagMean  tGravityAccMagStd | This is where a sample explanation for this column or attribute would be entered |
| tBodyAccJerkMagMean  tBodyAccJerkMagStd | This is where a sample explanation for this column or attribute would be entered |
| tBodyGyroMagMean  tBodyGyroMagStd | This is where a sample explanation for this column or attribute would be entered |
| tBodyGyroJerkMagMean  tBodyGyroJerkMagStd | This is where a sample explanation for this column or attribute would be entered |
| fBodyAccMeanX  fBodyAccMeanY  fBodyAccMeanZ | This is where a sample explanation for this column or attribute would be entered |
| fBodyAccStdX  fBodyAccStdY  fBodyAccStdZ | This is where a sample explanation for this column or attribute would be entered |
| fBodyAccMeanFreqX  fBodyAccMeanFreqY  fBodyAccMeanFreqZ | This is where a sample explanation for this column or attribute would be entered |
| fBodyAccJerkMeanX  fBodyAccJerkMeanY  fBodyAccJerkMeanZ | This is where a sample explanation for this column or attribute would be entered |
| fBodyAccJerkStdX  fBodyAccJerkStdY  fBodyAccJerkStdZ | This is where a sample explanation for this column or attribute would be entered |
| fBodyAccJerkMeanFreqX  fBodyAccJerkMeanFreqY  fBodyAccJerkMeanFreqZ | This is where a sample explanation for this column or attribute would be entered |
| fBodyGyroMeanX  fBodyGyroMeanY  fBodyGyroMeanZ | This is where a sample explanation for this column or attribute would be entered |
| fBodyGyroStdX  fBodyGyroStdY  fBodyGyroStdZ | This is where a sample explanation for this column or attribute would be entered |
| fBodyGyroMeanFreqX  fBodyGyroMeanFreqY  fBodyGyroMeanFreqZ | This is where a sample explanation for this column or attribute would be entered |
| fBodyAccMagMean  fBodyAccMagStd | This is where a sample explanation for this column or attribute would be entered |
| fBodyAccMagMeanFreq | This is where a sample explanation for this column or attribute would be entered |
| fBodyBodyAccJerkMagMean  fBodyBodyAccJerkMagStd | This is where a sample explanation for this column or attribute would be entered |
| fBodyBodyAccJerkMagMeanFreq | This is where a sample explanation for this column or attribute would be entered |
| fBodyBodyGyroMagMean  fBodyBodyGyroMagStd | This is where a sample explanation for this column or attribute would be entered |
| fBodyBodyGyroMagMeanFreq | This is where a sample explanation for this column or attribute would be entered |
| fBodyBodyGyroJerkMagMean  fBodyBodyGyroJerkMagStd | This is where a sample explanation for this column or attribute would be entered |
| fBodyBodyGyroJerkMagMeanFreq | This is where a sample explanation for this column or attribute would be entered |