STATISTICS

ASSIGNMENT (CONFIDENCE INTERVALS)

EXERCISE 1.

Suppose scores on exams in statistics are normally distributed with an unknown population mean and a population standard deviation of 3 points. A random sample of 36 scores is taken and gives a sample mean (sample mean score) of 68. Find a confidence interval estimate for the population mean exam score (the mean score on all exams).

Find a 90% confidence interval for the true (population) mean of statistics exam scores.

Solution:

Sx=3

n=36

Xbar=68

%90 confidence interval-one sample test:

(68-1,645.3/√36,68+1,645.3/√36)=*(67.17, 68.82)*

EXERCISE 2.

What is the normal body temperature for healthy humans? A random sample of 130 healthy human body temperatures provided by Allen Shoemaker7 yielded 98.25 degrees and standard deviation 0.73 degrees.

Give a 99% confidence interval for the average body temperature of healthy people.

Solution:

n=130

Xbar=98,25

Sx=0,73

%99 confidence İnterval:

(98.25-2.58*0.73/√130) , (98.25+2.58*0.73/√130)=97.09 ,98.41

EXERCISE 3.

The administrators for a hospital wished to estimate the average number of days required for inpatient treatment of patients between the ages of 25 and 34. A random sample of 500 hospital patients between these ages produced a mean and standard deviation equal to 5.4 and 3.1 days, respectively.

Construct a 95% confidence interval for the mean length of stay for the population of patients from which the sample was drawn.

Solution:

n=500
Sx=5,4
Xbar=3,1
%95 lik güven aralığı için :
(3.1-1.96*5.4/√500,3.1+1.96*5.4/√500)=(2.62,3.57)