**CODE BOOK FOR Run\_Analysis.R**

**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**
   1. **Dataset downloaded and extracted under the folder called UCI HAR Dataset**
2. Assign each data to variables
   1. **myfeatures <- features.txt (The features selected for this database come from the accelerometer and gyroscope 3-axial raw signals tAcc-XYZ and tGyro-XYZ.)**
   2. **myactivities <- activity\_labels.txt (List of activities performed when the corresponding measurements were taken and its codes (labels))**
   3. **subject\_test <- test/subject\_test.txt (contains test data of 9/30 volunteer test subjects being observed)**
   4. **x\_test <- test/X\_test.txt (contains recorded features test data)**
   5. **y\_test <- test/y\_test.txt (contains test data of activities’code labels)**
   6. **subject\_train <- test/subject\_train.txt (contains train data of 21/30 volunteer subjects being observed)**
   7. **x\_train <- test/X\_train.txt (contains recorded features train data)**
   8. **y\_train <- test/y\_train.txt (contains train data of activities’code labels)**
3. **Merges the training and the test sets to create one data set**
   1. **X (10299 rows, 561 columns) is created by merging x\_train and x\_test using rbind() function**
   2. **Y (10299 rows, 1 column) is created by merging y\_train and y\_test using rbind() function**
   3. **Subject (10299 rows, 1 column) is created by merging subject\_train and subject\_test using rbind() function**
   4. **Merged\_Data (10299 rows, 563 column) is created by merging Subject, Y and X using cbind() function.**
4. **Extracts only the measurements on the mean and standard deviation for each measurement**
   1. **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.**
5. **Uses descriptive activity names to name the activities in the data set**
   1. **Entire numbers in code column of the TidyData replaced with corresponding activity taken from second column of the activities variable**
6. **Appropriately labels the data set with descriptive variable names**
   1. **code column in TidyData renamed into activities**
   2. **All Acc in column’s name replaced by Accelerometer**
   3. **All Gyro in column’s name replaced by Gyroscope**
   4. **All BodyBody in column’s name replaced by Body**
   5. **All Mag in column’s name replaced by Magnitude**
   6. **All start with character f in column’s name replaced by Frequency**
   7. **All start with character t in column’s name replaced by Time**
7. **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**
   1. **myFinalData (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.**
8. **Export myFinalData into myFinalData.txt file.**