CODEBOOK

The **run_analysis.R** script fulfills the following project requirements:

- Merges the training and the test sets to create one data set.
- Extracts only the measurements on the mean and standard deviation for each measurement.
- Uses descriptive activity names to name the activities in the data set.
- Appropriately labels the data set with descriptive variable names.
- 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.

Note: I loaded the required libraries, read data from tables and assigned column names in the tables before writing and editing scripts to respond to the project requirements.

PREPARE DATA

- Step 1 - Check if archive exists.
- Step 2 - Check if the required folder exists.

READ DATA AND ASSIGN COLUMN NAMES

- Step 1 - Read and assign column names to table in the activity label file.
- Step 2 - Read and assign column names to table in the feature file.
- Step 3 - Read and assign column names to all tables under the Test file.
- Step 4 - Read and assign column names to all tables under the Train file.

RESPONSE TO PROJECT REQUIREMENTS

1. REQUIREMENT 1 - Merge the training and the test sets to create one data set.

- Step 1 - `merge_X` merges `x_test` and `x_train` using the *rbind() function*.
- Step 2 - `merge_Y` merges `y_test` and `y_train` using the *rbind() function*.

- Step 3 - `merge_Subject` merges `subject_test` and `subject_train` using the *rbind() function*.
- Step 4 - `merge_Data` merges `merge_X`, `merge_Y` and `merge_Subject` using the *cbind() function*.

2. REQUIREMENT 2 - Extract only the measurements on the mean and standard deviation for each measurement.

Subset `Subject`,`ID` and measurements related to the mean and standard deviation from `merge_Data` and store in `First_Tidy_Data`.

3. REQUIREMENT 3 - Use descriptive activity names to name the activities in the data set

The measurements in the `ID` column from `First_Tidy_Data` is replaced with related activity from the second column of the `Activity` variable.

4. REQUIREMENT 4 - Appropriately label the data set with descriptive variable names.

The following columns were renamed:

- `ID` to `activity`
- `Acc` to `Accelerometer`
- `Gyro` to `Gyroscope`
- `BodyBody` to `Body`
- `Mag` to `Magnitude`

Additionally,

- All column name characters starting with **f** was replaced by `Frequecy`.
- All column name characters starting with **t** was replaced by `Time`.

5. REQUIREMENT 5 - 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.

A second, independent tidy data set with the average of each variable for each activity and each subject was exported into **Tidy Data.txt**.