Getting and Cleaning Data Course Project

The experiment described here uses the "Human Activity Recognition Using Smartphone" dataset available at UCI Machine Learning Repository: http://archive.ics.uci.edu/ml/datasets/Human+Activity+Recognition+Using+Smartphones

This dataset is a collection of measurements from a smartphone's accelerometer and gyroscope when the individual carrying it is performing some activity, such as walking, standing, sitting, etc. The basic premise is to find a correlation between those measurements and activities.

This project cleans up the data and outputs a tidy data containing the mean value for part of those measurements for each pair of subject and activity. There is a total of 30 subjects and 6 activities, formatting a total of 180 rows - there are no missing pairs.

The measurements used by this project are the ones that represented the mean or the standard variation of a signal measured by the smartphone's sensors. The columns of the output file is described below.

Subject 2
: Numerical ID of the subject carrying the smartphone. It's range is from 1 to 30.

Activity 18
: String describing the activity the subject was performing when the measurements took place. Should equal to one of the following values:
  - Walking
  - Walking Upstairs
  - Walking Downstairs
  - Sitting
  - Standing
  - Laying

tBodyAcc.mean.X
: Mean of the acceleration of the body on the X axis.
Measurement taken on the time domain.

tBodyAcc.mean.Y
: Mean of the acceleration of the body on the Y axis.
Measurement taken on the time domain.

tBodyAcc.mean.Z
: Mean of the acceleration of the body on the Z axis.
Measurement taken on the time domain.

tBodyAcc.std.X
: Standard deviation of the acceleration of the body on the X axis.
Measurement taken on the time domain.

tBodyAcc.std.Y
: Standard deviation of the acceleration of the body on the Y axis.
Measurement taken on the time domain.

tBodyAcc.std.Z
: Standard deviation of the acceleration of the body on the Z axis.
Measurement taken on the time domain.

tGravityAcc.mean.X
      Mean of the acceleration of the gravity on the X axis.
      Measurement taken on the time domain.

tGravityAcc.mean.Y
      Mean of the acceleration of the gravity on the Y axis.
      Measurement taken on the time domain.

tGravityAcc.mean.Z
      Mean of the acceleration of the gravity on the Z axis.
      Measurement taken on the time domain.

tGravityAcc.std.X
      Standard deviation of the acceleration of the gravity on the X axis.
      Measurement taken on the time domain.

tGravityAcc.std.Y
      Standard deviation of the acceleration of the gravity on the Y axis.
      Measurement taken on the time domain.

tGravityAcc.std.Z
      Standard deviation of the acceleration of the gravity on the Z axis.
      Measurement taken on the time domain.

tBodyAccJerk.mean.X
      Mean of the acceleration jerk of the body on the X axis.
      Measurement taken on the time domain.

tBodyAccJerk.mean.Y
      Mean of the acceleration jerk of the body on the Y axis.
      Measurement taken on the time domain.

tBodyAccJerk.mean.Z
      Mean of the acceleration jerk of the body on the Z axis.
      Measurement taken on the time domain.

tBodyAccJerk.std.X
      Standard deviation of the acceleration jerk of the body on the X axis.
      Measurement taken on the time domain.

tBodyAccJerk.std.Y
      Standard deviation of the acceleration jerk of the body on the Y axis.
      Measurement taken on the time domain.

tBodyAccJerk.std.Z
      Standard deviation of the acceleration jerk of the body on the Z axis.
      Measurement taken on the time domain.

tBodyGyro.mean.X
      Mean of the signal given by the gyroscope on the X axis.
      Measurement taken on the time domain.

tBodyGyro.mean.Y
      Mean of the signal given by the gyroscope on the Y axis.
      Measurement taken on the time domain.

tBodyGyro.mean.Z
      Mean of the signal given by the gyroscope on the Z axis.
      Measurement taken on the time domain.

tBodyGyro.std.X
      Standard deviation of the signal given by the gyroscope on the X axis.
      Measurement taken on the time domain.

tBodyGyro.std.Y
      Standard deviation of the signal given by the gyroscope on the Y axis.
      Measurement taken on the time domain.

tBodyGyro.std.Z
      Standard deviation of the signal given by the gyroscope on the Z axis.
      Measurement taken on the time domain.

tBodyGyroJerk.mean.X
      Mean of the jerk signal given by the gyroscope on the X axis.
      Measurement taken on the time domain.

tBodyGyroJerk.mean.Y
      Mean of the jerk signal given by the gyroscope on the Y axis.
      Measurement taken on the time domain.

tBodyGyroJerk.mean.Z
      Mean of the jerk signal given by the gyroscope on the Z axis.
      Measurement taken on the time domain.

tBodyGyroJerk.std.X
      Standard deviation of the jerk signal given by the gyroscope on the X
      axis.
      Measurement taken on the time domain.

tBodyGyroJerk.std.Y
      Standard deviation of the jerk signal given by the gyroscope on the Y
      axis.
      Measurement taken on the time domain.

tBodyGyroJerk.std.Z
      Standard deviation of the jerk signal given by the gyroscope on the Z
      axis.
      Measurement taken on the time domain.

tBodyAccMag.mean
      Mean of the magnitude of the acceleration of the body.
      Measurement taken on the time domain.

tBodyAccMag.std
      Standard deviation of the magnitude of the acceleration of the body.
      Measurement taken on the time domain.

tGravityAccMag.mean
      Mean of the magnitude of the acceleration of the gravity.
      Measurement taken on the time domain.

tGravityAccMag.std
      Standard deviation of the magnitude of the acceleration of the gravity.
      Measurement taken on the time domain.

tBodyAccJerkMag.mean
      Mean of the magnitude of the acceleration jerk of the body.
      Measurement taken on the time domain.

tBodyAccJerkMag.std
      Standard deviation of the magnitude of the acceleration jerk of the body.
      Measurement taken on the time domain.

tBodyGyroMag.mean
      Mean of the magnitude of the signal measured by the gyroscope.
      Measurement taken on the time domain.

tBodyGyroMag.std
      Standard deviation of the magnitude of the signal measured by the
      gyroscope.
      Measurement taken on the time domain.

tBodyGyroJerkMag.mean
      Mean of the magnitude of the signal jerk measured by the gyroscope.
      Measurement taken on the time domain.

tBodyGyroJerkMag.std
      Standard deviation of the magnitude of the signal measured by the
      gyroscope.
      Measurement taken on the time domain.

fBodyAcc.mean.X
      Mean of the acceleration of the body on the X axis.
      Measurement taken on the frequency domain.

fBodyAcc.mean.Y
      Mean of the acceleration of the body on the Y axis.
      Measurement taken on the frequency domain.

fBodyAcc.mean.Z
      Mean of the acceleration of the body on the Z axis.
      Measurement taken on the frequency domain.

fBodyAcc.std.X
      Standard deviation of the acceleration of the body on the X axis.
      Measurement taken on the frequency domain.

fBodyAcc.std.Y
      Standard deviation of the acceleration of the body on the Y axis.
      Measurement taken on the frequency domain.

fBodyAcc.std.Z
      Standard deviation of the acceleration of the body on the Z axis.
      Measurement taken on the frequency domain.

fBodyAccJerk.mean.X
      Mean of the acceleration jerk of the body on the X axis.
      Measurement taken on the frequency domain.

fBodyAccJerk.mean.Y
      Mean of the acceleration jerk of the body on the Y axis.
      Measurement taken on the frequency domain.

fBodyAccJerk.mean.Z
      Mean of the acceleration jerk of the body on the Z axis.
      Measurement taken on the frequency domain.

fBodyAccJerk.std.X
Standard deviation of the acceleration jerk of the body on the X axis.
Measurement taken on the frequency domain.

fBodyAccJerk.std.Y
Standard deviation of the acceleration jerk of the body on the Y axis.
Measurement taken on the frequency domain.

fBodyAccJerk.std.Z
Standard deviation of the acceleration jerk of the body on the Z axis.
Measurement taken on the frequency domain.

fBodyGyro.mean.X
Mean of the signal measured by the gyroscope on the X axis.
Measurement taken on the frequency domain.

fBodyGyro.mean.Y
Mean of the signal measured by the gyroscope on the Y axis.
Measurement taken on the frequency domain.

fBodyGyro.mean.Z
Mean of the signal measured by the gyroscope on the Z axis.
Measurement taken on the frequency domain.

fBodyGyro.std.X
Standard deviation of the signal measured by the gyroscope on the X axis.
Measurement taken on the frequency domain.

fBodyGyro.std.Y
Standard deviation of the signal measured by the gyroscope on the Y axis.
Measurement taken on the frequency domain.

fBodyGyro.std.Z
Standard deviation of the signal measured by the gyroscope on the Z axis.
Measurement taken on the frequency domain.

fBodyAccMag.mean
Mean of the magnitude of the acceleration of the body.
Measurement taken on the frequency domain.

fBodyAccMag.std
Standard deviation of the magnitude of the acceleration of the body.
Measurement taken on the frequency domain.

fBodyBodyAccJerkMag.mean
Mean of the magnitude of the acceleration jerk of the body.
Measurement taken on the frequency domain.

fBodyBodyAccJerkMag.std
Standard deviation of the magnitude of the acceleration jerk of the body.
Measurement taken on the frequency domain.

fBodyBodyGyroMag.mean
Mean of the magnitude of the signal measured by the gyroscope.
Measurement taken on the frequency domain.

fBodyBodyGyroMag.std
Standard deviation of the magnitude of the signal measured by the
gyroscope.
Measurement taken on the frequency domain.

fBodyBodyGyroJerkMag.mean
Mean of the magnitude jerk of the signal measured by the gyroscope.
Measurement taken on the frequency domain.

fBodyBodyGyroJerkMag.std
Standard deviation of the magnitude jerk of the signal measured by the gyroscope.
Measurement taken on the frequency domain.