

## Tidy Data Set Code Book

1. activity\_name
  - a. WALKING
  - b. WALKING\_UPSTAIRS
  - c. WALKING\_DOWNSTAIRS
  - d. SITTING
  - e. STANDING
  - f. LAYING
2. subject\_id
  - a. Subject who performed the activity. Values range from 1 to 30

The following columns represents **the average** of each variable for each activity\_name and subject\_id.

3. tBodyAcc-mean()-X
4. tBodyAcc-mean()-Y
5. tBodyAcc-mean()-Z
6. tBodyAcc-std()-X
7. tBodyAcc-std()-Y
8. tBodyAcc-std()-Z
9. tGravityAcc-mean()-X
10. tGravityAcc-mean()-Y
11. tGravityAcc-mean()-Z
12. tGravityAcc-std()-X
13. tGravityAcc-std()-Y
14. tGravityAcc-std()-Z
15. tBodyAccJerk-mean()-X
16. tBodyAccJerk-mean()-Y
17. tBodyAccJerk-mean()-Z
18. tBodyAccJerk-std()-X
19. tBodyAccJerk-std()-Y
20. tBodyAccJerk-std()-Z
21. tBodyGyro-mean()-X
22. tBodyGyro-mean()-Y
23. tBodyGyro-mean()-Z
24. tBodyGyro-std()-X
25. tBodyGyro-std()-Y
26. tBodyGyro-std()-Z
27. tBodyGyroJerk-mean()-X
28. tBodyGyroJerk-mean()-Y
29. tBodyGyroJerk-mean()-Z
30. tBodyGyroJerk-std()-X
31. tBodyGyroJerk-std()-Y
32. tBodyGyroJerk-std()-Z

33. tBodyAccMag-mean()  
34. tBodyAccMag-std()  
35. tGravityAccMag-mean()  
36. tGravityAccMag-std()  
37. tBodyAccJerkMag-mean()  
38. tBodyAccJerkMag-std()  
39. tBodyGyroMag-mean()  
40. tBodyGyroMag-std()  
41. tBodyGyroJerkMag-mean()  
42. tBodyGyroJerkMag-std()  
43. fBodyAcc-mean()-X  
44. fBodyAcc-mean()-Y  
45. fBodyAcc-mean()-Z  
46. fBodyAcc-std()-X  
47. fBodyAcc-std()-Y  
48. fBodyAcc-std()-Z  
49. fBodyAccJerk-mean()-X  
50. fBodyAccJerk-mean()-Y  
51. fBodyAccJerk-mean()-Z  
52. fBodyAccJerk-std()-X  
53. fBodyAccJerk-std()-Y  
54. fBodyAccJerk-std()-Z  
55. fBodyGyro-mean()-X  
56. fBodyGyro-mean()-Y  
57. fBodyGyro-mean()-Z  
58. fBodyGyro-std()-X  
59. fBodyGyro-std()-Y  
60. fBodyGyro-std()-Z  
61. fBodyAccMag-mean()  
62. fBodyAccMag-std()  
63. fBodyBodyAccJerkMag-mean()  
64. fBodyBodyAccJerkMag-std()  
65. fBodyBodyGyroMag-mean()  
66. fBodyBodyGyroMag-std()  
67. fBodyBodyGyroJerkMag-mean()  
68. fBodyBodyGyroJerkMag-std()

For the variables the following nomenclature applies:

- Column names with prefix 't' are time domain signals, and columns with prefix 'f' are frequency domain signals.
- '-XYZ' is used to denote 3-axial signals in the X, Y and Z directions.
- mean() or std() represents the initial operation performed on the raw data
- Acc – Acceleration, taken by an accelerometer.

- Jerk – Jerk signals obtained from the derivative in time of the body linear acceleration and angular velocity.
- Gyro – Gyroscope, taken by and gyroscope.
- Mag – Magnitude, calculated using the Euclidean norm.
- Variables like fBodyAcc-XYZ, fBodyAccJerk-XYZ, fBodyGyro-XYZ, fBodyAccJerkMag, fBodyGyroMag, fBodyGyroJerkMag were initially produced by applying the Fast Fourier Transform(FFT) to some of the basic signals.

Original data source:

Human Activity Recognition Using Smartphones Dataset Version 1.0.

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