train\_data:includes the subjects,labels and sets of training data

test\_data:includes the subjects,labels and sets of testing data

data:includes both training data and testing data

data\_good:includes the subjects,labels and averages and standard deviations for each measurements in tests and training.

data\_tidy:includes the averages of each variable for each activity and each subject.

data\_tidy:

subject:each number stands for a person who takes part in the test or training;

activity:six kinds of activities being measured in the project;

measurements:

suffix'-XYZ' is used to denote 3-axial signals in the X, Y and Z directions.

prefix 't' to denote time.

prefix 'f' to indicate frequency domain signals.

The set of variables that were estimated from these signals are:

mean(): Mean value

std(): Standard deviation

angle():Mean value

tBodyAcc-XYZ & tGravityAcc-XYZ:The acceleration signal("tAcc-XYZ") from the smartphone accelerometer in standard gravity units 'g' was captured at a constant rate of 50 Hz. Then it was filtered using a median filter and a 3rd order low pass Butterworth filter with a corner frequency of 20 Hz to remove noise.Then the acceleration signal was separated into body and gravity acceleration signals (tBodyAcc-XYZ and tGravityAcc-XYZ)using a low pass Butterworth filter with a corner frequency of 0.3 Hz.

tBodyGyro-XYZ:The angular velocity vector measured by the gyroscope for each window sample. The units are radians/second.It was captured at a constant rate of 50 Hz. Then it was filtered using a median filter and a 3rd order low pass Butterworth filter with a corner frequency of 20 Hz to remove noise.

tBodyAccJerk-XYZ and tBodyGyroJerk-XYZ:The body linear acceleration and angular velocity were derived in time to obtain Jerk signals.

tBodyAccMag, tGravityAccMag, tBodyAccJerkMag, tBodyGyroMag, tBodyGyroJerkMag:The magnitude of these three-dimensional signals were calculated using the Euclidean norm.

fBodyAcc-XYZ, fBodyAccJerk-XYZ, fBodyGyro-XYZ, fBodyAccJerkMag, fBodyGyroMag, fBodyGyroJerkMag:a Fast Fourier Transform (FFT) was applied to some of the signals above.