

R Notebook

Code ▼

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install.packages("openxlsx")
library(openxlsx)
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#1
mins2008 <- c(3.5,7.2,1.7,4.1,5.5,5.6,3.2,6.1,6.7,3.0,2.5,6.6,1.2,2.2,2.4,1.5,5.5,3.4,4.5,6.6)
mins2003 <- c(5.7,3.3,1.8,3.2,3.4,2.4,3.3,4.6,3.4,3.3,3.3,2.3,3.2,4.7,2.5,1.6,3.5,2.5,5.6,1.4)
true2003 <- 3.3
true2008 <- 4.4
mean2008 <- mean(mins2008)
mean2003 <- mean(mins2003)
std2008 <- sd(mins2008)
std2003 <- sd(mins2003)
z <- (mean2008-mean2003)/sqrt((std2008/20)+(std2003/20))
res <- 1- pnorm(z)
print(paste("the pvalue of the z score is statistically significant with a value of ",res))
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#2
xlsxFile <- system.file("extdata","HW_2_R.xlsx", package = "openxlsx")
df1 <- read.xlsx(xlsxFile = "HW_2_R.xlsx", sheet = 3, skipEmptyRows = FALSE)
df1$d <- df1$After - df1$Before
df1$d2 <- (df1$After - df1$Before)**2
z <- qnorm(1-0.005)
test <- ((mean(df1$After)-mean(df1$Before))/sqrt(((sd(df1$After)**2)/38)+((sd(df1$Before)**2)/38)))
res <- 1-pnorm(test)
print(paste("the pvalue of the z score is statistically significant with a value of ",res))
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avgInsurance <- 817
xlsxFile <- system.file("extdata","HW_2_R.xlsx", package = "openxlsx")
df1 <- read.xlsx(xlsxFile = "HW_2_R.xlsx", sheet = 4, skipEmptyRows = FALSE)
test <- (mean(df1$Expense)- avgInsurance)/(sd(df1$Expense)/sqrt(length(df1$Expense)))
za <- qnorm(1-0.05)
lower <- mean(df1$Expense)-za*(sd(df1$Expense)/sqrt(length(df1$Expense)))
upper <- mean(df1$Expense)+za*(sd(df1$Expense)/sqrt(length(df1$Expense)))
res <- 1-pnorm(test)
print(paste("the pvalue of the z score is statistically significant with a value of ",res,". The mean falls below the lower threshold with the lower portion of the confidence interval being 825 "))
```