Z-Test

2024-02-14

null hypothesis: mean sales >- 3500 alternative hypothesis: mean sales < 3500 Z-Test = (X-Bar-mean)/sd/sqrtn where n =100

df <- read.csv("shopsales.csv")  
summary(df)

## ORDERNUMBER QUANTITYORDERED PRICEEACH ORDERLINENUMBER   
## Min. :10103 Min. :20.00 Min. : 34.91 Min. : 1.000   
## 1st Qu.:10177 1st Qu.:27.00 1st Qu.:100.00 1st Qu.: 2.000   
## Median :10251 Median :36.00 Median :100.00 Median : 4.000   
## Mean :10250 Mean :35.37 Mean : 96.58 Mean : 5.384   
## 3rd Qu.:10318 3rd Qu.:42.00 3rd Qu.:100.00 3rd Qu.: 8.000   
## Max. :10424 Max. :66.00 Max. :100.00 Max. :17.000   
## SALES ORDERDATE STATUS QTR\_ID   
## Min. : 733.1 Length:99 Length:99 Min. :1.000   
## 1st Qu.: 3660.9 Class :character Class :character 1st Qu.:2.000   
## Median : 5016.8 Mode :character Mode :character Median :3.000   
## Mean : 5306.2 Mean :2.768   
## 3rd Qu.: 7023.9 3rd Qu.:4.000   
## Max. :12001.0 Max. :4.000   
## MONTH\_ID YEAR\_ID PRODUCTLINE MSRP   
## Min. : 1.000 Min. :2003 Length:99 Min. : 95.0   
## 1st Qu.: 4.000 1st Qu.:2003 Class :character 1st Qu.: 95.0   
## Median : 8.000 Median :2004 Mode :character Median :118.0   
## Mean : 7.182 Mean :2004 Mean :153.5   
## 3rd Qu.:11.000 3rd Qu.:2004 3rd Qu.:214.0   
## Max. :12.000 Max. :2005 Max. :214.0   
## PRODUCTCODE CUSTOMERNAME PHONE ADDRESSLINE1   
## Length:99 Length:99 Length:99 Length:99   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## ADDRESSLINE2 CITY STATE POSTALCODE   
## Length:99 Length:99 Length:99 Length:99   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## COUNTRY TERRITORY CONTACTLASTNAME CONTACTFIRSTNAME   
## Length:99 Length:99 Length:99 Length:99   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## DEALSIZE   
## Length:99   
## Class :character   
## Mode :character   
##   
##   
##

zstat <- (mean(df$SALES)-3500)/(sd(df$SALES)/sqrt(nrow(df)))  
zstat

## [1] 7.681696

pt(zstat, 99)

## [1] 1

since p-value is 1 > -05 we fail to reject the null hypothesis.