## About Given Data set Description-

The experiments have been carried out with a group of 30 volunteers within an age bracket of 19-48 years. Each person performed six activities (WALKING, WALKING\_UPSTAIRS, WALKING\_DOWNSTAIRS, SITTING, STANDING, LAYING) wearing a smartphone (Samsung Galaxy S II) on the waist. Using its embedded accelerometer and gyroscope, we captured 3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hz. The experiments have been video-recorded to label the data manually. The obtained dataset has been randomly partitioned into two sets, where 70% of the volunteers was selected for generating the training data and 30% the test data.

The sensor signals (accelerometer and gyroscope) were pre-processed by applying noise filters and then sampled in fixed-width sliding windows of 2.56 sec and 50% overlap (128 readings/window). The sensor acceleration signal, which has gravitational and body motion components, was separated using a Butterworth low-pass filter into body acceleration and gravity. The gravitational force is assumed to have only low frequency components, therefore a filter with 0.3 Hz cutoff frequency was used. From each window, a vector of features was obtained by calculating variables from the time and frequency domain.

**The dataset includes the following files:**

- 'README.txt'

- 'features\_info.txt': Shows information about the variables used on the feature vector.

- 'features.txt': List of all features.

- 'activity\_labels.txt': Links the class labels with their activity name.

- 'train/X\_train.txt': Training set.

- 'train/y\_train.txt': Training labels.

-'test/X\_test.txt': Test set.

- 'test/y\_test.txt': Test labels.

## Tidy Dataset Description:

* **Variables In The Tidy Data**-

Tidy data contain 180 rows and 88 columns. Each row has the average variables for each subject and each activity.

* **Data Average Based on subject and Activity Group**

“Subject\_ID “ is sequenced from 1 to 30

“Activity\_ID” has 6 types of lists, they are:

1. LAYING
2. SITTING
3. STANDING
4. WALKING
5. WALKING\_DOWNSTAIRS
6. WALKING\_UPSTAIRS

* Tidy data contain 88 variables with activity labels

**Description about run\_analysis.R-**

* First ly, created a directory , then downloaded the file and unzipped the “UCI HAR Dataset” folder.
* Read the each .txt file from the dataset
* Merged the training data and test data to create only one dataset(i.e “data”) using rbind() and cbind().
* Extracted only the measurements on the mean and standard deviation for each measurement.("Data2" is the extracted data)
* Used descriptive activity names to name the activities in the data set
* Appropriately labeled the data set with descriptive variable names
* Created a second, independent tidy data set with the average of each variable for each activity and each subject.(ie. “tidydata”)
* Stored the tidydata dataset in .txt file.