Assignment 3

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Importing Data

df<- read.csv("C:/Users/mardi/Downloads/Expt 3- Dataset\_Hypothesis\_csv.csv");  
head(df)

## SNO Life\_Hrs  
## 1 1 9794.01  
## 2 2 10046.94  
## 3 3 9958.41  
## 4 4 9705.15  
## 5 5 10093.63  
## 6 6 9574.62

1. Suppose the manufacturer claims that the mean lifetime of a ball bearing is 10000hours. The auditing team stated that the mean lifetime is less than what is claimed. On the basis of a randomly chosen sample of 50 ball bearings as given in the dataset, at 0.05 significance level, can we reject the claim of the manufacturer? What will be your interpretation if the significance level is made as 0.01? Consider the data set titled “Hypothesis\_csv1.csv”.

Mean of Life hrs of table

Mean=mean(df$Life\_Hrs)  
Mean

## [1] 9900.001

Stanard Deviation of life hrs of table

SD=sd(df$Life\_Hrs)  
SD

## [1] 132.1739

Finding z score of life hrs

z=(Mean-10000)/SD\*sqrt(50);  
z

## [1] -5.349778

Finding P value for given z score

p=pnorm(z)  
p

## [1] 4.403111e-08

Since p value is less than 0.05, We will reject null hypothesis that is on basis of sample data

1. The nutrition label on a bag of potato chips says that a one ounce (28 gram) serving of potato chips has 130 calories and contains ten grams of fat, with three grams of saturated fat. A random sample of 35 bags yielded a sample mean of 134 calories with a standard deviation of 17 calories. Is there evidence that the nutrition label does not provide an accurate measure of calories in the bags of potato chips? We have verified the independence, sample size, and skew conditions are satisfied. Take alpha as 5% and 1%.

Defining mean

Mean2=130  
x=134  
SD2=17  
n2=35  
Alpha=0.05

Finding z score for calories

Z2=(x-Mean2)/SD2\*sqrt(n2);  
Z2

## [1] 1.392019

Finding p value for calories

p2=pnorm(Z2, lower.tail = FALSE)\*2  
p2

## [1] 0.1639167

As p value is greater than given alpha either it be 5% or 1% , that is why we fail to reject the null hypothesis