Codebook

This codebook describes the data in “tidydata.txt”, a file generated by the R script, “run_analysis.R”.

More information about the original data and the analysis can be found at:
https://github.com/amyr206/getting-and-cleaning-data

Notes follow the definitions table below.

Data Definitions

Column name	Data type	Definition
subjectid	numeric	Number 1 - 30. Identifies the subject in the original dataset.
activity	character	walking, walkingupstairs, walkingdownstairs, sitting, standing, laying. The activity in which the subject engaged when the measurement was taken.
timebodyaccelerometermeanx	numeric	Mean of means of the time domain signal of the body linear acceleration along the x axis, as measured by an accelerometer.
timebodyaccelerometermeany	numeric	Mean of means of the time domain signal of the body linear acceleration along the y axis, as measured by an accelerometer.
timebodyaccelerometermeanz	numeric	Mean of means of the time domain signal of the body linear acceleration along the z axis, as measured by an accelerometer.
timebodyaccelerometerstdx	numeric	Mean of standard deviations of the time domain signal of the body linear acceleration along the x axis, as measured by an accelerometer.
timebodyaccelerometerstdy	numeric	Mean of standard deviations of the time domain signal of the body linear acceleration along the y axis, as measured by an accelerometer.
timebodyaccelerometerstdz	numeric	Mean of standard deviations of the time domain signal of the body linear acceleration along the z axis, as measured by an accelerometer.
timegravityaccelerometermeanx	numeric	Mean of means of the time domain signal of the gravitational linear acceleration along the x axis, as measured by an accelerometer.
timegravityaccelerometermeany	numeric	Mean of means of the time domain signal of the gravitational linear acceleration along the y axis, as measured by an accelerometer.

Column name	Data type	Definition
timegravityaccelerometermeanz	numeric	Mean of means of the time domain signal of the gravitational linear acceleration along the z axis, as measured by an accelerometer.
timegravityaccelerometerstdx	numeric	Mean of standard deviations of the time domain signal of the gravitational linear acceleration along the x axis, as measured by an accelerometer.
timegravityaccelerometerstdy	numeric	Mean of standard deviations of the time domain signal of the gravitational linear acceleration along the y axis, as measured by an accelerometer.
timegravityaccelerometerstdz	numeric	Mean of standard deviations of the time domain signal of the gravitational linear acceleration along the z axis, as measured by an accelerometer.
timebodyaccelerometerjerkmeanx	numeric	Mean of means of the time domain signal of the body linear acceleration and angular velocity along the x axis, as measured by an accelerometer.
timebodyaccelerometerjerkmeany	numeric	Mean of means of the time domain signal of the body linear acceleration and angular velocity along the y axis, as measured by an accelerometer.
timebodyaccelerometerjerkmeanz	numeric	Mean of means of the time domain signal of the body linear acceleration and angular velocity along the z axis, as measured by an accelerometer.
timebodyaccelerometerjerkstdx	numeric	Mean of standard deviations of the time domain signal of the body linear acceleration and angular velocity along the x axis, as measured by an accelerometer.
timebodyaccelerometerjerkstdy	numeric	Mean of standard deviations of the time domain signal of the body linear acceleration and angular velocity along the y axis, as measured by an accelerometer.
timebodyaccelerometerjerkstdz	numeric	Mean of standard deviations of the time domain signal of the body linear acceleration and angular velocity along the z axis, as measured by an accelerometer.
timebodygyroscopemeanx	numeric	Mean of means of the time domain signal of the body angular velocity along the x axis, as measured by an gyroscope.
timebodygyroscopemeany	numeric	Mean of means of the time domain signal of the body angular velocity along the y axis, as measured by an gyroscope.
timebodygyroscopemeanz	numeric	Mean of means of the time domain signal of the body angular velocity along the z axis, as measured by an gyroscope.

Column name	Data type	Definition
timebodygyroscopestdx	numeric	Mean of standard deviations of the time domain signal of the body angular velocity along the x axis, as measured by an gyroscope.
timebodygyroscopestdy	numeric	Mean of standard deviations of the time domain signal of the body angular velocity along the y axis, as measured by an gyroscope.
timebodygyroscopestdz	numeric	Mean of standard deviations of the time domain signal of the body angular velocity along the z axis, as measured by an gyroscope.
timebodygyroscopejerkmeanx	numeric	Mean of means of the time domain signal of the body linear acceleration and angular velocity along the x axis, as measured by an gyroscope.
timebodygyroscopejerkmeany	numeric	Mean of means of the time domain signal of the body linear acceleration and angular velocity along the y axis, as measured by an gyroscope.
timebodygyroscopejerkmeanz	numeric	Mean of means of the time domain signal of the body linear acceleration and angular velocity along the z axis, as measured by an gyroscope.
timebodygyroscopejerkstdx	numeric	Mean of standard deviations of the time domain signal of the body linear acceleration and angular velocity along the x axis, as measured by an gyroscope.
timebodygyroscopejerkstdy	numeric	Mean of standard deviations of the time domain signal of the body linear acceleration and angular velocity along the y axis, as measured by an gyroscope.
timebodygyroscopejerkstdz	numeric	Mean of standard deviations of the time domain signal of the body linear acceleration and angular velocity along the z axis, as measured by an gyroscope.
timebodyaccelerometermagnitudemean	numeric	Mean of means of the magnitude of the time domain signal of the body linear acceleration, as measured by an accelerometer.
timebodyaccelerometermagnitudestd	numeric	Mean of standard deviations of the magnitude of the time domain signal of the body linear acceleration, as measured by an accelerometer.
timegravityaccelerometermagnitudemean	numeric	Mean of means of the magnitude of the time domain signal of the gravitational linear acceleration, as measured by an accelerometer.
timegravityaccelerometermagnitudestd	numeric	Mean of standard deviations of the magnitude of the time domain signal of the gravitational linear acceleration, as measured by an accelerometer.

Column name	Data type	Definition
timebodyaccelerometerjerkmagnitudemean	numeric	Mean of means of the magnitude of the time domain signal of the body linear acceleration and angular velocity, as measured by an accelerometer.
timebodyaccelerometerjerkmagnitudestd	numeric	Mean of standard deviations of the magnitude of the time domain signal of the body linear acceleration and angular velocity, as measured by an accelerometer.
timebodygyroscopemagnitudemean	numeric	Mean of means of the magnitude of the time domain signal of the body angular velocity, as measured by an gyroscope.
timebodygyroscopemagnitudestd	numeric	Mean of standard deviations of the magnitude of the time domain signal of the body angular velocity, as measured by an gyroscope.
timebodygyroscopejerkmagnitudemean	numeric	Mean of means of the magnitude of the time domain signal of the body linear acceleration and angular velocity, as measured by an gyroscope.
timebodygyroscopejerkmagnitudestd	numeric	Mean of standard deviations of the magnitude of the time domain signal of the body linear acceleration and angular velocity, as measured by a gyroscope.
frequencybodyaccelerometermeanx	numeric	Mean of means of the frequency domain signal of the body linear acceleration along the x axis, as measured by an accelerometer.
frequencybodyaccelerometermeany	numeric	Mean of means of the frequency domain signal of the body linear acceleration along the y axis, as measured by an accelerometer.
frequencybodyaccelerometermeanz	numeric	Mean of means of the frequency domain signal of the body linear acceleration along the z axis, as measured by an accelerometer.
frequencybodyaccelerometerstdx	numeric	Mean of standard deviations of the frequency domain signal of the body linear acceleration along the x axis, as measured by an accelerometer.
frequencybodyaccelerometerstdy	numeric	Mean of standard deviations of the frequency domain signal of the body linear acceleration along the y axis, as measured by an accelerometer.
frequencybodyaccelerometerstdz	numeric	Mean of standard deviations of the frequency domain signal of the body linear acceleration along the z axis, as measured by an accelerometer.
frequencybodyaccelerometerjerkmeanx	numeric	Mean of means of the frequency domain signal of the body linear acceleration and angular velocity along the x axis, as measured by an accelerometer.

Column name	Data type	Definition
frequencybodyaccelerometerjerkmeany	numeric	Mean of means of the frequency domain signal of the body linear acceleration and angular velocity along the y axis, as measured by an accelerometer.
frequencybodyaccelerometerjerkmeanz	numeric	Mean of means of the frequency domain signal of the body linear acceleration and angular velocity along the z axis, as measured by an accelerometer.
frequencybodyaccelerometerjerkstdx	numeric	Mean of standard deviations of the frequency domain signal of the body linear acceleration and angular velocity along the x axis, as measured by an accelerometer.
frequencybodyaccelerometerjerkstdy	numeric	Mean of standard deviations of the frequency domain signal of the body linear acceleration and angular velocity along the y axis, as measured by an accelerometer.
frequencybodyaccelerometerjerkstdz	numeric	Mean of standard deviations of the frequency domain signal of the body linear acceleration and angular velocity along the z axis, as measured by an accelerometer.
frequencybodygyroscopemeanx	numeric	Mean of means of the frequency domain signal of the body angular velocity along the x axis, as measured by an gyroscope.
frequencybodygyroscopemeany	numeric	Mean of means of the frequency domain signal of the body angular velocity along the y axis, as measured by an gyroscope.
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frequencybodygyroscopestdx	numeric	Mean of standard deviations of the frequency domain signal of the body angular velocity along the x axis, as measured by an gyroscope.
frequencybodygyroscopestdy	numeric	Mean of standard deviations of the frequency domain signal of the body angular velocity along the y axis, as measured by an gyroscope.
frequencybodygyroscopestdz	numeric	Mean of standard deviations of the frequency domain signal of the body angular velocity along the z axis, as measured by an gyroscope.
frequencybodyaccelerometermagnitudemean	numeric	Mean of means of the magnitude of the frequency domain signal of the body linear acceleration, as measured by an accelerometer.
frequencybodyaccelerometermagnitudestd	numeric	Mean of standard deviations of the magnitude of the frequency domain signal of the body linear acceleration, as measured by an accelerometer.

Column name	Data type	Definition
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frequencybodygyroscopemagnitudemean	numeric	Mean of means of the magnitude of the frequency domain signal of the body angular velocity, as measured by a gyroscope.
frequencybodygyroscopemagnitudestd	numeric	Mean of standard deviations of the magnitude of the frequency domain signal of the body angular velocity, as measured by a gyroscope.
frequencybodygyroscopejerkmagnitudemean	numeric	Mean of means of the magnitude of the frequency domain signal of the body linear acceleration and angular velocity, as measured by a gyroscope.
frequencybodygyroscopejerkmagnitudestd	numeric	Mean of standard deviations of the magnitude of the frequency domain signal of the body linear acceleration and angular velocity, as measured by a gyroscope.

Notes

- The original codebook for this data is included in the dataset download package in the features_info.txt file.
- All measurement data was normalized.
- Fast Fourier Transform was applied the frequency data.
- Magnitude measurements were calculated using the Euclidean norm.
- Activity names were changed from the original uppercase with words separated by underscores, to lowercase without separation between words. This was done to align to the standards on slide 16 of Jeff Leek's lecture on editing text variables: http://jtleek.com/modules/03_GettingData/04_01_editingTextVariables/#16
- Similarly, measurement column names were similarly cleaned to be consistent with the same standards. They are lowercase, and there are no separators.
- Abbreviations in measurement column names were changed to fully descriptive words. I spent some time thinking about whether Acc = "accelerometer" or "acceleration". I felt it was most straightforward to have the column names refer to the instruments that took the measurement - "accelerometer" and "gyroscope".
- Only measurements having column names that had a -mean()- or -std()- in the original dataset were included in the finalized dataset. This was to ensure that the variables were consistently extracted, and that no summary/calc fields were included. It was also simpler.

- As previously mentioned, information about the original dataset and the analysis scripts and methods can be found at: https://github.com/amyr206/getting-and-cleaning-data