**CODEBOOK**

### Activity labels

|  |  |
| --- | --- |
| activity | activityName |
|  | WALKING |
|  | WALKING\_UPSTAIRS |
|  | WALKING\_DOWNSTAIRS |
|  | SITTING |
|  | STANDING |
|  | LAYING |

### 

**Features labels**

|  |  |  |
| --- | --- | --- |
| **Orginal labels** | **New labels** | **Description** |
| std | StandardDeviation | calculated for each subject for each activity for |
| mean | MeanValue |
| sma | SignalMagnitudeArea | Signal magnitude area |
| energy | EnergyMeasure | Energy measure. Sum of the squares divided by the number of values.  iqr(): Interquartile range |
| iqr | InterquartileRange | Interquartile range |
| entropy | SignalEntropy | Signal entropy |
| arCoeff | AutorregresionCoefficients | Autorregresion coefficients with Burg order equal to 4 |
| maxInds | IndexOfTheFrequencyComponent | index of the frequency component with largest magnitude |
| meanFreq | WeightedAverageOfTheFrequency | Weighted average of the frequency components to obtain a mean frequency |
| skewness | SkewnessOfTheFrequency | skewness of the frequency domain signal |
| kurtosis | KurtosisOfTheFrequency | kurtosis of the frequency domain signal |
| bandsEnergy | EnergyFrequencyInterval | Energy of a frequency interval within the 64 bins of the FFT of each window. |
| angle | AngleVectors |  |
| Acc | Accelerometer | accelerometer measurement |
| Gyro | Gyroscope | gyroscopic measurements |
| Mag | Magnitude | magnitude of movement |
| BodyBody | Body | Body related movement. |
| ^t | Time | leading t is based on time measurements. |
| ^f | Freqquency | leading f is based on frequency measurements. |

### R sintax

### #see original names

### head(str(Table))

### #packages to work

### install.packages("grep")

### library(grep)

### #change name labels> gsub perform replacement of the first and all matches respectively

### #see features\_info

### names(Table)<-gsub("std()", " StandardDeviation", names(Table))

### names(Table)<-gsub("mean()", "MeanValue", names(Table))

### names(Table)<-gsub("max()", " LargestValue ", names(Table))

### names(Table)<-gsub("min()", " SmallestValue ", names(Table))

### names(Table)<-gsub("sma ()", " SignalMagnitudeArea ", names(Table))

### names(Table)<-gsub("energy ()","EnergyMeasure", names(Table))

### names(Table)<-gsub("iqr()", "InterquartileRange ", names(Table))

### names(Table)<-gsub("entropy ()", " SignalEntropy ", names(Table))

### names(Table)<-gsub("arCoeff ()", " AutorregresionCoefficients ", names(Table))

### names(Table)<-gsub("maxInds ()", "IndexOfTheFrequencyComponent ", names(Table))

### names(Table)<-gsub("meanFreq ()", "WeightedAverageOfTheFrequency ",names(Table))

### names(Table)<-gsub("skewness ()", "SkewnessOfTheFrequency ",names(Table))

### names(Table)<-gsub("kurtosis()", "KurtosisOfTheFrequency",names(Table))

### names(Table)<-gsub("bandsEnergy ()", " EnergyFrequencyInterval ", names(Table))

### names(Table)<-gsub("angle ()", "AngleVectors ", names(Table))

### names(Table)<-gsub("^t","time", names(Table))

### names(Table)<-gsub("^f","frequency", names(Table))

### names(Table)<-gsub("Acc","Accelerometer",names(Table))

### names(Table)<-gsub("Gyro","Gyroscope",names(Table))

### names(Table)<-gsub("Mag","Magnitude",names(Table))

### names(Table)<-gsub("BodyBody","Body",names(Table))

### #see new names

### head(str(Table))

### 5. From the data set in step 4, creates a second, independent tidy data set with the average of each variable for each activity and each subject.

**Description of PosadasData**

The PosadasData (tidy data set) is a set of 69 variables for each activity and 180 observations. The first row is the names for each variable. Each row cantain information of a subject with and activity. Each of the 30 subjects have 6 activities, 180 rows 30\*6. The variables are subject, activityName (WALKING, WALKING\_UPSTAIRS, WALKING\_DOWNSTAIRS , SITTING , STANDING , LAYING), activity (number of the activity (1 to 6, respectivly), 33 Mean variables (see item 4 codebook) and 33 Standard deviation variables (see item 4 codebook)