Code Book

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 :   
*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 :   
*List of activities performed when the corresponding measurements were taken and its codes (labels)*

subject\_test <- test/subject\_test.txt :   
*contains test data of 9/30 volunteer test subjects being observed*

x\_test <- test/X\_test.txt :   
*contains recorded features test data*

y\_test <- test/y\_test.txt :   
*contains test data of activities’code labels*

subject\_train <- test/subject\_train.txt :   
*contains train data of 21/30 volunteer subjects being observed*

x\_train <- test/X\_train.txt :   
*contains recorded features train data*

y\_train <- test/y\_train.txt :   
*contains train data of activities’code labels*

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

X is created by merging x\_train and x\_test using **rbind()** function

Y is created by merging y\_train and y\_test using **rbind()** function

Subject is created by merging subject\_train and subject\_test using **rbind()** function

Merged\_Data 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 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 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.