The run\_analysis.R script performs the data preparation and then followed by the 5 steps required as described in the course project’s definition.

1. **Download the dataset**

Dataset downloaded and extracted under the folder called UCI HAR Dataset

1. **Assign each data to variables**

* features <- features.txt : 561 rows, 2 columns  
  The features selected for this database come from the accelerometer and gyroscope 3-axial raw signals tAcc-XYZ and tGyro-XYZ.
* activities <- activity\_labels.txt : 6 rows, 2 columns  
  List of activities performed when the corresponding measurements were taken and its codes (labels)
* subject\_test <- test/subject\_test.txt : 2947 rows, 1 column  
  contains test data of 9/30 volunteer test subjects being observed
* x\_test <- test/X\_test.txt : 2947 rows, 561 columns  
  contains recorded features test data
* y\_test <- test/y\_test.txt : 2947 rows, 1 columns  
  contains test data of activities’code labels
* subject\_train <- test/subject\_train.txt : 7352 rows, 1 column  
  contains train data of 21/30 volunteer subjects being observed
* x\_train <- test/X\_train.txt : 7352 rows, 561 columns  
  contains recorded features train data
* y\_train <- test/y\_train.txt : 7352 rows, 1 columns  
  contains train data of activities’code labels

1. **Merges the training and the test sets to create one data set**

* X (10299 rows, 561 columns) is created by merging x\_train and x\_test using **rbind()** function
* Y (10299 rows, 1 column) is created by merging y\_train and y\_test using **rbind()** function
* Subject (10299 rows, 1 column) is created by merging subject\_train and subject\_test using **rbind()** function
* Merged\_Data (10299 rows, 563 column) is created by merging Subject, Y and X using **cbind()** function

1. **Extracts only the measurements on the mean and standard deviation for each measurement**

* TidyData (10299 rows, 88 columns) is created by subsetting Merged\_Data, selecting only columns: subject, code and the measurements on the mean and *standard deviation* (std) for each measurement

1. **Uses descriptive activity names to name the activities in the data set**

* Entire numbers in code column of the TidyData replaced with corresponding activity taken from second column of the activities variable

1. **Appropriately labels the data set with descriptive variable names**

* code column in TidyData renamed into activities
* All Acc in column’s name replaced by Accelerometer
* All Gyro in column’s name replaced by Gyroscope
* All BodyBody in column’s name replaced by Body
* All Mag in column’s name replaced by Magnitude
* All start with character f in column’s name replaced by Frequency
* All start with character t in column’s name replaced by Time

1. **From the data set in step 4, creates a second, independent tidy data set with the average of each variable for each activity and each subject**

* FinalData (180 rows, 88 columns) is created by sumarizing TidyData taking the means of each variable for each activity and each subject, after groupped by subject and activity.
* Export FinalData into FinalData.txt file.