```r
library(dplyr)
```

```r
filename <- "Coursera_DS3_Final.zip"


# Checking if archieve already exists.

if (!file.exists(filename)){

  fileURL <-
"https://d396qusza40orc.cloudfront.net/getdata%2Fprojectfiles%2FU
CI%20HAR%20Dataset.zip"

  download.file(fileURL, filename, method="curl")

}


# Checking if folder exists

if (!file.exists("UCI HAR Dataset")) {

  unzip(filename)

}
```

```r
features <- read.table("UCI HAR Dataset/features.txt", col.names
= c("n","functions"))

activities <- read.table("UCI HAR Dataset/activity_labels.txt",
col.names = c("code", "activity"))

subject_test <- read.table("UCI HAR
Dataset/test/subject_test.txt", col.names = "subject")

x_test <- read.table("UCI HAR Dataset/test/X_test.txt", col.names
= features$functions)

y_test <- read.table("UCI HAR Dataset/test/y_test.txt", col.names
= "code")

subject_train <- read.table("UCI HAR
Dataset/train/subject_train.txt", col.names = "subject")

x_train <- read.table("UCI HAR Dataset/train/X_train.txt",
col.names = features$functions)

y_train <- read.table("UCI HAR Dataset/train/y_train.txt",
col.names = "code")
```

```r
X <- rbind(x_train, x_test)

Y <- rbind(y_train, y_test)

Subject <- rbind(subject_train, subject_test)

Merged_Data <- cbind(Subject, Y, X)
```

```r
TidyData <- Merged_Data %>% select(subject, code,
contains("mean"), contains("std"))
```

```r
TidyData$code <- activities[TidyData$code, 2]
```

```r
names(TidyData)[2] = "activity"

names(TidyData)<-gsub("Acc", "Accelerometer", names(TidyData))

names(TidyData)<-gsub("Gyro", "Gyroscope", names(TidyData))

names(TidyData)<-gsub("BodyBody", "Body", names(TidyData))

names(TidyData)<-gsub("Mag", "Magnitude", names(TidyData))

names(TidyData)<-gsub("^t", "Time", names(TidyData))

names(TidyData)<-gsub("^f", "Frequency", names(TidyData))

names(TidyData)<-gsub("tBody", "TimeBody", names(TidyData))

names(TidyData)<-gsub("-mean()", "Mean", names(TidyData),
ignore.case = TRUE)

names(TidyData)<-gsub("-std()", "STD", names(TidyData),
ignore.case = TRUE)

names(TidyData)<-gsub("-freq()", "Frequency", names(TidyData),
ignore.case = TRUE)

names(TidyData)<-gsub("angle", "Angle", names(TidyData))

names(TidyData)<-gsub("gravity", "Gravity", names(TidyData))
```

```r
FinalData <- TidyData %>%
```

```
    group_by(subject, activity) %>%

    summarise_all(funs(mean))

write.table(FinalData, "FinalData.txt", row.name=FALSE)
```

```
str(FinalData)
```

```
Classes 'grouped_df','tbl_df','tbl' and 'data.frame': 180 obs. of   88 variables:
 $ subject                                : int  1 1 1
1 1 1 2 2 2 ...
 $ activity                               : Factor w/
6 levels "LAYING","SITTING",..: 1 2 3 4 5 6 1 2 3 4 ...
 $ TimeBodyAccelerometer.mean...X          : num  0.222
0.261 0.279 0.277 0.289 ...
 $ TimeBodyAccelerometer.mean...Y          : num  -
0.04051 -0.00131 -0.01614 -0.01738 -0.00992 ...
 $ TimeBodyAccelerometer.mean...Z          : num  -
0.113 -0.105 -0.111 -0.111 -0.108 ...
 $ TimeGravityAccelerometer.mean...X       : num  -
0.249 0.832 0.943 0.935 0.932 ...
 $ TimeGravityAccelerometer.mean...Y       : num  0.706
0.204 -0.273 -0.282 -0.267 ...
 $ TimeGravityAccelerometer.mean...Z       : num
0.4458 0.332 0.0135 -0.0681 -0.0621 ...
 $ TimeBodyAccelerometerJerk.mean...X      : num
0.0811 0.0775 0.0754 0.074 0.0542 ...
 $ TimeBodyAccelerometerJerk.mean...Y      : num
0.003838 -0.000619 0.007976 0.028272 0.02965 ...
 $ TimeBodyAccelerometerJerk.mean...Z      : num
0.01083 -0.00337 -0.00369 -0.00417 -0.01097 ...
 $ TimeBodyGyroscope.mean...X              : num  -
0.0166 -0.0454 -0.024 -0.0418 -0.0351 ...
 $ TimeBodyGyroscope.mean...Y              : num  -
0.0645 -0.0919 -0.0594 -0.0695 -0.0909 ...
 $ TimeBodyGyroscope.mean...Z              : num
0.1487 0.0629 0.0748 0.0849 0.0901 ...
```

```
 $ TimeBodyGyroscopeJerk.mean...X                    : num  -
0.1073 -0.0937 -0.0996 -0.09 -0.074 ...

 $ TimeBodyGyroscopeJerk.mean...Y                    : num  -
0.0415 -0.0402 -0.0441 -0.0398 -0.044 ...

 $ TimeBodyGyroscopeJerk.mean...Z                    : num  -
0.0741 -0.0467 -0.049 -0.0461 -0.027 ...

 $ TimeBodyAccelerometerMagnitude.mean..             : num  -
0.8419 -0.9485 -0.9843 -0.137 0.0272 ...

 $ TimeGravityAccelerometerMagnitude.mean..          : num  -
0.8419 -0.9485 -0.9843 -0.137 0.0272 ...

 $ TimeBodyAccelerometerJerkMagnitude.mean..         : num  -
0.9544 -0.9874 -0.9924 -0.1414 -0.0894 ...

 $ TimeBodyGyroscopeMagnitude.mean..                 : num  -
0.8748 -0.9309 -0.9765 -0.161 -0.0757 ...

 $ TimeBodyGyroscopeJerkMagnitude.mean..             : num  -
0.963 -0.992 -0.995 -0.299 -0.295 ...

 $ FrequencyBodyAccelerometer.mean...X               : num  -
0.9391 -0.9796 -0.9952 -0.2028 0.0382 ...

 $ FrequencyBodyAccelerometer.mean...Y               : num  -
0.86707 -0.94408 -0.97707 0.08971 0.00155 ...

 $ FrequencyBodyAccelerometer.mean...Z               : num  -
0.883 -0.959 -0.985 -0.332 -0.226 ...

 $ FrequencyBodyAccelerometer.meanFreq...X           : num  -
0.1588 -0.0495 0.0865 -0.2075 -0.3074 ...

 $ FrequencyBodyAccelerometer.meanFreq...Y           : num
0.0975 0.0759 0.1175 0.1131 0.0632 ...

 $ FrequencyBodyAccelerometer.meanFreq...Z           : num
0.0894 0.2388 0.2449 0.0497 0.2943 ...

 $ FrequencyBodyAccelerometerJerk.mean...X           : num  -
0.9571 -0.9866 -0.9946 -0.1705 -0.0277 ...

 $ FrequencyBodyAccelerometerJerk.mean...Y           : num  -
0.9225 -0.9816 -0.9854 -0.0352 -0.1287 ...

 $ FrequencyBodyAccelerometerJerk.mean...Z           : num  -
0.948 -0.986 -0.991 -0.469 -0.288 ...

 $ FrequencyBodyAccelerometerJerk.meanFreq...X       : num  0.132
0.257 0.314 -0.209 -0.253 ...

 $ FrequencyBodyAccelerometerJerk.meanFreq...Y       : num
0.0245 0.0475 0.0392 -0.3862 -0.3376 ...

 $ FrequencyBodyAccelerometerJerk.meanFreq...Z       : num
0.02439 0.09239 0.13858 -0.18553 0.00937 ...
```

```
 $ FrequencyBodyGyroscope.mean...X                    : num  -0.85
-0.976 -0.986 -0.339 -0.352 ...

 $ FrequencyBodyGyroscope.mean...Y                    : num  -
0.9522 -0.9758 -0.989 -0.1031 -0.0557 ...

 $ FrequencyBodyGyroscope.mean...Z                    : num  -
0.9093 -0.9513 -0.9808 -0.2559 -0.0319 ...

 $ FrequencyBodyGyroscope.meanFreq...X                : num  -
0.00355 0.18915 -0.12029 0.01478 -0.10045 ...

 $ FrequencyBodyGyroscope.meanFreq...Y                : num  -
0.0915 0.0631 -0.0447 -0.0658 0.0826 ...

 $ FrequencyBodyGyroscope.meanFreq...Z                : num
0.010458 -0.029784 0.100608 0.000773 -0.075676 ...

 $ FrequencyBodyAccelerometerMagnitude.mean..         : num  -
0.8618 -0.9478 -0.9854 -0.1286 0.0966 ...

 $ FrequencyBodyAccelerometerMagnitude.meanFreq..     : num
0.0864 0.2367 0.2846 0.1906 0.1192 ...

 $ FrequencyBodyAccelerometerJerkMagnitude.mean..     : num  -
0.9333 -0.9853 -0.9925 -0.0571 0.0262 ...

 $ FrequencyBodyAccelerometerJerkMagnitude.meanFreq..: num
0.2664 0.3519 0.4222 0.0938 0.0765 ...

 $ FrequencyBodyGyroscopeMagnitude.mean..             : num  -
0.862 -0.958 -0.985 -0.199 -0.186 ...

 $ FrequencyBodyGyroscopeMagnitude.meanFreq..         : num  -
0.139775 -0.000262 -0.028606 0.268844 0.349614 ...

 $ FrequencyBodyGyroscopeJerkMagnitude.mean..         : num  -
0.942 -0.99 -0.995 -0.319 -0.282 ...

 $ FrequencyBodyGyroscopeJerkMagnitude.meanFreq..     : num  0.176
0.185 0.334 0.191 0.19 ...

 $ Angle.TimeBodyAccelerometerMean.Gravity.           : num
0.021366 0.027442 -0.000222 0.060454 -0.002695 ...

 $ Angle.TimeBodyAccelerometerJerkMean..GravityMean. : num
0.00306 0.02971 0.02196 -0.00793 0.08993 ...

 $ Angle.TimeBodyGyroscopeMean.GravityMean.           : num  -
0.00167 0.0677 -0.03379 0.01306 0.06334 ...

 $ Angle.TimeBodyGyroscopeJerkMean.GravityMean.       : num
0.0844 -0.0649 -0.0279 -0.0187 -0.04 ...

 $ Angle.X.GravityMean.                               : num  0.427
-0.591 -0.743 -0.729 -0.744 ...

 $ Angle.Y.GravityMean.                               : num  -
0.5203 -0.0605 0.2702 0.277 0.2672 ...
```

```
 $ Angle.Z.GravityMean.                              : num  -
0.3524 -0.218 0.0123 0.0689 0.065 ...

 $ TimeBodyAccelerometer.std...X                     : num  -
0.928 -0.977 -0.996 -0.284 0.03 ...

 $ TimeBodyAccelerometer.std...Y                     : num  -
0.8368 -0.9226 -0.9732 0.1145 -0.0319 ...

 $ TimeBodyAccelerometer.std...Z                     : num  -
0.826 -0.94 -0.98 -0.26 -0.23 ...

 $ TimeGravityAccelerometer.std...X                  : num  -
0.897 -0.968 -0.994 -0.977 -0.951 ...

 $ TimeGravityAccelerometer.std...Y                  : num  -
0.908 -0.936 -0.981 -0.971 -0.937 ...

 $ TimeGravityAccelerometer.std...Z                  : num  -
0.852 -0.949 -0.976 -0.948 -0.896 ...

 $ TimeBodyAccelerometerJerk.std...X                 : num  -
0.9585 -0.9864 -0.9946 -0.1136 -0.0123 ...

 $ TimeBodyAccelerometerJerk.std...Y                 : num  -
0.924 -0.981 -0.986 0.067 -0.102 ...

 $ TimeBodyAccelerometerJerk.std...Z                 : num  -
0.955 -0.988 -0.992 -0.503 -0.346 ...

 $ TimeBodyGyroscope.std...X                         : num  -
0.874 -0.977 -0.987 -0.474 -0.458 ...

 $ TimeBodyGyroscope.std...Y                         : num  -
0.9511 -0.9665 -0.9877 -0.0546 -0.1263 ...

 $ TimeBodyGyroscope.std...Z                         : num  -
0.908 -0.941 -0.981 -0.344 -0.125 ...

 $ TimeBodyGyroscopeJerk.std...X                     : num  -
0.919 -0.992 -0.993 -0.207 -0.487 ...

 $ TimeBodyGyroscopeJerk.std...Y                     : num  -
0.968 -0.99 -0.995 -0.304 -0.239 ...

 $ TimeBodyGyroscopeJerk.std...Z                     : num  -
0.958 -0.988 -0.992 -0.404 -0.269 ...

 $ TimeBodyAccelerometerMagnitude.std..              : num  -
0.7951 -0.9271 -0.9819 -0.2197 0.0199 ...

 $ TimeGravityAccelerometerMagnitude.std..           : num  -
0.7951 -0.9271 -0.9819 -0.2197 0.0199 ...

 $ TimeBodyAccelerometerJerkMagnitude.std..          : num  -
0.9282 -0.9841 -0.9931 -0.0745 -0.0258 ...

 $ TimeBodyGyroscopeMagnitude.std..                  : num  -
0.819 -0.935 -0.979 -0.187 -0.226 ...
```

```
 $ TimeBodyGyroscopeJerkMagnitude.std..              : num  -
0.936 -0.988 -0.995 -0.325 -0.307 ...

 $ FrequencyBodyAccelerometer.std...X                : num  -
0.9244 -0.9764 -0.996 -0.3191 0.0243 ...

 $ FrequencyBodyAccelerometer.std...Y                : num  -
0.834 -0.917 -0.972 0.056 -0.113 ...

 $ FrequencyBodyAccelerometer.std...Z                : num  -
0.813 -0.934 -0.978 -0.28 -0.298 ...

 $ FrequencyBodyAccelerometerJerk.std...X            : num  -
0.9642 -0.9875 -0.9951 -0.1336 -0.0863 ...

 $ FrequencyBodyAccelerometerJerk.std...Y            : num  -
0.932 -0.983 -0.987 0.107 -0.135 ...

 $ FrequencyBodyAccelerometerJerk.std...Z            : num  -
0.961 -0.988 -0.992 -0.535 -0.402 ...

 $ FrequencyBodyGyroscope.std...X                    : num  -
0.882 -0.978 -0.987 -0.517 -0.495 ...

 $ FrequencyBodyGyroscope.std...Y                    : num  -
0.9512 -0.9623 -0.9871 -0.0335 -0.1814 ...

 $ FrequencyBodyGyroscope.std...Z                    : num  -
0.917 -0.944 -0.982 -0.437 -0.238 ...

 $ FrequencyBodyAccelerometerMagnitude.std..         : num  -
0.798 -0.928 -0.982 -0.398 -0.187 ...

 $ FrequencyBodyAccelerometerJerkMagnitude.std..     : num  -
0.922 -0.982 -0.993 -0.103 -0.104 ...

 $ FrequencyBodyGyroscopeMagnitude.std..             : num  -
0.824 -0.932 -0.978 -0.321 -0.398 ...

 $ FrequencyBodyGyroscopeJerkMagnitude.std..         : num  -
0.933 -0.987 -0.995 -0.382 -0.392 ...

 - attr(*, "vars")= chr "subject"

 - attr(*, "drop")= logi TRUE
```