**Code Book**

This code book summarizes the results of file: tidy.txt.

**Source of Data**

Data was read into R from the data set Human Activity Recognition Using Smartphones Data Set: <http://archive.ics.uci.edu/ml/datasets/Human+Activity+Recognition+Using+Smartphones>

**Transformations**

The following steps were performed to clean the raw data and create tidy.txt:

1. Merged the training and the test sets to create one data set.
2. Extracted only the measurements on the mean and standard deviation for each measurement.
3. Used descriptive activity names to name the activities in the data set
4. Labeled the data set with descriptive variable names.
5. From the data set in step 4, created a second, independent tidy data set with the average of each variable for each activity and each subject.

**Variables**

Identifiers

* Subject - The ID of the test subject
* Activity - The type of activity performed when the corresponding measurements were taken

Subject

* A group of 30 volunteers within an age bracket of 19-48 years.

Activities

* WALKING (value 1 ): subject was walking during the test
* WALKING\_UPSTAIRS (value 2 ): subject was walking up a staircase during the test
* WALKING\_DOWNSTAIRS (value 3 ): subject was walking down a staircase during the test
* SITTING (value 4 ): subject was sitting during the test
* STANDING (value 5 ): subject was standing during the test
* LAYING (value 6 ): subject was laying down during the test

The run\_analysis.R code will generate 68 combined variables in the data set. The data structure is as follows:

$ timeBodyAccelerometer-mean()-X : num 0.289 0.278 0.28 0.279 0.277 ...

$ timeBodyAccelerometer-mean()-Y : num -0.0203 -0.0164 -0.0195 -0.0262 -0.0166 .

$ timeBodyAccelerometer-mean()-Z : num -0.133 -0.124 -0.113 -0.123 -0.115 ...

$ timeBodyAccelerometer-std()-X : num -0.995 -0.998 -0.995 -0.996 -0.998 ...

$ timeBodyAccelerometer-std()-Y : num -0.983 -0.975 -0.967 -0.983 -0.981 ...

$ timeBodyAccelerometer-std()-Z : num -0.914 -0.96 -0.979 -0.991 -0.99 ...

$ timeGravityAccelerometer-mean()-X : num 0.963 0.967 0.967 0.968 0.968 ...

$ timeGravityAccelerometer-mean()-Y : num -0.141 -0.142 -0.142 -0.144 -0.149 ...

$ timeGravityAccelerometer-mean()-Z : num 0.1154 0.1094 0.1019 0.0999 0.0945 ...

$ timeGravityAccelerometer-std()-X : num -0.985 -0.997 -1 -0.997 -0.998 ...

$ timeGravityAccelerometer-std()-Y : num -0.982 -0.989 -0.993 -0.981 -0.988 ...

$ timeGravityAccelerometer-std()-Z : num -0.878 -0.932 -0.993 -0.978 -0.979 ...

$ timeBodyAccelerometerJerk-mean()-X : num 0.078 0.074 0.0736 0.0773 0.0734 ...

$ timeBodyAccelerometerJerk-mean()-Y : num 0.005 0.00577 0.0031 0.02006 0.01912 ...

$ timeBodyAccelerometerJerk-mean()-Z : num -0.06783 0.02938 -0.00905 -0.00986 0.01678

$ timeBodyAccelerometerJerk-std()-X : num -0.994 -0.996 -0.991 -0.993 -0.996 ...

$ timeBodyAccelerometerJerk-std()-Y : num -0.988 -0.981 -0.981 -0.988 -0.988 ...

$ timeBodyAccelerometerJerk-std()-Z : num -0.994 -0.992 -0.99 -0.993 -0.992 ...

$ timeBodyGyroscope-mean()-X : num -0.0061 -0.0161 -0.0317 -0.0434 -0.034 .

$ timeBodyGyroscope-mean()-Y : num -0.0314 -0.0839 -0.1023 -0.0914 -0.0747 .

$ timeBodyGyroscope-mean()-Z : num 0.1077 0.1006 0.0961 0.0855 0.0774 ...

$ timeBodyGyroscope-std()-X : num -0.985 -0.983 -0.976 -0.991 -0.985 ...

$ timeBodyGyroscope-std()-Y : num -0.977 -0.989 -0.994 -0.992 -0.992 ...

$ timeBodyGyroscope-std()-Z : num -0.992 -0.989 -0.986 -0.988 -0.987 ...

$ timeBodyGyroscopeJerk-mean()-X : num -0.0992 -0.1105 -0.1085 -0.0912 -0.0908 .

$ timeBodyGyroscopeJerk-mean()-Y : num -0.0555 -0.0448 -0.0424 -0.0363 -0.0376 .

$ timeBodyGyroscopeJerk-mean()-Z : num -0.062 -0.0592 -0.0558 -0.0605 -0.0583 ..

$ timeBodyGyroscopeJerk-std()-X : num -0.992 -0.99 -0.988 -0.991 -0.991 ...

$ timeBodyGyroscopeJerk-std()-Y : num -0.993 -0.997 -0.996 -0.997 -0.996 ...

$ timeBodyGyroscopeJerk-std()-Z : num -0.992 -0.994 -0.992 -0.993 -0.995 ...

$ timeBodyAccelerometerMagnitude-mean() : num -0.959 -0.979 -0.984 -0.987 -0.993 ...

$ timeBodyAccelerometerMagnitude-std() : num -0.951 -0.976 -0.988 -0.986 -0.991 ...

$ timeGravityAccelerometerMagnitude-mean() : num -0.959 -0.979 -0.984 -0.987 -0.993 ...

$ timeGravityAccelerometerMagnitude-std() : num -0.951 -0.976 -0.988 -0.986 -0.991 ...

$ timeBodyAccelerometerJerkMagnitude-mean() : num -0.993 -0.991 -0.989 -0.993 -0.993 ...

$ timeBodyAccelerometerJerkMagnitude-std() : num -0.994 -0.992 -0.99 -0.993 -0.996 ...

$ timeBodyGyroscopeMagnitude-mean() : num -0.969 -0.981 -0.976 -0.982 -0.985 ...

$ timeBodyGyroscopeMagnitude-std() : num -0.964 -0.984 -0.986 -0.987 -0.989 ...

$ timeBodyGyroscopeJerkMagnitude-mean() : num -0.994 -0.995 -0.993 -0.996 -0.996 ...

$ timeBodyGyroscopeJerkMagnitude-std() : num -0.991 -0.996 -0.995 -0.995 -0.995 ...

$ frequencyBodyAccelerometer-mean()-X : num -0.995 -0.997 -0.994 -0.995 -0.997 ...

$ frequencyBodyAccelerometer-mean()-Y : num -0.983 -0.977 -0.973 -0.984 -0.982 ...

$ frequencyBodyAccelerometer-mean()-Z : num -0.939 -0.974 -0.983 -0.991 -0.988 ...

$ frequencyBodyAccelerometer-std()-X : num -0.995 -0.999 -0.996 -0.996 -0.999 ...

$ frequencyBodyAccelerometer-std()-Y : num -0.983 -0.975 -0.966 -0.983 -0.98 ...

$ frequencyBodyAccelerometer-std()-Z : num -0.906 -0.955 -0.977 -0.99 -0.992 ...

$ frequencyBodyAccelerometerJerk-mean()-X : num -0.992 -0.995 -0.991 -0.994 -0.996 ...

$ frequencyBodyAccelerometerJerk-mean()-Y : num -0.987 -0.981 -0.982 -0.989 -0.989 ...

$ frequencyBodyAccelerometerJerk-mean()-Z : num -0.99 -0.99 -0.988 -0.991 -0.991 ...

$ frequencyBodyAccelerometerJerk-std()-X : num -0.996 -0.997 -0.991 -0.991 -0.997 ...

$ frequencyBodyAccelerometerJerk-std()-Y : num -0.991 -0.982 -0.981 -0.987 -0.989 ...

$ frequencyBodyAccelerometerJerk-std()-Z : num -0.997 -0.993 -0.99 -0.994 -0.993 ...

$ frequencyBodyGyroscope-mean()-X : num -0.987 -0.977 -0.975 -0.987 -0.982 ...

$ frequencyBodyGyroscope-mean()-Y : num -0.982 -0.993 -0.994 -0.994 -0.993 ...

$ frequencyBodyGyroscope-mean()-Z : num -0.99 -0.99 -0.987 -0.987 -0.989 ...

$ frequencyBodyGyroscope-std()-X : num -0.985 -0.985 -0.977 -0.993 -0.986 ...

$ frequencyBodyGyroscope-std()-Y : num -0.974 -0.987 -0.993 -0.992 -0.992 ...

$ frequencyBodyGyroscope-std()-Z : num -0.994 -0.99 -0.987 -0.989 -0.988 ...

$ frequencyBodyAccelerometerMagnitude-mean() : num -0.952 -0.981 -0.988 -0.988 -0.994 ...

$ frequencyBodyAccelerometerMagnitude-std() : num -0.956 -0.976 -0.989 -0.987 -0.99 ...

$ frequencyBodyAccelerometerJerkMagnitude-mean(): num -0.994 -0.99 -0.989 -0.993 -0.996 ...

$ frequencyBodyAccelerometerJerkMagnitude-std() : num -0.994 -0.992 -0.991 -0.992 -0.994 ...

$ frequencyBodyGyroscopeMagnitude-mean() : num -0.98 -0.988 -0.989 -0.989 -0.991 ...

$ frequencyBodyGyroscopeMagnitude-std() : num -0.961 -0.983 -0.986 -0.988 -0.989 ...

$ frequencyBodyGyroscopeJerkMagnitude-mean() : num -0.992 -0.996 -0.995 -0.995 -0.995 ...

$ frequencyBodyGyroscopeJerkMagnitude-std() : num -0.991 -0.996 -0.995 -0.995 -0.995 ...