CodeBook for the final project in Getting and Cleaning Data

The `run_analysis.R` script is created according to the instructions in Getting and Cleaning Data Course Project. The project is composed by 5 steps.

1. **Download step**
    - Download and extract data in the "`UCI HAR Dataset`" folder

2. **Assign data to variables step**
    - `features` <- `features.txt` : 561 rows, 2 columns
      3-axial raw signals tAcc-XYZ and tGyro-XYZ from the accelerometer and gyroscope.
    - `activities` <- `activity_labels.txt` : 6 rows, 2 columns
      Codes and descriptions of 6 typical activities
    - `subject_test` <- `test/subject_test.txt` : 2947 rows, 1 column
      test data of test subjects
    - `x_test` <- `test/X_test.txt` : 2947 rows, 561 columns
      recorded features test data
    - `y_test` <- `test/y_test.txt` : 2947 rows, 1 columns
      test data of activities
    - `subject_train` <- `test/subject_train.txt` : 7352 rows, 1 column
      train data of subjects under observation
    - `x_train` <- `test/X_train.txt` : 7352 rows, 561 columns
      train data features
    - `y_train` <- `test/y_train.txt` : 7352 rows, 1 columns
      activities' code train data

3. **Merging training and test sets to create a single data set**
    - Merge `x_train` and `x_test` using **rbind()** function to obtain `X` (10299 rows, 561 columns)
    - Merge `y_train` and `y_test` using **rbind()** function to obtain `Y` (10299 rows, 1 column)
    - Merge `subject_train` and `subject_test` using **rbind()** function to obtain `Subject` (10299 rows, 1 column)
    - `AllData` (10299 rows, 563 column) is created by merging `Subject`, `Y` and `X` using **cbind()** function

4. **Extracting only mean and standard deviation for each measurement**
    - Select from `AllData`, only columns: `subject`, `code` and `mean` and *standard deviation* (`std`) to obtain `AllDataMeanStd` (10299 rows, 88 columns)

5. **Using descriptive activity names to rename activities in the dataframe**

- Replace codes in the data-frame `AllDataMeanStd,` column `code` with corresponding labels available in the second column of `activities` data-frame

6. **Labelling the data set with descriptive variable names**
   - The name of the columns belonging to the data-frame `AllDataMeanStd` are renamed as follows

     - `code` renamed as `Activities`
     - All `Acc` renamed as `Accelerometer`
     - All `Gyro` renamed as `Gyroscope`
     - All `BodyBody` renamed as `Body`
     - All `Mag` renamed as `Magnitude`
     - All strings starting with character `f` renamed as `Frequency`
     - All strings starting with character `t` renamed as `Time`

   The final data-frame is then called TidyDf1

7. **Creating a new data set from the previous one with the average of each variable for each activity and each subject**
   - Group in a temporary data-frame called `SumAllDataMeanStdTemp` the data by Subject and Activity
   - Compute the means of each variable for each activity and each subject and store them in data-frame `SumAllDataMeanStd` (180 rows, 88 columns)

   The final data-frame is then called TidyDf2

8. **Exporting/writing data into a txt file**
   - Export `TidyDf2`into `FinalData.txt` file with the function write.table