The following information, in maroon, is extracted directly from the source that created the original dataset:

Data Set Information:
The experiments have been carried out with a group of 30 volunteers within an age bracket of 19-48 years. Each person performed six activities (WALKING, WALKING_UPSTAIRS, WALKING_DOWNSTAIRS, SITTING, STANDING, LAYING) wearing a smartphone (Samsung Galaxy S II) on the waist. Using its embedded accelerometer and gyroscope, we captured 3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hz. The experiments have been video-recorded to label the data manually. The obtained dataset has been randomly partitioned into two sets, where 70% of the volunteers was selected for generating the training data and 30% the test data.

The sensor signals (accelerometer and gyroscope) were pre-processed by applying noise filters and then sampled in fixed-width sliding windows of 2.56 sec and 50% overlap (128 readings/window). The sensor acceleration signal, which has gravitational and body motion components, was separated using a Butterworth low-pass filter into body acceleration and gravity. The gravitational force is assumed to have only low frequency components, therefore a filter with 0.3 Hz cutoff frequency was used. From each window, a vector of features was obtained by calculating variables from the time and frequency domain.

For each record in the dataset it is provided:
-Triaxial acceleration from the accelerometer (total acceleration) and the estimated body acceleration.
-Triaxial Angular velocity from the gyroscope.
-A 561-feature vector with time and frequency domain variables.
-Its activity label.
-An identifier of the subject who carried out the experiment.

For this project, the process is summarized as follows:
1. Read in the 8 files:
    - test data set
    - test activity data set
    - test subject data set
    - train data set
    - train activity data set
    - train subject data set
    - activity labels data set
    - variables labels (called features)
2. Clean up the data sets by:
    - removing all special characters from the variables labels and use them as column names in the test and train data sets
    - extract only those measurements that are needed in this study ("mean" and "std" columns)
3. Combine all the data sets into one tidy data set:
    - combine the test data set, test activity data set and test subject data set
    - combine the train data set, train activity data set and train subject data set
    - combine the test and train data sets
    - replace the Activity numeric value with the Activity label
4. Summarize:
    - Summarize the data by Activity, Subject and each measurement
5. Write
    - Write the summary data to a .txt file

For this project, the following is the list of the variables used from the original dataset:

Code Book

1 Activity	Character
2 Subject	Integer
3 tBodyAccmeanX	Numeric
4 tBodyAccmeanY	Numeric
5 tBodyAccmeanZ	Numeric
6 tBodyAccstdX	Numeric
7 tBodyAccstdY	Numeric
8 tBodyAccstdZ	Numeric
9 tGravityAccmeanX	Numeric
10 tGravityAccmeanY	Numeric
11 tGravityAccmeanZ	Numeric
12 tGravityAccstdX	Numeric
13 tGravityAccstdY	Numeric
14 tGravityAccstdZ	Numeric
15 tBodyAccJerkmeanX	Numeric
16 tBodyAccJerkmeanY	Numeric
17 tBodyAccJerkmeanZ	Numeric
18 tBodyAccJerkstdX	Numeric
19 tBodyAccJerkstdY	Numeric
20 tBodyAccJerkstdZ	Numeric
21 tBodyGyromeanX	Numeric
22 tBodyGyromeanY	Numeric
23 tBodyGyromeanZ	Numeric
24 tBodyGyrostdX	Numeric
25 tBodyGyrostdY	Numeric

26	tBodyGyrostdZ	Numeric
27	tBodyGyroJerkmeanX	Numeric
28	tBodyGyroJerkmeanY	Numeric
29	tBodyGyroJerkmeanZ	Numeric
30	tBodyGyroJerkstdX	Numeric
31	tBodyGyroJerkstdY	Numeric
32	tBodyGyroJerkstdZ	Numeric
33	tBodyAccMagmean	Numeric
34	tBodyAccMagstd	Numeric
35	tGravityAccMagmean	Numeric
36	tGravityAccMagstd	Numeric
37	tBodyAccJerkMagmean	Numeric
38	tBodyAccJerkMagstd	Numeric
39	tBodyGyroMagmean	Numeric
40	tBodyGyroMagstd	Numeric
41	tBodyGyroJerkMagmean	Numeric
42	tBodyGyroJerkMagstd	Numeric
43	fBodyAccmeanX	Numeric
44	fBodyAccmeanY	Numeric
45	fBodyAccmeanZ	Numeric
46	fBodyAccstdX	Numeric
47	fBodyAccstdY	Numeric
48	fBodyAccstdZ	Numeric
49	fBodyAccmeanFreqX	Numeric
50	fBodyAccmeanFreqY	Numeric
51	fBodyAccmeanFreqZ	Numeric
52	fBodyAccJerkmeanX	Numeric
53	fBodyAccJerkmeanY	Numeric
54	fBodyAccJerkmeanZ	Numeric
55	fBodyAccJerkstdX	Numeric
56	fBodyAccJerkstdY	Numeric
57	fBodyAccJerkstdZ	Numeric
58	fBodyAccJerkmeanFreqX	Numeric
59	fBodyAccJerkmeanFreqY	Numeric
60	fBodyAccJerkmeanFreqZ	Numeric
61	fBodyGyromeanX	Numeric
62	fBodyGyromeanY	Numeric
63	fBodyGyromeanZ	Numeric
64	fBodyGyrostdX	Numeric
65	fBodyGyrostdY	Numeric
66	fBodyGyrostdZ	Numeric
67	fBodyGyromeanFreqX	Numeric
68	fBodyGyromeanFreqY	Numeric
69	fBodyGyromeanFreqZ	Numeric
70	fBodyAccMagmean	Numeric
71	fBodyAccMagstd	Numeric
72	fBodyAccMagmeanFreq	Numeric
73	fBodyBodyAccJerkMagmean	Numeric
74	fBodyBodyAccJerkMagstd	Numeric
75	fBodyBodyAccJerkMagmeanFreq	Numeric
76	fBodyBodyGyroMagmean	Numeric
77	fBodyBodyGyroMagstd	Numeric
78	fBodyBodyGyroMagmeanFreq	Numeric
79	fBodyBodyGyroJerkMagmean	Numeric
80	fBodyBodyGyroJerkMagstd	Numeric
81	fBodyBodyGyroJerkMagmeanFreq	Numeric
82	angletBodyAccMeangravity	Numeric
83	angletBodyAccJerkMeangravityMean	Numeric
84	angletBodyGyroMeangravityMean	Numeric
85	angletBodyGyroJerkMeangravityMean	Numeric
86	angleXgravityMean	Numeric
87	angleYgravityMean	Numeric
88	angleZgravityMean	Numeric