**Code Book**

**Data Summary**

The data is from a group of 30 volunteers of 19-48 years. They are recorded performing activities such as WALKING, WALKING\_UPSTAIRS, WALKING\_DOWNSTAIRS, SITTING, STANDING, and LAYING while wearing a smartphone; 3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hz were gathered. There is 1 70-30 ratio of test data and control data. The sensor 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.

**Data Components:**

* Triaxial acceleration from the accelerometer
* Triaxial Angular velocity from the gyroscope
* Its activity label