* Dataset information:

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.

* Attribute Information:

For each record in the dataset it is provided:

- Triaxial acceleration from the accelerometer (total acceleration) and the estimated body acceleration.

- Triaxial Angular velocity from the gyroscope.

- A 561-feature vector with time and frequency domain variables.

- Its activity label.

- An identifier of the subject who carried out the experiment.

<http://archive.ics.uci.edu/ml/datasets/Human+Activity+Recognition+Using+Smartphones>

Steps:

1. I read the datasets required for this project using read.table() function.
2. Column names were assigned to datasets read:
   1. For X\_train and X\_test, originally, the columns were named V1,…,Vn. These were renamed by the second columns of feature.txt:

tBodyAcc-XYZ

tGravityAcc-XYZ

tBodyAccJerk-XYZ

tBodyGyro-XYZ

tBodyGyroJerk-XYZ

tBodyAccMag

tGravityAccMag

tBodyAccJerkMag

tBodyGyroMag

tBodyGyroJerkMag

fBodyAcc-XYZ

fBodyAccJerk-XYZ

fBodyGyro-XYZ

fBodyAccMag

fBodyAccJerkMag

fBodyGyroMag

fBodyGyroJerkMag

* 1. For y\_train and y\_test, column name was assigned as “ActivityID”
  2. For subject\_train and subject\_Test, column name was assigned as “SubjectID”
  3. For activity\_label, the first column was named as “ActivityID”, second one as “Activity\_label”.

1. Using cbind and rbind, merged all datasets
2. Selection of ActivityID, SubjectID, mean and std was done using grepl function. This was returned as logical vector.
3. After the selection of necessary data, the specific number of activity performance was replaced by its detailed description:

1=WALKING

2=WALKING\_UPSTAIRS

3=WALKING\_DOWNSTAIRS

4=SITTING

5=STANDING

6=LAYING

1. Descriptive activity names were edited using gsub()
2. The average of each variable for each activity and each subject was created as tidyData.txt file.