**CODE BOOK**

**Activities conducted in obtaining a tidy data are as follows:**

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1) The run\_analysis script first combines the data in text files for each of these datasets to prepare a consolidated single dataset for each of test and training data.

2) It provides relevant column names to the datasets before combining them so that the final data is usable and standardized.

3) Then the two individual datasets are rbinded together

4) From this consolidated data, measurements on the mean and standard deviation are extracted.

5) Unnecessary columns are then removed as part of tidying the data further

6) Descriptive activity names are provided to the dataset

7) Activity column is converted to factors to indicate the different levels of activity- walking, walking upstairs etc.

8) Then create a second, independent tidy data set with the average of each variable for each activity and each subject.

9) To use melt function we added library for reshape2

10) The final tidy dataet is written out in .csv format by the script

**TIDY.CSV**

**The dataset spreads 180 rows and 68 columns in a csv format**

**It includes the following details:**

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subject\_ID

This identifies the subject who performed the activity for each window sample. Its range is from 1 to 30

activity

Each person performs six activities (WALKING, WALKING\_UPSTAIRS, WALKING\_DOWNSTAIRS, SITTING, STANDING, LAYING) wearing a smartphone (Samsung Galaxy S II) on the waist.

tBodyAcc-mean()-X, tBodyAcc-mean()-Y, tBodyAcc-mean()-Z

These measure the mean Triaxial acceleration from the accelerometer (total acceleration) and the estimated body acceleration (X,Y and Z axis).

tBodyAcc-std()-X, tBodyAcc-std()-Y, tBodyAcc-std()-Z

These measure the standard deviation of Triaxial acceleration from the accelerometer (total acceleration) and the estimated body acceleration (X,Y and Z axis).

tGravityAcc-mean()-X, tGravityAcc-mean()-Y, tGravityAcc-mean()-Z

These measure the mean acceleration signal from the smartphone accelerometer X,Y and Z axis in standard gravity units 'g'

tGravityAcc-std()-X, tGravityAcc-std()-Y, tGravityAcc-std()-Z

These measure the standard deviation of the acceleration signal from the smartphone accelerometer X,Y and Z axis in standard gravity units 'g'

tBodyAccJerk-mean()-X, tBodyAccJerk-mean()-Y, tBodyAccJerk-mean()-Z

Capture the mean of the body jerks

tBodyAccJerk-std()-X, tBodyAccJerk-std()-Y tBodyAccJerk-std()-Z

Capture the standard deviation of the body jerks

tBodyGyro-mean()-X, tBodyGyro-mean()-Y, tBodyGyro-mean()-Z

Capture the mean of the angular velocity vector measured by the gyroscope for each window sample.

tBodyGyro-std()-X tBodyGyro-std()-Y tBodyGyro-std()-Z

Capture the standard deviation of the angular velocity vector measured by the gyroscope for each window sample.

tBodyGyroJerk-mean()-X tBodyGyroJerk-mean()-Y tBodyGyroJerk-mean()-Z

Capture the mean of the jerks measured by the gyroscope for each window sample.

tBodyGyroJerk-std()-X tBodyGyroJerk-std()-Y tBodyGyroJerk-std()-Z

Capture the standard deviation of the jerks measured by the gyroscope for each window sample. The units are radians/second

**other fields in the tidy.csv are as below**

tBodyAccMag-mean() tBodyAccMag-std()

tGravityAccMag-mean() tGravityAccMag-std()

tBodyAccJerkMag-mean() tBodyAccJerkMag-std()

tBodyGyroMag-mean() tBodyGyroMag-std()

tBodyGyroJerkMag-mean() tBodyGyroJerkMag-std()

fBodyAcc-mean()-X fBodyAcc-mean()-Y fBodyAcc-mean()-Z

fBodyAcc-std()-X fBodyAcc-std()-Y fBodyAcc-std()-Z

fBodyAccJerk-mean()-X fBodyAccJerk-mean()-Y fBodyAccJerk-mean()-Z

fBodyAccJerk-std()-X fBodyAccJerk-std()-Y fBodyAccJerk-std()-Z

fBodyGyro-mean()-X fBodyGyro-mean()-Y fBodyGyro-mean()-Z

fBodyGyro-std()-X fBodyGyro-std()-Y fBodyGyro-std()-Z

fBodyAccMag-mean() fBodyAccMag-std()

fBodyBodyAccJerkMag-mean() fBodyBodyAccJerkMag-std()

fBodyBodyGyroMag-mean() fBodyBodyGyroMag-std()

fBodyBodyGyroJerkMag-mean() fBodyBodyGyroJerkMag-std()