Summary:

The ??Final?? data.table is make of the following cols:

Subject

Actions

And 60 different Measurements.

The ??Final?? table is derived from the values in <ref> while the description that follows is taken from the “features\_info.txt” of the same <ref>

Measurements are taken from the experiments where a subject performs an activity and the resulting values from a 3 axes accelerometer and 3 axis Gyro are reported under measurements.

The measurements are taken using a constant sampling frequency of 50Hz and then the signal is further refined to remove noise. Finally the signal is further analysed to define two parts:

Body and Gravity.

The measurement names are taken, slightly modified, from the features.txt” of <ref>

In the ??final?? data.table these measurements for body acceleration are under Body\_Acc\_<Mean,Str>\_<x,Y,Z>

and Gravity\_Acc<Mean,Str>\_<x,Y,Z>

while measurement from the body’s gyro are:

BodyGyro\_Mean\_<X,Y,Z>, BodyGyro\_Std\_<X,Y,Z>

Also the magnitude of these three-dimensional signals were calculated and the value reported under:

BodyAccMag\_<Mean, Std>, GravityAccMag\_<Mean, Std> and

BodyGyroMag\_<Mean, Std>

For the magnitude, no X,Y,Z components are defined, off course.

Other measurements have been derived from the above after manipulations. They are:

BodyAccJerk<Mean, Std>\_<XYZ> and BodyGyroJerk<Mean, Std>\_<X,Y,Z>

With the magnitude reported under

BodyAccJerkMag, BodyGyroMag, BodyGyroJerkMag

The last series of measurements are from evaluating the above masurements in the frequency domain, applying the FFT transformation for the signal in the time domain.

The result measuremnents can be found under:

fBodyAcc\_<Mean,Std>\_<X,Y,Z>, fBodyAccJerk\_<Mean, Std>\_<X,Y,Z>, fBodyGyro\_<Mean, Std>\_<X,Y,Z>, fBodyAccJerkMag<Mean, Std>, fBodyGyroMag, fBodyGyroJerkMag.

The info is collected in a data.table 10299 obs of 62 vars

All meas. Have been mormalised, i.e. the max value = 1. And the min = -1. And they are of class int.

All the following cols have a name that is coming from the ….

And values are int and have:

Max= 1

Min= -1

Because the measurement are mormalised, the do not have a unit.

All the following cols have a name that is coming from the ….

And values are int and have:

Max= 1

Min= -1

Vars measuring the Body Acceleration, either mean as well as Standard deviation in 3 direction (X, Y Z)

Example of variable names in features.txt from the web side becames :

* tBodyAcc-mean()-X becames : Body\_Acc\_Mean\_X
* tBodyAcc-mean()-Y Body\_Acc\_Mean\_Y
* tBodyAcc-mean()-Z Body\_Acc\_Mean\_Z
* fBodyAcc-mean()-X fBodyAcc\_Mean\_X
* fBodyAcc-mean()-Y fBodyAcc\_Mean\_Y
* fBodyAcc-mean()-Z fBodyAcc\_Mean\_Z

Vars measuring the Body Acceleration, mean as well as standard deviation in 3 direction (X, Y Z)

* tBodyAcc-mean()-X becames : Body\_Acc\_Mean\_X
* tBodyAcc-mean()-Y Body\_Acc\_Mean\_Y
* tBodyAcc-mean()-Z Body\_Acc\_Mean\_Z
* fBodyAcc-mean()-X fBodyAcc\_Mean\_X
* fBodyAcc-mean()-Y fBodyAcc\_Mean\_Y
* fBodyAcc-mean()-Z fBodyAcc\_Mean\_Z

Vars measuring the Body Acceleration, mean as well as standard deviation in 3 direction (X, Y Z)

1. Subject: Identify a person that has been used for the test.

Class: Int

|  |
| --- |
| Min. : 1.00 |
| 1st Qu.: 9.00 |
| Median:17.00 |
| Mean :16.15 |
| 3rd Qu.:24.00 |
| Max. :30.00 |

1. readable\_actions: Identify the activity during which the measurements have been taken.

Class: Factor w/ 6 levels "WALKING"," WALKING\_DOWNSTAIRS”, “SITTING”, “WALKING\_UPSTAIRS”, “STANDING”, “LAYING”

1. Vars:

* Body\_Acc\_Mean\_X
* Body\_Acc\_Mean\_Y
* Body\_Acc\_Mean\_Z
* Body\_Acc\_Std\_X
* Body\_Acc\_Std\_Y
* Body\_Acc\_Std\_Z
* Gravity\_Acc\_Mean\_X : num 0.963 0.967 0.967 0.968 0.968 ...
* Gravity\_Acc\_Mean\_Y : num -0.141 -0.142 -0.142 -0.144 -0.149 ...
* Gravity\_Acc\_Mean\_Z : num 0.1154 0.1094 0.1019 0.0999 0.0945 ...
* Gravity\_Acc\_Std\_X : num -0.985 -0.997 -1 -0.997 -0.998 ...
* Gravity\_Acc\_Std\_Y : num -0.982 -0.989 -0.993 -0.981 -0.988 ...
* Gravity\_Acc\_Std\_Z : num -0.878 -0.932 -0.993 -0.978 -0.979 ...
* Body\_Acc\_Jerk\_Mean\_X : num 0.078 0.074 0.0736 0.0773 0.0734 ...
* Body\_Acc\_Jerk\_Mean\_Y : num 0.005 0.00577 0.0031 0.02006 0.01912 ...
* Body\_Acc\_Jerk\_Mean\_Z : num -0.06783 0.02938 -0.00905 -0.00986 0.01678 ...
* Body\_Acc\_Jerk\_Std\_X : num -0.994 -0.996 -0.991 -0.993 -0.996 ...
* Body\_Acc\_Jerk\_Std\_Y : num -0.988 -0.981 -0.981 -0.988 -0.988 ...
* Body\_Acc\_Jerk\_Std\_Z : num -0.994 -0.992 -0.99 -0.993 -0.992 ...
* BodyGyro\_Mean\_X : num -0.0061 -0.0161 -0.0317 -0.0434 -0.034 ...
* BodyGyro\_Mean\_Y : num -0.0314 -0.0839 -0.1023 -0.0914 -0.0747 ...
* BodyGyro\_Mean\_Z : num 0.1077 0.1006 0.0961 0.0855 0.0774 ...
* BodyGyro\_Std\_X : num -0.985 -0.983 -0.976 -0.991 -0.985 ...
* BodyGyro\_Std\_Y : num -0.977 -0.989 -0.994 -0.992 -0.992 ...
* BodyGyro\_Std\_Z : num -0.992 -0.989 -0.986 -0.988 -0.987 ...
* BodyGyroJerk\_Mean\_X : num -0.0992 -0.1105 -0.1085 -0.0912 -0.0908 ...
* BodyGyroJerk\_Mean\_Y : num -0.0555 -0.0448 -0.0424 -0.0363 -0.0376 ...
* BodyGyroJerk\_Mean\_Z : num -0.062 -0.0592 -0.0558 -0.0605 -0.0583 ...
* BodyGyroJerk\_Std\_X : num -0.992 -0.99 -0.988 -0.991 -0.991 ...
* BodyGyroJerk\_Std\_Y : num -0.993 -0.997 -0.996 -0.997 -0.996 ...
* BodyGyroJerk\_Std\_Z : num -0.992 -0.994 -0.992 -0.993 -0.995 ...
* BodyAccMag\_Mean : num -0.959 -0.979 -0.984 -0.987 -0.993 .
* BodyAccMag\_Std : num -0.951 -0.976 -0.988 -0.986 -0.991 ...
* GravityAccMag\_Mean : num -0.959 -0.979 -0.984 -0.987 -0.993 ...
* GravityAccMag\_Std : num -0.951 -0.976 -0.988 -0.986 -0.991 ...
* BodyAccJerkMag\_Mean : num -0.993 -0.991 -0.989 -0.993 -0.993 ...
* BodyAccJerkMag\_Std : num -0.994 -0.992 -0.99 -0.993 -0.996 ...
* BodyGyroMag\_Mean : num -0.969 -0.981 -0.976 -0.982 -0.985 ...
* BodyGyroMag\_Std : num -0.964 -0.984 -0.986 -0.987 -0.989 ...
* fBodyAcc\_Mean\_X : num -0.995 -0.997 -0.994 -0.995 -0.997 ...
* fBodyAcc\_Mean\_Y : num -0.983 -0.977 -0.973 -0.984 -0.982 ...
* fBodyAcc\_Mean\_Z : num -0.939 -0.974 -0.983 -0.991 -0.988 ...
* fBodyAcc\_Std\_X : num -0.995 -0.999 -0.996 -0.996 -0.999 ...
* fBodyAcc\_Std\_Y : num -0.983 -0.975 -0.966 -0.983 -0.98 ...
* fBodyAcc\_Std\_Z : num -0.906 -0.955 -0.977 -0.99 -0.992 ...
* fBodyAccJerk\_Mean\_X : num -0.992 -0.995 -0.991 -0.994 -0.996 ...
* fBodyAccJerk\_Mean\_Y : num -0.987 -0.981 -0.982 -0.989 -0.989 ...
* fBodyAccJerk\_Mean\_Z : num -0.99 -0.99 -0.988 -0.991 -0.991 ...
* fBodyAccJerk\_Std\_X : num -0.996 -0.997 -0.991 -0.991 -0.997 ...
* fBodyAccJerk\_Std\_Y : num -0.991 -0.982 -0.981 -0.987 -0.989 ...
* fBodyAccJerk\_Std\_Z : num -0.997 -0.993 -0.99 -0.994 -0.993 ...
* fBodyGyro\_Mean\_X : num -0.987 -0.977 -0.975 -0.987 -0.982 ...
* fBodyGyro\_Mean\_Y : num -0.982 -0.993 -0.994 -0.994 -0.993 ...
* fBodyGyro\_Mean\_Z : num -0.99 -0.99 -0.987 -0.987 -0.989 ...
* fBodyGyro\_Std\_X : num -0.985 -0.985 -0.977 -0.993 -0.986 ...
* fBodyGyro\_Std\_Y : num -0.974 -0.987 -0.993 -0.992 -0.992 ...
* fBodyGyro\_Std\_Z : num -0.994 -0.99 -0.987 -0.989 -0.988 ...
* fBodyAccMag\_Mean : num -0.952 -0.981 -0.988 -0.988 -0.994 ...
* fBodyAccMag\_Std : num -0.956 -0.976 -0.989 -0.987 -0.99 ...
* fBodyAccJerkMag\_Mean: num -0.994 -0.99 -0.989 -0.993 -0.996 ...
* fBodyAccJerkMag\_Std : num -0.994 -0.992 -0.991 -0.992 -0.994 ...