Tarea-7.R

User

2021-09-12

```
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# 9/9/2021
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############

# Tarea 7

costal <- c(87.7, 80.01, 77.28, 78.76, 81.52, 74.2, 80.71, 79.5, 77.87, 81.94, 80.7,
            82.32, 75.78, 80.19, 83.91, 79.4, 77.52, 77.62, 81.4, 74.89, 82.95,
            73.59, 77.92, 77.18, 79.83, 81.23, 79.28, 78.44, 79.01, 80.47, 76.23,
            78.89, 77.14, 69.94, 78.54, 79.7, 82.45, 77.29, 75.52, 77.21, 75.99,
            81.94, 80.41, 77.7)
n <- length(costal)
n # Num de observaciones
```

```
## [1] 44
```

```
costa.media <- mean(costal)
costa.media # Media
```

```
## [1] 78.91068
```

```
costa.sd <- sd(costal)
costa.sd # Desviacion estandar
```

```
## [1] 3.056023
```

```
costa.se <- costa.sd/sqrt(n)
costa.se
```

```
## [1] 0.4607128
```

```
costa.T <- (costa.media - 80)/ costa.se
costa.T
```

```
## [1] -2.364419
```

```
pt(costa.T, df = n-1)
```

```
## [1] 0.01132175
```

```
pt
```

```
## function (q, df, ncp, lower.tail = TRUE, log.p = FALSE)
## {
##     if (missing(ncp))
##         .Call(C_pt, q, df, lower.tail, log.p)
##     else .Call(C_pnt, q, df, ncp, lower.tail, log.p)
```

```
## }
## <bytecode: 0x000000001507ec88>
## <environment: namespace:stats>
```

```
t.test(costal, mu=80)
```

```
##
##  One Sample t-test
##
## data:  costal
## t = -2.3644, df = 43, p-value = 0.02264
## alternative hypothesis: true mean is not equal to 80
## 95 percent confidence interval:
##  77.98157 79.83980
## sample estimates:
## mean of x
##  78.91068
```

```
shapiro.test(costal)#dist normal
```

```
##
##  Shapiro-Wilk normality test
##
## data:  costal
## W = 0.97868, p-value = 0.5815
```

```
# df = 43 grados de libertad
# Valor de p= 0.01132

# Ejercicio 1 ------------------------------------------------------------

# df = 43 grados de libertad
# Valor de p= 0.01132
# Se acepta la hipotecis H0
# los valores son significativamemnte iguales

# Ejercicio 2 ------------------------------------------------------------
azufre <- c(15.8, 22.7, 26.8, 19.1, 18.5, 14.4, 8.3, 25.9, 26.4, 9.8,
            22.7, 15.2, 23.0, 29.6, 21.9, 10.5, 17.3, 6.2, 18.0, 22.9,
            24.6, 19.4, 12.3, 15.9, 11.2, 14.7, 20.5, 26.6, 20.1, 17.0,
            22.3, 27.5, 23.9, 17.5, 11.0, 20.4, 16.2, 20.8, 13.3, 18.1)
n <- length(azufre)
n
```

```
## [1] 40
```

```
azufre.media <- mean(azufre)
azufre.media
```

```
## [1] 18.7075
```

```
azufre.sd <- sd(azufre)
azufre.sd
```

```
## [1] 5.716974
```

```
azufre.se <- azufre.sd/sqrt(n)
azufre.se
```

```
## [1] 0.9039329
```

```
azufre.T <- (azufre.media - 17.5)/azufre.se
azufre.T
```

```
## [1] 1.335829
```

```
pt(azufre.T, df = n-1)   #valor de p
```

```
## [1] 0.9053257
```

```
t.test(azufre, mu = 17.5)
```

```
##
##  One Sample t-test
##
## data:  azufre
## t = 1.3358, df = 39, p-value = 0.1893
## alternative hypothesis: true mean is not equal to 17.5
## 95 percent confidence interval:
##  16.87912 20.53588
## sample estimates:
## mean of x
##   18.7075
```

```
shapiro.test(azufre)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  azufre
## W = 0.98503, p-value = 0.8654
```

```
# 0.1893
# intervalos 16.87912 20.53588
# grados de libertad 39
# se acepta la hipotesis nula

# Ejercicio 3 ------------------------------------------------------------

file <- paste0("https://raw.githubusercontent.com/mgtagle/MCF-202_Agosto_2021/main/TEMPAIRE_DIA.csv")
temperatura <- read.csv(file)
head(temperatura)
```

```
##   ï..estacionID         fecha temp_media tmax tmin
## 1         AGSAG 08/09/21 0:00       20.5 26.0 15.0
## 2         ALMAG 08/09/21 0:00       15.5 21.0 10.0
## 3         ANVAG 08/09/21 0:00       19.5 25.0 14.0
## 4         CDRAG 08/09/21 0:00       19.0 23.5 14.5
## 5         CNSAG 08/09/21 0:00       20.0 25.5 14.5
## 6         CSOAG 08/09/21 0:00       14.0 20.0  8.0
```

```
n <- length(temperatura$temp_media)
n
```

```
## [1] 846
```

```
temp.media <- mean(temperatura$temp_media)
temp.media
```

```
## [1] 23.62908
```

```
temp.sd <- sd(temperatura$temp_media)
temp.sd
```

```
## [1] 5.140866
```

```
temp.se <- temp.sd/sqrt(n)
temp.se
```

```
## [1] 0.1767466
```

```
temp.T <- (temp.media - 24)/temp.se
temp.T
```

```
## [1] -2.098609
```

```
pt(temp.T, df = n-1)
```

```
## [1] 0.01807384
```

```
t.test(temperatura$temp_media)
```

```
##
##  One Sample t-test
##
## data:  temperatura$temp_media
## t = 133.69, df = 845, p-value < 2.2e-16
## alternative hypothesis: true mean is not equal to 0
## 95 percent confidence interval:
##  23.28216 23.97599
## sample estimates:
## mean of x
##  23.62908
```

```
#
# intervalo de confianza 845
# grados de libertad 23.28216 23.97599
# Se acepta la hipotesis nula
# el valor promedio no es mayor
```