Code Book

STUDY DESIGN SECTION – How the data was collected

Two data sets have been considered during the analysis

1. Human Activity Recognition Using Smartphones Dataset v1.0

Detail information about how the data was collected is included within dataset group of files.

Also it can be found at GitHub project directory, as "README_UCI CHAR Dataset.txt"

2. x_global_avg.txt

This data set is produced by processing files "X_test.txt", "y_test.txt", "X_train.txt" and "y_test.txt"

The table is produced with code "Run_analysis.R".
Detail description of steps followed in the process is included on README.md file and within code

The files can be located at GitHub project directory,
https://github.com/JaimeLaorden/GettingCleaningData_Course_Project

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As commented in point 1 section "study design", detailed information on features description and associated measures is on "README_UCI CHAR Dataset.txt", together with "features.txt" and "activity_labels.txt", all of them available within original dataset and at Course Project repository.

"X_GLOBAL_AVG.TXT"

Summary:

Each row represents a pair "Activity" – Experimenter"

- o 180 rows (6 activities x 30 experimenters)

For each row it is provided:

- o Column "Activity"
- o Column "Experimenter"
- o 561 columns with average of variable measurement, for each pair # of Activity and Experimenter

Attributes/Features/Variables

- o "**Activity**" values have been defined as described in "activity_labels.txt" and correspond to the kind of activity the experimenter was realizing when the measurement was done:

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

- o **"Experimenter"** values have been defined as a number 1:30, indicating who was the experimenter involved in the measurement, as there was a 30 experimenters group.

  Experimenters are within an age bracket of 19-48 years

- o **Human Activity** Measurements (561 variables)

  Sows the average of each variable measurement, as per combination of "Activity" and "Experimenter" tests

The columns names and description are included within the "README_UCI CHAR Dataset.txt", together with "features.txt" and "activity_labels.txt", all of them available within original dataset and at Course Project repository.

Units for each variable are the ones described on the original file README_UCI CHAR Dataset.txt

All original variables names have been normalized to convert to a valid variable name.

The process followed was:

1. Remove "…" (three dots) pattern in column names, and replace by a blank pattern
2. Remove ".."(two dots) pattern in column names, and replace by a blank pattern
3. Remove "."(one dots) pattern in column names, and replace by a blank pattern

Sample translation is:

```
> head(cbind(features_names_ori, features_names))
     features_names_ori   features_names
[1,] "tBodyAcc-mean()-X" "tBodyAcc.mean.X"
[2,] "tBodyAcc-mean()-Y" "tBodyAcc.mean.Y"
[3,] "tBodyAcc-mean()-Z" "tBodyAcc.mean.Z"
[4,] "tBodyAcc-std()-X"  "tBodyAcc.std.X"
```

```
     [5,] "tBodyAcc-std()-Y"  "tBodyAcc.std.Y"
     [6,] "tBodyAcc-std()-Z"  "tBodyAcc.std.Z"

> tail(cbind(features_names_ori, features_names))
        features_names_ori                       features_names
[556,] "angle(tBodyAccJerkMean),gravityMean)"  "angle.tBodyAccJerkMean.gravityMean"
[557,] "angle(tBodyGyroMean,gravityMean)"      "angle.tBodyGyroMean.gravityMean"
[558,] "angle(tBodyGyroJerkMean,gravityMean)"  "angle.tBodyGyroJerkMean.gravityMean"
[559,] "angle(X,gravityMean)"                  "angle.X.gravityMean"
[560,] "angle(Y,gravityMean)"                  "angle.Y.gravityMean"
[561,] "angle(Z,gravityMean)"                  "angle.Z.gravityMean"
```