Codebook:

Dataset Information:

The dataset is derived from experiments conducted on 30 subjects performing various activities while wearing a smartphone on their waist. The smartphone captured 3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hz. The experiments were video-recorded to label the data manually.

Variables:

1. **Subject**: Identifier of the subject who carried out the experiment. Its range is from 1 to 30.
2. **Activity**: Name of the activity that the subject was performing. It includes the following activities:
    - WALKING
    - WALKING_UPSTAIRS
    - WALKING_DOWNSTAIRS
    - SITTING
    - STANDING
    - LAYING

The subsequent variables are the mean values of the respective measurements for each subject and activity:

3. **tBodyAcc-mean()-X**: Mean of body acceleration signal in the X direction (normalized and bounded within [-1,1]). ... (and so on for each feature)

Units:

All the features are normalized and bounded within the range [-1,1], and thus they do not have any units.

Data Transformation:

The following steps were performed to generate the tidy dataset:

1. Merged the training and test datasets.
2. Extracted only the measurements on the mean and standard deviation for each measurement.
3. Replaced activity codes with descriptive activity names.
4. Appropriately labeled the dataset with descriptive variable names.
5. Created a tidy dataset with the average of each variable for each activity and each subject.