run\_analysis.R script:

1. **Download the dataset:**
   * Dataset downloaded and unzipped under the folder called UCI HAR Dataset.
2. **Assign each data to variables:**
   * x\_train <- train/X\_train.txt : 7352 rows, 561 columns  
     *contains recorded features train data.*
   * y\_train <- train/y\_train.txt : 7352 rows, 1 columns  
     *contains train data of activities’ ID.*
   * subject\_train <- train/subject\_train.txt : 7352 rows, 1 column  
     *contains train data of 21/30 volunteer 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’ ID.*
   * subject\_test <- test/subject\_test.txt : 2947 rows, 1 column  
     *contains test data of 9/30 volunteer test subjects being observed.*
   * 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.*
   * activityLabels<- activity\_labels.txt : 6 rows, 2 columns  
     *List of activities and their ID.*
3. **Merges the training and the test sets to create one data set:**
   * merge\_train (7352 rows, 563 columns) is created by merging x\_train, y\_train and subject\_train using **cbind()** function.
   * merge\_test (2947 rows, 563 columns) is created by merging x\_test, y\_test and subject\_test using **cbind()** function.
   * merge\_data (10299 rows, 563 columns) is created by merging merge\_train and merge\_test using **rbind()** function.
4. **Extracts only the measurements on the mean and standard deviation for each measurement:**
   * mean\_and\_std: vector for defining ID, mean and std.
   * extractMeanAndStd (10299 rows, 81 columns) is created by subsetting Merge\_Data, selecting only columns: subject ID, activity ID and the measurements on the mean and std for each measurement.
5. **Uses descriptive activity names to name the activities in the data set:**
   * setWithActivityNames (10299 rows, 82 columns) is created by merging extractMeanAndStd and activityLabels.
6. **Appropriately labels the data set with descriptive variable names:**
   * 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
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:**
   * tidyData (180 rows, 82 columns) is created by sumarizing setWithActivityNames taking the means of each variable for each activityId and each subjectId, after groupped by subjectId and activityId.
   * Export tidyData into tidyData.txt file.