INTRODUCTION

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These files contain data for experiments with 30 volunteers who performed six specific activities while wearing a smartphone to record data from anembedded accelerometer and gyroscope. 3-axial linear acceleration and 3-axial angular velocity were recorded. The subjects were randomly split into two sets, where 70% of the volunteers' data was used as the training data and 30% as test data.

The original data can be found in this zip file, along with a README file that describes the data:

https://d396qusza40orc.cloudfront.net/getdata%2Fprojectfiles%2FUCI%20HAR%20Dataset.zip

DATA TRANSFORMATION

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The tidy\_table contains a subset of the raw data. Data for the two sets of subjects (test and train) were combined into one table with no distinction between the train and test subjects (they can, however, be identified based on their Subject id). Only measurements for mean and standard deviation calculations were included in the tidy\_table.

The average\_table starts with the data in the tidy\_table and computes the averages of each feature, function, and direction combination, grouped by subject and activity. The averages were calculated using the mean() R function.

TABLE VARIABLES

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tidy\_table

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This intermediate table can be recreated by using the run\_analysis.R script included in this repository. It contains the data found in the original data files, arranged into one table.

variables

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Subject: a number between 1-30 for the 30 volunteers for this experiment

Test volunteers include: 2, 4, 9, 10, 12, 13, 18, 20, 24.

Train volumteers include: 1, 3, 5, 6, 7, 8, 11, 14, 15, 16, 17, 19, 21, 22, 23, 25, 26, 27, 28, 29, 30.

Activity: the activity performed by the subject while recording data

There are 6 possible values: STANDING, SITTING, LAYING, WALKING, WALKING DOWNSTAIRS, WALKING UPSTAIRS.

Feature: Type of measurement taken. Each value includes one or more of these parts:

Domain signal: t=time or f=frequency

Acceleration signal: Body or Gravity

Signal instrument: Acc=accelerometer or Gyro=gyroscope

Additional calculated signals: Jerk=Jerk or Mag=Magnitude

List of possible values:

fBodyAcc

fBodyAccJerk

fBodyAccMag

fBodyBodyAccJerkMag

fBodyBodyGyroJerkMag

fBodyBodyGyroMag

fBodyGyro

tBodyAcc

tBodyAccJerk

tBodyAccJerkMag

tBodyAccMag

tBodyGyro

tBodyGyroJerk

tBodyGyroJerkMag

tBodyGyroMag

tGravityAcc

tGravityAccMag

Function: Mathematical function performed for each feature

he possible values are: mean()=mean or std()=standard deviation

Direction: Axial direction of each feature. The possible values are:

X

Y

Z

Note that some of the features are three axial signals and do not have a Direction value. NA is used for direction of these features.

Measurement: Calculation value for each Feature, Function, and Direction combination.

The accelerometer signals use standard gravity units 'g'

The gyroscope signals use radians/second units

average\_table

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This final table can be found in the repository in the averages file. I can be read into R using the read.table() function with header=TRUE (to access the variable names). It can also be recreated by using the run\_analysis.R script included in this repository. It contains the averages of the feature/function/direction data found in the tidy\_table, grouped by subject and activity.

variables

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Subject: see defintion above under tidy\_table

Activity: see definition above under tidy\_table

Feature: see definition above under tidy\_table

Function: see defintion above under tidy\_table

Direction: see definition above under tidy\_table

Average: This is the mean of all Measurement values from the tidy\_table for each Feature/Function/Direction combination and grouped by Subject and Activity.

The accelerometer signals use standard gravity units 'g'

The gyroscope signals use radians/second units