**> trainData <- read.table("/Users/Nawjif/Documents/WebEx/UCI HAR Dataset/train/X\_train.txt")**

**> dim(trainData)**

**[1] 7352 561**

**> head(trainData)**

V1 V2 V3 V4 V5 V6 V7 V8 V9 V10

1 0.2885845 -0.02029417 -0.1329051 -0.9952786 -0.9831106 -0.9135264 -0.9951121 -0.9831846 -0.9235270 -0.9347238

2 0.2784188 -0.01641057 -0.1235202 -0.9982453 -0.9753002 -0.9603220 -0.9988072 -0.9749144 -0.9576862 -0.9430675

3 0.2796531 -0.01946716 -0.1134617 -0.9953796 -0.9671870 -0.9789440 -0.9965199 -0.9636684 -0.9774686 -0.9386916

4 0.2791739 -0.02620065 -0.1232826 -0.9960915 -0.9834027 -0.9906751 -0.9970995 -0.9827498 -0.9893025 -0.9386916

5 0.2766288 -0.01656965 -0.1153619 -0.9981386 -0.9808173 -0.9904816 -0.9983211 -0.9796719 -0.9904411 -0.9424691

6 0.2771988 -0.01009785 -0.1051373 -0.9973350 -0.9904868 -0.9954200 -0.9976274 -0.9902177 -0.9955489 -0.9424691

**> trainLabel <- read.table("/Users/Nawjif/Documents/WebEx/UCI HAR Dataset/train/y\_train.txt")**

**> table(trainLabel)**

**trainLabel**

**1 2 3 4 5 6**

**1226 1073 986 1286 1374 1407**

**> trainSubject <- read.table("/Users/Nawjif/Documents/WebEx/UCI HAR Dataset/train/subject\_train.txt")**

**> testData <- read.table("/Users/Nawjif/Documents/WebEx/UCI HAR Dataset/test/X\_test.txt")**

**> dim(testData)**

**[1] 2947 561**

**> testLabel <- read.table("/Users/Nawjif/Documents/WebEx/UCI HAR Dataset/test/y\_test.txt")**

**> table(testLabel)**

**testLabel**

**1 2 3 4 5 6**

**496 471 420 491 532 537**

**> testSubject <- read.table("/Users/Nawjif/Documents/WebEx/UCI HAR Dataset/test/subject\_test.txt")**

**> joinData <- rbind(trainData, testData)**

**> dim(joinData)**

**[1] 10299 561**

**> joinLabel <- rbind(trainLabel, testLabel)**

**> dim(joinLabel)**

**[1] 10299 1**

**> joinSubject <- rbind(trainSubject, testSubject)**

**> dim(joinSubject)**

**[1] 10299 1**

**> features <- read.table("/Users/Nawjif/Documents/WebEx/UCI HAR Dataset/features.txt")**

**> dim(features)**

**[1] 561 2**

**> meanStdIndices <- grep("mean\\(\\)|std\\(\\)", features[, 2])**

**> length(meanStdIndices)**

**[1] 66**

**> joinData <- joinData[, meanStdIndices]**

**> dim(joinData)**

**[1] 10299 66**

**> names(joinData) <- gsub("\\(\\)", "", features[meanStdIndices, 2]) # remove "()"**

**> names(joinData) <- gsub("mean", "Mean", names(joinData)) # capitalize M**

**> names(joinData) <- gsub("std", "Std", names(joinData)) # capitalize S**

**> names(joinData) <- gsub("-", "", names(joinData)) # remove "-" in column names**

**> names(joinData) <- gsub("\\(\\)", "", features[meanStdIndices, 2]) # remove "()"**

**> names(joinData) <- gsub("mean", "Mean", names(joinData)) # capitalize M**

**> names(joinData) <- gsub("std", "Std", names(joinData)) # capitalize S**

**> names(joinData) <- gsub("-", "", names(joinData)) # remove "-" in column names**

**>**

**> # Step3. Uses descriptive activity names to name the activities in the data set**

**> activity <- read.table("/Users/Nawjif/Documents/WebEx/UCI HAR Dataset/activity\_labels.txt")**

**> activity[, 2] <- tolower(gsub("\_", "", activity[, 2]))**

**> substr(activity[2, 2], 8, 8) <- toupper(substr(activity[2, 2], 8, 8))**

**> substr(activity[3, 2], 8, 8) <- toupper(substr(activity[3, 2], 8, 8))**

**> activityLabel <- activity[joinLabel[, 1], 2]**

**> joinLabel[, 1] <- activityLabel**

**> names(joinLabel) <- "activity"**

**>**

**> # Step4. Appropriately labels the data set with descriptive activity names.**

**> names(joinSubject) <- "subject"**

**> cleanedData <- cbind(joinSubject, joinLabel, joinData)**

**> dim(cleanedData)**

**[1] 10299 68**

**> write.table(cleanedData, "merged\_data.txt") # write out the 1st dataset**

**>**

**> # Step5. Creates a second, independent tidy data set with the average of each variable for each activity and each subject.**

**> subjectLen <- length(table(joinSubject))**

**> activityLen <- dim(activity)[1]**

**> columnLen <- dim(cleanedData)[2]**

**> result <- matrix(NA, nrow=subjectLen\*activityLen, ncol=columnLen)**

**> result <- as.data.frame(result)**

**> colnames(result) <- colnames(cleanedData)**

**> row <- 1**

**> for(i in 1:subjectLen) {**

**+ for(j in 1:activityLen) {**

**+ result[row, 1] <- sort(unique(joinSubject)[, 1])[i]**

**+ result[row, 2] <- activity[j, 2]**

**+ bool1 <- i == cleanedData$subject**

**+ bool2 <- activity[j, 2] == cleanedData$activity**

**+ result[row, 3:columnLen] <- colMeans(cleanedData[bool1&bool2, 3:columnLen])**

**+ row <- row + 1**

**+ }**

**+ }**

**> head(result)**

subject activity tBodyAccMeanX tBodyAccMeanY tBodyAccMeanZ tBodyAccStdX tBodyAccStdY tBodyAccStdZ

1 1 walking 0.2773308 -0.017383819 -0.1111481 -0.28374026 0.114461337 -0.26002790

2 1 walkingUpstairs 0.2554617 -0.023953149 -0.0973020 -0.35470803 -0.002320265 -0.01947924

3 1 walkingDownstairs 0.2891883 -0.009918505 -0.1075662 0.03003534 -0.031935943 -0.23043421

4 1 sitting 0.2612376 -0.001308288 -0.1045442 -0.97722901 -0.922618642 -0.93958629

5 1 standing 0.2789176 -0.016137590 -0.1106018 -0.99575990 -0.973190056 -0.97977588

6 1 laying 0.2215982 -0.040513953 -0.1132036 -0.92805647 -0.836827406 -0.82606140

tGravityAccMeanX tGravityAccMeanY tGravityAccMeanZ tGravityAccStdX tGravityAccStdY tGravityAccStdZ tBodyAccJerkMeanX

1 0.9352232 -0.2821650 -0.06810286 -0.9766096 -0.9713060 -0.9477172 0.07404163

2 0.8933511 -0.3621534 -0.07540294 -0.9563670 -0.9528492 -0.9123794 0.10137273

3 0.9318744 -0.2666103 -0.06211996 -0.9505598 -0.9370187 -0.8959397 0.05415532

4 0.8315099 0.2044116 0.33204370 -0.9684571 -0.9355171 -0.9490409 0.07748252

5 0.9429520 -0.2729838 0.01349058 -0.9937630 -0.9812260 -0.9763241 0.07537665

6 -0.2488818 0.7055498 0.44581772 -0.8968300 -0.9077200 -0.8523663 0.08108653

tBodyAccJerkMeanY tBodyAccJerkMeanZ tBodyAccJerkStdX tBodyAccJerkStdY tBodyAccJerkStdZ tBodyGyroMeanX tBodyGyroMeanY

1 0.0282721096 -0.004168406 -0.11361560 0.0670025 -0.5026998 -0.04183096 -0.06953005

2 0.0194863076 -0.045562545 -0.44684389 -0.3782744 -0.7065935 0.05054938 -0.16617002

3 0.0296504490 -0.010971973 -0.01228386 -0.1016014 -0.3457350 -0.03507819 -0.09093713

4 -0.0006191028 -0.003367792 -0.98643071 -0.9813720 -0.9879108 -0.04535006 -0.09192415

5 0.0079757309 -0.003685250 -0.99460454 -0.9856487 -0.9922512 -0.02398773 -0.05939722

6 0.0038382040 0.010834236 -0.95848211 -0.9241493 -0.9548551 -0.01655309 -0.06448612

tBodyGyroMeanZ tBodyGyroStdX tBodyGyroStdY tBodyGyroStdZ tBodyGyroJerkMeanX tBodyGyroJerkMeanY tBodyGyroJerkMeanZ

1 0.08494482 -0.4735355 -0.054607769 -0.3442666 -0.08999754 -0.03984287 -0.04613093

2 0.05835955 -0.5448711 0.004105184 -0.5071687 -0.12223277 -0.04214859 -0.04071255

3 0.09008501 -0.4580305 -0.126349195 -0.1247025 -0.07395920 -0.04399028 -0.02704611

4 0.06293138 -0.9772113 -0.966473895 -0.9414259 -0.09367938 -0.04021181 -0.04670263

5 0.07480075 -0.9871919 -0.987734440 -0.9806456 -0.09960921 -0.04406279 -0.04895055

6 0.14868944 -0.8735439 -0.951090440 -0.9082847 -0.10727095 -0.04151729 -0.07405012

tBodyGyroJerkStdX tBodyGyroJerkStdY tBodyGyroJerkStdZ tBodyAccMagMean tBodyAccMagStd tGravityAccMagMean

1 -0.2074219 -0.3044685 -0.4042555 -0.13697118 -0.21968865 -0.13697118

2 -0.6147865 -0.6016967 -0.6063320 -0.12992763 -0.32497093 -0.12992763

3 -0.4870273 -0.2388248 -0.2687615 0.02718829 0.01988435 0.02718829

4 -0.9917316 -0.9895181 -0.9879358 -0.94853679 -0.92707842 -0.94853679

5 -0.9929451 -0.9951379 -0.9921085 -0.98427821 -0.98194293 -0.98427821

6 -0.9186085 -0.9679072 -0.9577902 -0.84192915 -0.79514486 -0.84192915

tGravityAccMagStd tBodyAccJerkMagMean tBodyAccJerkMagStd tBodyGyroMagMean tBodyGyroMagStd tBodyGyroJerkMagMean

1 -0.21968865 -0.14142881 -0.07447175 -0.16097955 -0.1869784 -0.2987037

2 -0.32497093 -0.46650345 -0.47899162 -0.12673559 -0.1486193 -0.5948829

3 0.01988435 -0.08944748 -0.02578772 -0.07574125 -0.2257244 -0.2954638

4 -0.92707842 -0.98736420 -0.98412002 -0.93089249 -0.9345318 -0.9919763

5 -0.98194293 -0.99236779 -0.99309621 -0.97649379 -0.9786900 -0.9949668

6 -0.79514486 -0.95439626 -0.92824563 -0.87475955 -0.8190102 -0.9634610

tBodyGyroJerkMagStd fBodyAccMeanX fBodyAccMeanY fBodyAccMeanZ fBodyAccStdX fBodyAccStdY fBodyAccStdZ fBodyAccJerkMeanX

1 -0.3253249 -0.20279431 0.089712726 -0.3315601 -0.31913472 0.05604001 -0.27968675 -0.17054696

2 -0.6485530 -0.40432178 -0.190976721 -0.4333497 -0.33742819 0.02176951 0.08595655 -0.47987525

3 -0.3065106 0.03822918 0.001549908 -0.2255745 0.02433084 -0.11296374 -0.29792789 -0.02766387

4 -0.9883087 -0.97964124 -0.944084550 -0.9591849 -0.97641231 -0.91727501 -0.93446956 -0.98659702

5 -0.9947332 -0.99524993 -0.977070848 -0.9852971 -0.99602835 -0.97229310 -0.97793726 -0.99463080

6 -0.9358410 -0.93909905 -0.867065205 -0.8826669 -0.92443743 -0.83362556 -0.81289156 -0.95707388

fBodyAccJerkMeanY fBodyAccJerkMeanZ fBodyAccJerkStdX fBodyAccJerkStdY fBodyAccJerkStdZ fBodyGyroMeanX fBodyGyroMeanY

1 -0.03522552 -0.4689992 -0.1335866 0.1067399 -0.5347134 -0.3390322 -0.10305942

2 -0.41344459 -0.6854744 -0.4619070 -0.3817771 -0.7260402 -0.4926117 -0.31947461

3 -0.12866716 -0.2883347 -0.0863279 -0.1345800 -0.4017215 -0.3524496 -0.05570225

4 -0.98157947 -0.9860531 -0.9874930 -0.9825139 -0.9883392 -0.9761615 -0.97583859

5 -0.98541870 -0.9907522 -0.9950738 -0.9870182 -0.9923498 -0.9863868 -0.98898446

6 -0.92246261 -0.9480609 -0.9641607 -0.9322179 -0.9605870 -0.8502492 -0.95219149

fBodyGyroMeanZ fBodyGyroStdX fBodyGyroStdY fBodyGyroStdZ fBodyAccMagMean fBodyAccMagStd fBodyBodyAccJerkMagMean

1 -0.25594094 -0.5166919 -0.03350816 -0.4365622 -0.12862345 -0.3980326 -0.05711940

2 -0.45359721 -0.5658925 0.15153891 -0.5717078 -0.35239594 -0.4162601 -0.44265216

3 -0.03186943 -0.4954225 -0.18141473 -0.2384436 0.09658453 -0.1865303 0.02621849

4 -0.95131554 -0.9779042 -0.96234504 -0.9439178 -0.94778292 -0.9284448 -0.98526213

5 -0.98077312 -0.9874971 -0.98710773 -0.9823453 -0.98535636 -0.9823138 -0.99254248

6 -0.90930272 -0.8822965 -0.95123205 -0.9165825 -0.86176765 -0.7983009 -0.93330036

fBodyBodyAccJerkMagStd fBodyBodyGyroMagMean fBodyBodyGyroMagStd fBodyBodyGyroJerkMagMean fBodyBodyGyroJerkMagStd

1 -0.1034924 -0.1992526 -0.3210180 -0.3193086 -0.3816019

2 -0.5330599 -0.3259615 -0.1829855 -0.6346651 -0.6939305

3 -0.1040523 -0.1857203 -0.3983504 -0.2819634 -0.3919199

4 -0.9816062 -0.9584356 -0.9321984 -0.9897975 -0.9870496

5 -0.9925360 -0.9846176 -0.9784661 -0.9948154 -0.9946711

6 -0.9218040 -0.8621902 -0.8243194 -0.9423669 -0.9326607

**> write.table(result, file = "/Users/Nawjif/Documents/WebEx/hasan.txt")**