Homework 8

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```r
library(boot)
library(ggplot2)
library(plyr)
library(reshape2)
```

```r
# Read input data -----------------------------------------------------------
data <- read.table("emap.build08.txt", header = TRUE)
data <- data[ , !(names(data) %in% c("LAT", "LON"))]
# # Log varaibles -----------------------------------------------------------
# vars_to_log <- c("LK.HA", "POPDENKM", "TOT.RD")
# data[vars_to_log] <- lapply(data[vars_to_log], function(x) log(x + 1))
# names(data) <- ifelse(names(data) %in% vars_to_log,
#                   paste("LOG", names(data), sep = "."),
#                   names(data))
```

```r
n <- 100000
get_median <- function(data, index) median(data[index])
boot_info <- boot(data$LK.HA, get_median, n)
boot_info
```

```
##
## ORDINARY NONPARAMETRIC BOOTSTRAP
##
##
## Call:
## boot(data = data$LK.HA, statistic = get_median, R = n)
##
##
## Bootstrap Statistics :
##      original   bias    std. error
## t1*    27.36    1.676        5.227
```

The original median is 27.36 and the mean median of 105 bootstrap replicates is 29.036.

```r
boot.ci(boot_info, type = "basic")
```

```
## BOOTSTRAP CONFIDENCE INTERVAL CALCULATIONS
## Based on 100000 bootstrap replicates
##
## CALL :
## boot.ci(boot.out = boot_info, type = "basic")
##
## Intervals :
## Level      Basic
## 95%    (14.71, 33.09 )
## Calculations and Intervals on Original Scale
```