Coursera Getting and Cleanning Data Course Project

Code Book

This code book represents the tidy data set created out of the Human Activity Recognition Using a Smartphone project . About the project : http://archive.ics.uci.edu/ml/datasets/Human+Activity+Recognition+Using+Smartphones

Running the script run_analysis() will perform:

- Download and unzip the dataset from: https://d396qusza40orc.cloudfront.net/getdata%2Fprojectfiles%2FUCI%20HAR%20Dataset.zip , if was not previously downloaded
- Create a tidy dataset (tidyDataSet.csv), containing variables:
    - Subject
    - Activity
    - Mean and standard deviation variables for all measurements. The names of these variables are self explanatory

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Variables

1 Subject

Type: positive integer

Description: a person who performed the activity either as part of the train group or as part of the test group

2 Activity

Type: strings as factors, levels:

- `LAYING`
- `SITTING`
- `STANDING`
- `WALKING`
- `WALKING_DOWNSTAIRS`
- `WALKING_UPSTAIRS`

Description: the measured activity

3 Remaining 66 variables

Type: real number in the range (-1..1)

Description: a normalized computation of the measurement, representing:

- Domain:
  - t - time domain
  - f - frequency domain
- Filtered – the measurements are passed through a filter to distinguish between
  - Body – the human body
  - Gravity – the earth gravity
- Feature – the actually measured feature:
  - Acc – acceleration
  - AccJerk - the rate of change of acceleration
  - Gyro – the rotational velocity
  - GyroJerk - the rate of change of rotational velocity
- Vector – either one of the axes of the vector of its magnitude
  - -X - i.e. the name ends with “-X” represents X direction
  - -Y - i.e. the name ends with “-Y” represents Y direction
  - -Z - i.e. the name ends with “-Z” represents Z direction
  - Mag – i.e. “Mag” appears right after the feature, represents the vector magnitude
- Computation – the computation performed to achieve this value:
  - -mean() - average
  - -std() - standard deviation

Example:

- tBodyGyroJerk-std()-Y
  - Domain: t – time domain
  - Filtered: Body – the subject body
  - Feature: GyroJerk - the rate of change of rotational velocity
  - Vector: -Y – Y direction
  - Computation: -std() - standard deviation

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Citation (requested at the project license):

[1] Davide Anguita, Alessandro Ghio, Luca Oneto, Xavier Parra and Jorge L. Reyes-Ortiz. Human Activity Recognition on Smartphones using a Multiclass Hardware-Friendly Support Vector Machine. International Workshop of Ambient Assisted Living (IWAAL 2012). Vitoria-Gasteiz, Spain. Dec 2012