run\_analysis.R

Selia

Sun Jan 25 22:39:31 2015

# Getting and Cleaning Data Course Project  
# Peer Assessments  
# Here are the data for the project:   
# https://d396qusza40orc.cloudfront.net/getdata%2Fprojectfiles%2FUCI%20HAR%20Dataset.zip   
# You should create one R script called run\_analysis.R that does the following.   
# Merges the training and the test sets to create one data set.  
  
train\_s <- read.table("train/subject\_train.txt")  
test\_s <- read.table("test/subject\_test.txt")  
str(train\_s)

## 'data.frame': 7352 obs. of 1 variable:  
## $ V1: int 1 1 1 1 1 1 1 1 1 1 ...

str(test\_s)

## 'data.frame': 2947 obs. of 1 variable:  
## $ V1: int 2 2 2 2 2 2 2 2 2 2 ...

train\_y <- read.table("train/y\_train.txt")  
test\_y <- read.table("test/y\_test.txt")  
str(train\_y)

## 'data.frame': 7352 obs. of 1 variable:  
## $ V1: int 5 5 5 5 5 5 5 5 5 5 ...

str(test\_y)

## 'data.frame': 2947 obs. of 1 variable:  
## $ V1: int 5 5 5 5 5 5 5 5 5 5 ...

train\_x <- read.table("train/X\_train.txt")  
test\_x <- read.table("test/X\_test.txt")  
str(train\_x)

## 'data.frame': 7352 obs. of 561 variables:  
## $ V1 : num 0.289 0.278 0.28 0.279 0.277 ...  
## $ V2 : num -0.0203 -0.0164 -0.0195 -0.0262 -0.0166 ...  
## $ V3 : num -0.133 -0.124 -0.113 -0.123 -0.115 ...  
## $ V4 : num -0.995 -0.998 -0.995 -0.996 -0.998 ...  
## $ V5 : num -0.983 -0.975 -0.967 -0.983 -0.981 ...  
## $ V6 : num -0.914 -0.96 -0.979 -0.991 -0.99 ...  
## $ V7 : num -0.995 -0.999 -0.997 -0.997 -0.998 ...  
## $ V8 : num -0.983 -0.975 -0.964 -0.983 -0.98 ...  
## $ V9 : num -0.924 -0.958 -0.977 -0.989 -0.99 ...  
## $ V10 : num -0.935 -0.943 -0.939 -0.939 -0.942 ...  
## $ V11 : num -0.567 -0.558 -0.558 -0.576 -0.569 ...  
## $ V12 : num -0.744 -0.818 -0.818 -0.83 -0.825 ...  
## $ V13 : num 0.853 0.849 0.844 0.844 0.849 ...  
## $ V14 : num 0.686 0.686 0.682 0.682 0.683 ...  
## $ V15 : num 0.814 0.823 0.839 0.838 0.838 ...  
## $ V16 : num -0.966 -0.982 -0.983 -0.986 -0.993 ...  
## $ V17 : num -1 -1 -1 -1 -1 ...  
## $ V18 : num -1 -1 -1 -1 -1 ...  
## $ V19 : num -0.995 -0.998 -0.999 -1 -1 ...  
## $ V20 : num -0.994 -0.999 -0.997 -0.997 -0.998 ...  
## $ V21 : num -0.988 -0.978 -0.965 -0.984 -0.981 ...  
## $ V22 : num -0.943 -0.948 -0.975 -0.986 -0.991 ...  
## $ V23 : num -0.408 -0.715 -0.592 -0.627 -0.787 ...  
## $ V24 : num -0.679 -0.501 -0.486 -0.851 -0.559 ...  
## $ V25 : num -0.602 -0.571 -0.571 -0.912 -0.761 ...  
## $ V26 : num 0.9293 0.6116 0.273 0.0614 0.3133 ...  
## $ V27 : num -0.853 -0.3295 -0.0863 0.0748 -0.1312 ...  
## $ V28 : num 0.36 0.284 0.337 0.198 0.191 ...  
## $ V29 : num -0.0585 0.2846 -0.1647 -0.2643 0.0869 ...  
## $ V30 : num 0.2569 0.1157 0.0172 0.0725 0.2576 ...  
## $ V31 : num -0.2248 -0.091 -0.0745 -0.1553 -0.2725 ...  
## $ V32 : num 0.264 0.294 0.342 0.323 0.435 ...  
## $ V33 : num -0.0952 -0.2812 -0.3326 -0.1708 -0.3154 ...  
## $ V34 : num 0.279 0.086 0.239 0.295 0.44 ...  
## $ V35 : num -0.4651 -0.0222 -0.1362 -0.3061 -0.2691 ...  
## $ V36 : num 0.4919 -0.0167 0.1739 0.4821 0.1794 ...  
## $ V37 : num -0.191 -0.221 -0.299 -0.47 -0.089 ...  
## $ V38 : num 0.3763 -0.0134 -0.1247 -0.3057 -0.1558 ...  
## $ V39 : num 0.4351 -0.0727 -0.1811 -0.3627 -0.1898 ...  
## $ V40 : num 0.661 0.579 0.609 0.507 0.599 ...  
## $ V41 : num 0.963 0.967 0.967 0.968 0.968 ...  
## $ V42 : num -0.141 -0.142 -0.142 -0.144 -0.149 ...  
## $ V43 : num 0.1154 0.1094 0.1019 0.0999 0.0945 ...  
## $ V44 : num -0.985 -0.997 -1 -0.997 -0.998 ...  
## $ V45 : num -0.982 -0.989 -0.993 -0.981 -0.988 ...  
## $ V46 : num -0.878 -0.932 -0.993 -0.978 -0.979 ...  
## $ V47 : num -0.985 -0.998 -1 -0.996 -0.998 ...  
## $ V48 : num -0.984 -0.99 -0.993 -0.981 -0.989 ...  
## $ V49 : num -0.895 -0.933 -0.993 -0.978 -0.979 ...  
## $ V50 : num 0.892 0.892 0.892 0.894 0.894 ...  
## $ V51 : num -0.161 -0.161 -0.164 -0.164 -0.167 ...  
## $ V52 : num 0.1247 0.1226 0.0946 0.0934 0.0917 ...  
## $ V53 : num 0.977 0.985 0.987 0.987 0.987 ...  
## $ V54 : num -0.123 -0.115 -0.115 -0.121 -0.122 ...  
## $ V55 : num 0.0565 0.1028 0.1028 0.0958 0.0941 ...  
## $ V56 : num -0.375 -0.383 -0.402 -0.4 -0.4 ...  
## $ V57 : num 0.899 0.908 0.909 0.911 0.912 ...  
## $ V58 : num -0.971 -0.971 -0.97 -0.969 -0.967 ...  
## $ V59 : num -0.976 -0.979 -0.982 -0.982 -0.984 ...  
## $ V60 : num -0.984 -0.999 -1 -0.996 -0.998 ...  
## $ V61 : num -0.989 -0.99 -0.992 -0.981 -0.991 ...  
## $ V62 : num -0.918 -0.942 -0.993 -0.98 -0.98 ...  
## $ V63 : num -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 ...  
## $ V64 : num -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 ...  
## $ V65 : num 0.114 -0.21 -0.927 -0.596 -0.617 ...  
## $ V66 : num -0.59042 -0.41006 0.00223 -0.06493 -0.25727 ...  
## $ V67 : num 0.5911 0.4139 0.0275 0.0754 0.2689 ...  
## $ V68 : num -0.5918 -0.4176 -0.0567 -0.0858 -0.2807 ...  
## $ V69 : num 0.5925 0.4213 0.0855 0.0962 0.2926 ...  
## $ V70 : num -0.745 -0.196 -0.329 -0.295 -0.167 ...  
## $ V71 : num 0.7209 0.1253 0.2705 0.2283 0.0899 ...  
## $ V72 : num -0.7124 -0.1056 -0.2545 -0.2063 -0.0663 ...  
## $ V73 : num 0.7113 0.1091 0.2576 0.2048 0.0671 ...  
## $ V74 : num -0.995 -0.834 -0.705 -0.385 -0.237 ...  
## $ V75 : num 0.996 0.834 0.714 0.386 0.239 ...  
## $ V76 : num -0.996 -0.834 -0.723 -0.387 -0.241 ...  
## $ V77 : num 0.992 0.83 0.729 0.385 0.241 ...  
## $ V78 : num 0.57 -0.831 -0.181 -0.991 -0.408 ...  
## $ V79 : num 0.439 -0.866 0.338 -0.969 -0.185 ...  
## $ V80 : num 0.987 0.974 0.643 0.984 0.965 ...  
## $ V81 : num 0.078 0.074 0.0736 0.0773 0.0734 ...  
## $ V82 : num 0.005 0.00577 0.0031 0.02006 0.01912 ...  
## $ V83 : num -0.06783 0.02938 -0.00905 -0.00986 0.01678 ...  
## $ V84 : num -0.994 -0.996 -0.991 -0.993 -0.996 ...  
## $ V85 : num -0.988 -0.981 -0.981 -0.988 -0.988 ...  
## $ V86 : num -0.994 -0.992 -0.99 -0.993 -0.992 ...  
## $ V87 : num -0.994 -0.996 -0.991 -0.994 -0.997 ...  
## $ V88 : num -0.986 -0.979 -0.979 -0.986 -0.987 ...  
## $ V89 : num -0.993 -0.991 -0.987 -0.991 -0.991 ...  
## $ V90 : num -0.985 -0.995 -0.987 -0.987 -0.997 ...  
## $ V91 : num -0.992 -0.979 -0.979 -0.992 -0.992 ...  
## $ V92 : num -0.993 -0.992 -0.992 -0.99 -0.99 ...  
## $ V93 : num 0.99 0.993 0.988 0.988 0.994 ...  
## $ V94 : num 0.992 0.992 0.992 0.993 0.993 ...  
## $ V95 : num 0.991 0.989 0.989 0.993 0.986 ...  
## $ V96 : num -0.994 -0.991 -0.988 -0.993 -0.994 ...  
## $ V97 : num -1 -1 -1 -1 -1 ...  
## $ V98 : num -1 -1 -1 -1 -1 ...  
## $ V99 : num -1 -1 -1 -1 -1 ...  
## [list output truncated]

str(test\_x)

## 'data.frame': 2947 obs. of 561 variables:  
## $ V1 : num 0.257 0.286 0.275 0.27 0.275 ...  
## $ V2 : num -0.0233 -0.0132 -0.0261 -0.0326 -0.0278 ...  
## $ V3 : num -0.0147 -0.1191 -0.1182 -0.1175 -0.1295 ...  
## $ V4 : num -0.938 -0.975 -0.994 -0.995 -0.994 ...  
## $ V5 : num -0.92 -0.967 -0.97 -0.973 -0.967 ...  
## $ V6 : num -0.668 -0.945 -0.963 -0.967 -0.978 ...  
## $ V7 : num -0.953 -0.987 -0.994 -0.995 -0.994 ...  
## $ V8 : num -0.925 -0.968 -0.971 -0.974 -0.966 ...  
## $ V9 : num -0.674 -0.946 -0.963 -0.969 -0.977 ...  
## $ V10 : num -0.894 -0.894 -0.939 -0.939 -0.939 ...  
## $ V11 : num -0.555 -0.555 -0.569 -0.569 -0.561 ...  
## $ V12 : num -0.466 -0.806 -0.799 -0.799 -0.826 ...  
## $ V13 : num 0.717 0.768 0.848 0.848 0.849 ...  
## $ V14 : num 0.636 0.684 0.668 0.668 0.671 ...  
## $ V15 : num 0.789 0.797 0.822 0.822 0.83 ...  
## $ V16 : num -0.878 -0.969 -0.977 -0.974 -0.975 ...  
## $ V17 : num -0.998 -1 -1 -1 -1 ...  
## $ V18 : num -0.998 -1 -1 -0.999 -0.999 ...  
## $ V19 : num -0.934 -0.998 -0.999 -0.999 -0.999 ...  
## $ V20 : num -0.976 -0.994 -0.993 -0.995 -0.993 ...  
## $ V21 : num -0.95 -0.974 -0.974 -0.979 -0.967 ...  
## $ V22 : num -0.83 -0.951 -0.965 -0.97 -0.976 ...  
## $ V23 : num -0.168 -0.302 -0.618 -0.75 -0.591 ...  
## $ V24 : num -0.379 -0.348 -0.695 -0.899 -0.74 ...  
## $ V25 : num 0.246 -0.405 -0.537 -0.554 -0.799 ...  
## $ V26 : num 0.521 0.507 0.242 0.175 0.116 ...  
## $ V27 : num -0.4878 -0.1565 -0.115 -0.0513 -0.0289 ...  
## $ V28 : num 0.4823 0.0407 0.0327 0.0342 -0.0328 ...  
## $ V29 : num -0.0455 0.273 0.1924 0.1536 0.2943 ...  
## $ V30 : num 0.21196 0.19757 -0.01194 0.03077 0.00063 ...  
## $ V31 : num -0.1349 -0.1946 -0.0634 -0.1293 -0.0453 ...  
## $ V32 : num 0.131 0.411 0.471 0.446 0.168 ...  
## $ V33 : num -0.0142 -0.3405 -0.5074 -0.4195 -0.0682 ...  
## $ V34 : num -0.106 0.0776 0.1885 0.2715 0.0744 ...  
## $ V35 : num 0.0735 -0.084 -0.2316 -0.2258 0.0271 ...  
## $ V36 : num -0.1715 0.0353 0.6321 0.4164 -0.1459 ...  
## $ V37 : num 0.0401 -0.0101 -0.5507 -0.2864 -0.0502 ...  
## $ V38 : num 0.077 -0.105 0.3057 -0.0638 0.2352 ...  
## $ V39 : num -0.491 -0.429 -0.324 -0.167 0.29 ...  
## $ V40 : num -0.709 0.399 0.28 0.545 0.458 ...  
## $ V41 : num 0.936 0.927 0.93 0.929 0.927 ...  
## $ V42 : num -0.283 -0.289 -0.288 -0.293 -0.303 ...  
## $ V43 : num 0.115 0.153 0.146 0.143 0.138 ...  
## $ V44 : num -0.925 -0.989 -0.996 -0.993 -0.996 ...  
## $ V45 : num -0.937 -0.984 -0.988 -0.97 -0.971 ...  
## $ V46 : num -0.564 -0.965 -0.982 -0.992 -0.968 ...  
## $ V47 : num -0.93 -0.989 -0.996 -0.993 -0.996 ...  
## $ V48 : num -0.938 -0.983 -0.989 -0.971 -0.971 ...  
## $ V49 : num -0.606 -0.965 -0.98 -0.993 -0.969 ...  
## $ V50 : num 0.906 0.856 0.856 0.856 0.854 ...  
## $ V51 : num -0.279 -0.305 -0.305 -0.305 -0.313 ...  
## $ V52 : num 0.153 0.153 0.139 0.136 0.134 ...  
## $ V53 : num 0.944 0.944 0.949 0.947 0.946 ...  
## $ V54 : num -0.262 -0.262 -0.262 -0.273 -0.279 ...  
## $ V55 : num -0.0762 0.149 0.145 0.1421 0.1309 ...  
## $ V56 : num -0.0178 0.0577 0.0406 0.0461 0.0554 ...  
## $ V57 : num 0.829 0.806 0.812 0.809 0.804 ...  
## $ V58 : num -0.865 -0.858 -0.86 -0.854 -0.843 ...  
## $ V59 : num -0.968 -0.957 -0.961 -0.963 -0.965 ...  
## $ V60 : num -0.95 -0.988 -0.996 -0.992 -0.996 ...  
## $ V61 : num -0.946 -0.982 -0.99 -0.973 -0.972 ...  
## $ V62 : num -0.76 -0.971 -0.979 -0.996 -0.969 ...  
## $ V63 : num -0.425 -0.729 -0.823 -0.823 -0.83 ...  
## $ V64 : num -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 ...  
## $ V65 : num 0.219 -0.465 -0.53 -0.7 -0.302 ...  
## $ V66 : num -0.43 -0.51 -0.295 -0.343 -0.482 ...  
## $ V67 : num 0.431 0.525 0.305 0.359 0.539 ...  
## $ V68 : num -0.432 -0.54 -0.315 -0.375 -0.596 ...  
## $ V69 : num 0.433 0.554 0.326 0.392 0.655 ...  
## $ V70 : num -0.795 -0.746 -0.232 -0.233 -0.493 ...  
## $ V71 : num 0.781 0.733 0.169 0.176 0.463 ...  
## $ V72 : num -0.78 -0.737 -0.155 -0.169 -0.465 ...  
## $ V73 : num 0.785 0.749 0.164 0.185 0.483 ...  
## $ V74 : num -0.984 -0.845 -0.429 -0.297 -0.536 ...  
## $ V75 : num 0.987 0.869 0.44 0.304 0.544 ...  
## $ V76 : num -0.989 -0.893 -0.451 -0.311 -0.553 ...  
## $ V77 : num 0.988 0.913 0.458 0.315 0.559 ...  
## $ V78 : num 0.981 0.945 0.548 0.986 0.998 ...  
## $ V79 : num -0.996 -0.911 -0.335 0.653 0.916 ...  
## $ V80 : num -0.96 -0.739 0.59 0.747 0.929 ...  
## $ V81 : num 0.072 0.0702 0.0694 0.0749 0.0784 ...  
## $ V82 : num 0.04575 -0.01788 -0.00491 0.03227 0.02228 ...  
## $ V83 : num -0.10604 -0.00172 -0.01367 0.01214 0.00275 ...  
## $ V84 : num -0.907 -0.949 -0.991 -0.991 -0.992 ...  
## $ V85 : num -0.938 -0.973 -0.971 -0.973 -0.979 ...  
## $ V86 : num -0.936 -0.978 -0.973 -0.976 -0.987 ...  
## $ V87 : num -0.916 -0.969 -0.991 -0.99 -0.991 ...  
## $ V88 : num -0.937 -0.974 -0.973 -0.973 -0.977 ...  
## $ V89 : num -0.949 -0.979 -0.975 -0.978 -0.985 ...  
## $ V90 : num -0.903 -0.915 -0.992 -0.992 -0.994 ...  
## $ V91 : num -0.95 -0.981 -0.975 -0.975 -0.986 ...  
## $ V92 : num -0.891 -0.978 -0.962 -0.962 -0.986 ...  
## $ V93 : num 0.898 0.898 0.994 0.994 0.994 ...  
## $ V94 : num 0.95 0.968 0.976 0.976 0.98 ...  
## $ V95 : num 0.946 0.966 0.966 0.97 0.985 ...  
## $ V96 : num -0.931 -0.974 -0.982 -0.983 -0.987 ...  
## $ V97 : num -0.995 -0.998 -1 -1 -1 ...  
## $ V98 : num -0.997 -0.999 -0.999 -0.999 -1 ...  
## $ V99 : num -0.997 -0.999 -0.999 -0.999 -1 ...  
## [list output truncated]

dataSubject <- rbind(train\_s, test\_s)  
dataActivity<- rbind(train\_y, test\_y)  
dataFeatures<- rbind(train\_x, test\_x)  
  
names(dataSubject)<-c("subject")  
names(dataActivity)<- c("activity")  
dataFeaturesNames <- read.table("features.txt")  
names(dataFeatures)<- dataFeaturesNames$V2  
dataCombine <- cbind(dataSubject, dataActivity)  
Data <- cbind(dataFeatures, dataCombine)  
  
# Extracts only the measurements on the mean and standard deviation for each measurement.   
  
subdataFNames<-dataFeaturesNames$V2[grep("mean\\(\\)|std\\(\\)", dataFeaturesNames$V2)]  
selectedNames<-c(as.character(subdataFNames), "subject", "activity" )  
Data<-subset(Data,select=selectedNames)  
str(Data)

## 'data.frame': 10299 obs. of 68 variables:  
## $ tBodyAcc-mean()-X : num 0.289 0.278 0.28 0.279 0.277 ...  
## $ tBodyAcc-mean()-Y : num -0.0203 -0.0164 -0.0195 -0.0262 -0.0166 ...  
## $ tBodyAcc-mean()-Z : num -0.133 -0.124 -0.113 -0.123 -0.115 ...  
## $ tBodyAcc-std()-X : num -0.995 -0.998 -0.995 -0.996 -0.998 ...  
## $ tBodyAcc-std()-Y : num -0.983 -0.975 -0.967 -0.983 -0.981 ...  
## $ tBodyAcc-std()-Z : num -0.914 -0.96 -0.979 -0.991 -0.99 ...  
## $ tGravityAcc-mean()-X : num 0.963 0.967 0.967 0.968 0.968 ...  
## $ tGravityAcc-mean()-Y : num -0.141 -0.142 -0.142 -0.144 -0.149 ...  
## $ tGravityAcc-mean()-Z : num 0.1154 0.1094 0.1019 0.0999 0.0945 ...  
## $ tGravityAcc-std()-X : num -0.985 -0.997 -1 -0.997 -0.998 ...  
## $ tGravityAcc-std()-Y : num -0.982 -0.989 -0.993 -0.981 -0.988 ...  
## $ tGravityAcc-std()-Z : num -0.878 -0.932 -0.993 -0.978 -0.979 ...  
## $ tBodyAccJerk-mean()-X : num 0.078 0.074 0.0736 0.0773 0.0734 ...  
## $ tBodyAccJerk-mean()-Y : num 0.005 0.00577 0.0031 0.02006 0.01912 ...  
## $ tBodyAccJerk-mean()-Z : num -0.06783 0.02938 -0.00905 -0.00986 0.01678 ...  
## $ tBodyAccJerk-std()-X : num -0.994 -0.996 -0.991 -0.993 -0.996 ...  
## $ tBodyAccJerk-std()-Y : num -0.988 -0.981 -0.981 -0.988 -0.988 ...  
## $ tBodyAccJerk-std()-Z : num -0.994 -0.992 -0.99 -0.993 -0.992 ...  
## $ tBodyGyro-mean()-X : num -0.0061 -0.0161 -0.0317 -0.0434 -0.034 ...  
## $ tBodyGyro-mean()-Y : num -0.0314 -0.0839 -0.1023 -0.0914 -0.0747 ...  
## $ tBodyGyro-mean()-Z : num 0.1077 0.1006 0.0961 0.0855 0.0774 ...  
## $ tBodyGyro-std()-X : num -0.985 -0.983 -0.976 -0.991 -0.985 ...  
## $ tBodyGyro-std()-Y : num -0.977 -0.989 -0.994 -0.992 -0.992 ...  
## $ tBodyGyro-std()-Z : num -0.992 -0.989 -0.986 -0.988 -0.987 ...  
## $ tBodyGyroJerk-mean()-X : num -0.0992 -0.1105 -0.1085 -0.0912 -0.0908 ...  
## $ tBodyGyroJerk-mean()-Y : num -0.0555 -0.0448 -0.0424 -0.0363 -0.0376 ...  
## $ tBodyGyroJerk-mean()-Z : num -0.062 -0.0592 -0.0558 -0.0605 -0.0583 ...  
## $ tBodyGyroJerk-std()-X : num -0.992 -0.99 -0.988 -0.991 -0.991 ...  
## $ tBodyGyroJerk-std()-Y : num -0.993 -0.997 -0.996 -0.997 -0.996 ...  
## $ tBodyGyroJerk-std()-Z : num -0.992 -0.994 -0.992 -0.993 -0.995 ...  
## $ tBodyAccMag-mean() : num -0.959 -0.979 -0.984 -0.987 -0.993 ...  
## $ tBodyAccMag-std() : num -0.951 -0.976 -0.988 -0.986 -0.991 ...  
## $ tGravityAccMag-mean() : num -0.959 -0.979 -0.984 -0.987 -0.993 ...  
## $ tGravityAccMag-std() : num -0.951 -0.976 -0.988 -0.986 -0.991 ...  
## $ tBodyAccJerkMag-mean() : num -0.993 -0.991 -0.989 -0.993 -0.993 ...  
## $ tBodyAccJerkMag-std() : num -0.994 -0.992 -0.99 -0.993 -0.996 ...  
## $ tBodyGyroMag-mean() : num -0.969 -0.981 -0.976 -0.982 -0.985 ...  
## $ tBodyGyroMag-std() : num -0.964 -0.984 -0.986 -0.987 -0.989 ...  
## $ tBodyGyroJerkMag-mean() : num -0.994 -0.995 -0.993 -0.996 -0.996 ...  
## $ tBodyGyroJerkMag-std() : num -0.991 -0.996 -0.995 -0.995 -0.995 ...  
## $ fBodyAcc-mean()-X : num -0.995 -0.997 -0.994 -0.995 -0.997 ...  
## $ fBodyAcc-mean()-Y : num -0.983 -0.977 -0.973 -0.984 -0.982 ...  
## $ fBodyAcc-mean()-Z : num -0.939 -0.974 -0.983 -0.991 -0.988 ...  
## $ fBodyAcc-std()-X : num -0.995 -0.999 -0.996 -0.996 -0.999 ...  
## $ fBodyAcc-std()-Y : num -0.983 -0.975 -0.966 -0.983 -0.98 ...  
## $ fBodyAcc-std()-Z : num -0.906 -0.955 -0.977 -0.99 -0.992 ...  
## $ fBodyAccJerk-mean()-X : num -0.992 -0.995 -0.991 -0.994 -0.996 ...  
## $ fBodyAccJerk-mean()-Y : num -0.987 -0.981 -0.982 -0.989 -0.989 ...  
## $ fBodyAccJerk-mean()-Z : num -0.99 -0.99 -0.988 -0.991 -0.991 ...  
## $ fBodyAccJerk-std()-X : num -0.996 -0.997 -0.991 -0.991 -0.997 ...  
## $ fBodyAccJerk-std()-Y : num -0.991 -0.982 -0.981 -0.987 -0.989 ...  
## $ fBodyAccJerk-std()-Z : num -0.997 -0.993 -0.99 -0.994 -0.993 ...  
## $ fBodyGyro-mean()-X : num -0.987 -0.977 -0.975 -0.987 -0.982 ...  
## $ fBodyGyro-mean()-Y : num -0.982 -0.993 -0.994 -0.994 -0.993 ...  
## $ fBodyGyro-mean()-Z : num -0.99 -0.99 -0.987 -0.987 -0.989 ...  
## $ fBodyGyro-std()-X : num -0.985 -0.985 -0.977 -0.993 -0.986 ...  
## $ fBodyGyro-std()-Y : num -0.974 -0.987 -0.993 -0.992 -0.992 ...  
## $ fBodyGyro-std()-Z : num -0.994 -0.99 -0.987 -0.989 -0.988 ...  
## $ fBodyAccMag-mean() : num -0.952 -0.981 -0.988 -0.988 -0.994 ...  
## $ fBodyAccMag-std() : num -0.956 -0.976 -0.989 -0.987 -0.99 ...  
## $ fBodyBodyAccJerkMag-mean() : num -0.994 -0.99 -0.989 -0.993 -0.996 ...  
## $ fBodyBodyAccJerkMag-std() : num -0.994 -0.992 -0.991 -0.992 -0.994 ...  
## $ fBodyBodyGyroMag-mean() : num -0.98 -0.988 -0.989 -0.989 -0.991 ...  
## $ fBodyBodyGyroMag-std() : num -0.961 -0.983 -0.986 -0.988 -0.989 ...  
## $ fBodyBodyGyroJerkMag-mean(): num -0.992 -0.996 -0.995 -0.995 -0.995 ...  
## $ fBodyBodyGyroJerkMag-std() : num -0.991 -0.996 -0.995 -0.995 -0.995 ...  
## $ subject : int 1 1 1 1 1 1 1 1 1 1 ...  
## $ activity : int 5 5 5 5 5 5 5 5 5 5 ...

# Uses descriptive activity names to name the activities in the data set  
  
activityLabels <- read.table("activity\_labels.txt")  
activityLabels[,2] = gsub("\_","",tolower(as.character(activityLabels[,2])))  
dataActivity[,1] = activityLabels[dataActivity[,1],2]  
names(dataActivity) <- "activity"  
  
# Appropriately labels the data set with descriptive variable names.  
  
names(Data)<-gsub("^t", "time", names(Data))  
names(Data)<-gsub("^f", "frequency", names(Data))  
names(Data)<-gsub("Acc", "Accelerometer", names(Data))  
names(Data)<-gsub("Gyro", "Gyroscope", names(Data))  
names(Data)<-gsub("Mag", "Magnitude", names(Data))  
names(Data)<-gsub("BodyBody", "Body", names(Data))  
names(Data)

## [1] "timeBodyAccelerometer-mean()-X"   
## [2] "timeBodyAccelerometer-mean()-Y"   
## [3] "timeBodyAccelerometer-mean()-Z"   
## [4] "timeBodyAccelerometer-std()-X"   
## [5] "timeBodyAccelerometer-std()-Y"   
## [6] "timeBodyAccelerometer-std()-Z"   
## [7] "timeGravityAccelerometer-mean()-X"   
## [8] "timeGravityAccelerometer-mean()-Y"   
## [9] "timeGravityAccelerometer-mean()-Z"   
## [10] "timeGravityAccelerometer-std()-X"   
## [11] "timeGravityAccelerometer-std()-Y"   
## [12] "timeGravityAccelerometer-std()-Z"   
## [13] "timeBodyAccelerometerJerk-mean()-X"   
## [14] "timeBodyAccelerometerJerk-mean()-Y"   
## [15] "timeBodyAccelerometerJerk-mean()-Z"   
## [16] "timeBodyAccelerometerJerk-std()-X"   
## [17] "timeBodyAccelerometerJerk-std()-Y"   
## [18] "timeBodyAccelerometerJerk-std()-Z"   
## [19] "timeBodyGyroscope-mean()-X"   
## [20] "timeBodyGyroscope-mean()-Y"   
## [21] "timeBodyGyroscope-mean()-Z"   
## [22] "timeBodyGyroscope-std()-X"   
## [23] "timeBodyGyroscope-std()-Y"   
## [24] "timeBodyGyroscope-std()-Z"   
## [25] "timeBodyGyroscopeJerk-mean()-X"   
## [26] "timeBodyGyroscopeJerk-mean()-Y"   
## [27] "timeBodyGyroscopeJerk-mean()-Z"   
## [28] "timeBodyGyroscopeJerk-std()-X"   
## [29] "timeBodyGyroscopeJerk-std()-Y"   
## [30] "timeBodyGyroscopeJerk-std()-Z"   
## [31] "timeBodyAccelerometerMagnitude-mean()"   
## [32] "timeBodyAccelerometerMagnitude-std()"   
## [33] "timeGravityAccelerometerMagnitude-mean()"   
## [34] "timeGravityAccelerometerMagnitude-std()"   
## [35] "timeBodyAccelerometerJerkMagnitude-mean()"   
## [36] "timeBodyAccelerometerJerkMagnitude-std()"   
## [37] "timeBodyGyroscopeMagnitude-mean()"   
## [38] "timeBodyGyroscopeMagnitude-std()"   
## [39] "timeBodyGyroscopeJerkMagnitude-mean()"   
## [40] "timeBodyGyroscopeJerkMagnitude-std()"   
## [41] "frequencyBodyAccelerometer-mean()-X"   
## [42] "frequencyBodyAccelerometer-mean()-Y"   
## [43] "frequencyBodyAccelerometer-mean()-Z"   
## [44] "frequencyBodyAccelerometer-std()-X"   
## [45] "frequencyBodyAccelerometer-std()-Y"   
## [46] "frequencyBodyAccelerometer-std()-Z"   
## [47] "frequencyBodyAccelerometerJerk-mean()-X"   
## [48] "frequencyBodyAccelerometerJerk-mean()-Y"   
## [49] "frequencyBodyAccelerometerJerk-mean()-Z"   
## [50] "frequencyBodyAccelerometerJerk-std()-X"   
## [51] "frequencyBodyAccelerometerJerk-std()-Y"   
## [52] "frequencyBodyAccelerometerJerk-std()-Z"   
## [53] "frequencyBodyGyroscope-mean()-X"   
## [54] "frequencyBodyGyroscope-mean()-Y"   
## [55] "frequencyBodyGyroscope-mean()-Z"   
## [56] "frequencyBodyGyroscope-std()-X"   
## [57] "frequencyBodyGyroscope-std()-Y"   
## [58] "frequencyBodyGyroscope-std()-Z"   
## [59] "frequencyBodyAccelerometerMagnitude-mean()"   
## [60] "frequencyBodyAccelerometerMagnitude-std()"   
## [61] "frequencyBodyAccelerometerJerkMagnitude-mean()"  
## [62] "frequencyBodyAccelerometerJerkMagnitude-std()"   
## [63] "frequencyBodyGyroscopeMagnitude-mean()"   
## [64] "frequencyBodyGyroscopeMagnitude-std()"   
## [65] "frequencyBodyGyroscopeJerkMagnitude-mean()"   
## [66] "frequencyBodyGyroscopeJerkMagnitude-std()"   
## [67] "subject"   
## [68] "activity"

# 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.  
  
library(plyr)

## Warning: package 'plyr' was built under R version 3.1.2

Data2<-aggregate(. ~subject + activity, Data, mean)  
Data2<-Data2[order(Data2$subject,Data2$activity),]  
write.table(Data2, file = "tidydata.txt", row.name=FALSE)  
str(Data2)

## 'data.frame': 180 obs. of 68 variables:  
## $ subject : int 1 1 1 1 1 1 2 2 2 2 ...  
## $ activity : int 1 2 3 4 5 6 1 2 3 4 ...  
## $ timeBodyAccelerometer-mean()-X : num 0.277 0.255 0.289 0.261 0.279 ...  
## $ timeBodyAccelerometer-mean()-Y : num -0.01738 -0.02395 -0.00992 -0.00131 -0.01614 ...  
## $ timeBodyAccelerometer-mean()-Z : num -0.1111 -0.0973 -0.1076 -0.1045 -0.1106 ...  
## $ timeBodyAccelerometer-std()-X : num -0.284 -0.355 0.03 -0.977 -0.996 ...  
## $ timeBodyAccelerometer-std()-Y : num 0.11446 -0.00232 -0.03194 -0.92262 -0.97319 ...  
## $ timeBodyAccelerometer-std()-Z : num -0.26 -0.0195 -0.2304 -0.9396 -0.9798 ...  
## $ timeGravityAccelerometer-mean()-X : num 0.935 0.893 0.932 0.832 0.943 ...  
## $ timeGravityAccelerometer-mean()-Y : num -0.282 -0.362 -0.267 0.204 -0.273 ...  
## $ timeGravityAccelerometer-mean()-Z : num -0.0681 -0.0754 -0.0621 0.332 0.0135 ...  
## $ timeGravityAccelerometer-std()-X : num -0.977 -0.956 -0.951 -0.968 -0.994 ...  
## $ timeGravityAccelerometer-std()-Y : num -0.971 -0.953 -0.937 -0.936 -0.981 ...  
## $ timeGravityAccelerometer-std()-Z : num -0.948 -0.912 -0.896 -0.949 -0.976 ...  
## $ timeBodyAccelerometerJerk-mean()-X : num 0.074 0.1014 0.0542 0.0775 0.0754 ...  
## $ timeBodyAccelerometerJerk-mean()-Y : num 0.028272 0.019486 0.02965 -0.000619 0.007976 ...  
## $ timeBodyAccelerometerJerk-mean()-Z : num -0.00417 -0.04556 -0.01097 -0.00337 -0.00369 ...  
## $ timeBodyAccelerometerJerk-std()-X : num -0.1136 -0.4468 -0.0123 -0.9864 -0.9946 ...  
## $ timeBodyAccelerometerJerk-std()-Y : num 0.067 -0.378 -0.102 -0.981 -0.986 ...  
## $ timeBodyAccelerometerJerk-std()-Z : num -0.503 -0.707 -0.346 -0.988 -0.992 ...  
## $ timeBodyGyroscope-mean()-X : num -0.0418 0.0505 -0.0351 -0.0454 -0.024 ...  
## $ timeBodyGyroscope-mean()-Y : num -0.0695 -0.1662 -0.0909 -0.0919 -0.0594 ...  
## $ timeBodyGyroscope-mean()-Z : num 0.0849 0.0584 0.0901 0.0629 0.0748 ...  
## $ timeBodyGyroscope-std()-X : num -0.474 -0.545 -0.458 -0.977 -0.987 ...  
## $ timeBodyGyroscope-std()-Y : num -0.05461 0.00411 -0.12635 -0.96647 -0.98773 ...  
## $ timeBodyGyroscope-std()-Z : num -0.344 -0.507 -0.125 -0.941 -0.981 ...  
## $ timeBodyGyroscopeJerk-mean()-X : num -0.09 -0.1222 -0.074 -0.0937 -0.0996 ...  
## $ timeBodyGyroscopeJerk-mean()-Y : num -0.0398 -0.0421 -0.044 -0.0402 -0.0441 ...  
## $ timeBodyGyroscopeJerk-mean()-Z : num -0.0461 -0.0407 -0.027 -0.0467 -0.049 ...  
## $ timeBodyGyroscopeJerk-std()-X : num -0.207 -0.615 -0.487 -0.992 -0.993 ...  
## $ timeBodyGyroscopeJerk-std()-Y : num -0.304 -0.602 -0.239 -0.99 -0.995 ...  
## $ timeBodyGyroscopeJerk-std()-Z : num -0.404 -0.606 -0.269 -0.988 -0.992 ...  
## $ timeBodyAccelerometerMagnitude-mean() : num -0.137 -0.1299 0.0272 -0.9485 -0.9843 ...  
## $ timeBodyAccelerometerMagnitude-std() : num -0.2197 -0.325 0.0199 -0.9271 -0.9819 ...  
## $ timeGravityAccelerometerMagnitude-mean() : num -0.137 -0.1299 0.0272 -0.9485 -0.9843 ...  
## $ timeGravityAccelerometerMagnitude-std() : num -0.2197 -0.325 0.0199 -0.9271 -0.9819 ...  
## $ timeBodyAccelerometerJerkMagnitude-mean() : num -0.1414 -0.4665 -0.0894 -0.9874 -0.9924 ...  
## $ timeBodyAccelerometerJerkMagnitude-std() : num -0.0745 -0.479 -0.0258 -0.9841 -0.9931 ...  
## $ timeBodyGyroscopeMagnitude-mean() : num -0.161 -0.1267 -0.0757 -0.9309 -0.9765 ...  
## $ timeBodyGyroscopeMagnitude-std() : num -0.187 -0.149 -0.226 -0.935 -0.979 ...  
## $ timeBodyGyroscopeJerkMagnitude-mean() : num -0.299 -0.595 -0.295 -0.992 -0.995 ...  
## $ timeBodyGyroscopeJerkMagnitude-std() : num -0.325 -0.649 -0.307 -0.988 -0.995 ...  
## $ frequencyBodyAccelerometer-mean()-X : num -0.2028 -0.4043 0.0382 -0.9796 -0.9952 ...  
## $ frequencyBodyAccelerometer-mean()-Y : num 0.08971 -0.19098 0.00155 -0.94408 -0.97707 ...  
## $ frequencyBodyAccelerometer-mean()-Z : num -0.332 -0.433 -0.226 -0.959 -0.985 ...  
## $ frequencyBodyAccelerometer-std()-X : num -0.3191 -0.3374 0.0243 -0.9764 -0.996 ...  
## $ frequencyBodyAccelerometer-std()-Y : num 0.056 0.0218 -0.113 -0.9173 -0.9723 ...  
## $ frequencyBodyAccelerometer-std()-Z : num -0.28 0.086 -0.298 -0.934 -0.978 ...  
## $ frequencyBodyAccelerometerJerk-mean()-X : num -0.1705 -0.4799 -0.0277 -0.9866 -0.9946 ...  
## $ frequencyBodyAccelerometerJerk-mean()-Y : num -0.0352 -0.4134 -0.1287 -0.9816 -0.9854 ...  
## $ frequencyBodyAccelerometerJerk-mean()-Z : num -0.469 -0.685 -0.288 -0.986 -0.991 ...  
## $ frequencyBodyAccelerometerJerk-std()-X : num -0.1336 -0.4619 -0.0863 -0.9875 -0.9951 ...  
## $ frequencyBodyAccelerometerJerk-std()-Y : num 0.107 -0.382 -0.135 -0.983 -0.987 ...  
## $ frequencyBodyAccelerometerJerk-std()-Z : num -0.535 -0.726 -0.402 -0.988 -0.992 ...  
## $ frequencyBodyGyroscope-mean()-X : num -0.339 -0.493 -0.352 -0.976 -0.986 ...  
## $ frequencyBodyGyroscope-mean()-Y : num -0.1031 -0.3195 -0.0557 -0.9758 -0.989 ...  
## $ frequencyBodyGyroscope-mean()-Z : num -0.2559 -0.4536 -0.0319 -0.9513 -0.9808 ...  
## $ frequencyBodyGyroscope-std()-X : num -0.517 -0.566 -0.495 -0.978 -0.987 ...  
## $ frequencyBodyGyroscope-std()-Y : num -0.0335 0.1515 -0.1814 -0.9623 -0.9871 ...  
## $ frequencyBodyGyroscope-std()-Z : num -0.437 -0.572 -0.238 -0.944 -0.982 ...  
## $ frequencyBodyAccelerometerMagnitude-mean() : num -0.1286 -0.3524 0.0966 -0.9478 -0.9854 ...  
## $ frequencyBodyAccelerometerMagnitude-std() : num -0.398 -0.416 -0.187 -0.928 -0.982 ...  
## $ frequencyBodyAccelerometerJerkMagnitude-mean(): num -0.0571 -0.4427 0.0262 -0.9853 -0.9925 ...  
## $ frequencyBodyAccelerometerJerkMagnitude-std() : num -0.103 -0.533 -0.104 -0.982 -0.993 ...  
## $ frequencyBodyGyroscopeMagnitude-mean() : num -0.199 -0.326 -0.186 -0.958 -0.985 ...  
## $ frequencyBodyGyroscopeMagnitude-std() : num -0.321 -0.183 -0.398 -0.932 -0.978 ...  
## $ frequencyBodyGyroscopeJerkMagnitude-mean() : num -0.319 -0.635 -0.282 -0.99 -0.995 ...  
## $ frequencyBodyGyroscopeJerkMagnitude-std() : num -0.382 -0.694 -0.392 -0.987 -0.995 ...