practice11

Qiang Liu

2022-11-15

```
> library(MASS) # load the MASS package
```

```
## Warning:  'MASS' R 4.2.1
```

```
> height.survey = survey$Height
> mean(height.survey, na.rm=TRUE)
```

```
## [1] 172.3809
```

```
> height.response = na.omit(survey$Height)
> sigma <- 9.48
> n <- length(height.response)
> sem <- sigma/sqrt(n)
> sem
```

```
## [1] 0.6557453
```

```
> E <- qnorm(.975) * sem
> E
```

```
## [1] 1.285237
```

```
> xbar <- mean(height.response) # sample mean
> xbar + c(-E, E)
```

```
## [1] 171.0956 173.6661
```

```
> library(TeachingDemos)
```

```
## Warning:  'TeachingDemos' R 4.2.2
```

```
> z.test(height.response, sd=sigma)
```

```
##
##  One Sample z-test
##
## data:  height.response
## z = 262.88, n = 209.00000, Std. Dev. = 9.48000, Std. Dev. of the sample
## mean = 0.65575, p-value < 2.2e-16
## alternative hypothesis: true mean is not equal to 0
## 95 percent confidence interval:
##  171.0956 173.6661
## sample estimates:
## mean of height.response
##                172.3809
```

```
> height.response = na.omit(survey$Height)
> ## Then we compute the sample standard deviation.
> n <- length(height.response)
> s <- sd(height.response) # sample standard deviation
> SE <- s/sqrt(n); SE
```

```
## [1] 0.6811677
```

```
> E <- qt(.975, df=n-1)*SE; E
```

```
## [1] 1.342878
```

```
> xbar <- mean(height.response) # sample mean
> xbar + c(-E, E)
```

```
## [1] 171.0380 173.7237
```

```
> t.test(height.response)
```

```
##
##  One Sample t-test
##
## data:  height.response
## t = 253.07, df = 208, p-value < 2.2e-16
## alternative hypothesis: true mean is not equal to 0
## 95 percent confidence interval:
##  171.0380 173.7237
## sample estimates:
## mean of x
##  172.3809
```