Virtual Lab #4

SAMPLING DISTRIBUTIONS

Find the following probabilities (either from table or R)

$P(Z < 2.01)$

$P(Z > -0.56)$

$P(-0.34 < Z < 0.97)$

Problem #1

Assume the average daily number of web page hits a company gets follows a normal distribution with a mean of 2341.36 and s.d. of 516.79. What is the probability that a sample of 49 days over the past year has an average web page hit above 2500?

Problem #2

Assume the average daily number of web page hits a company gets follows a normal distribution with a mean of 2341.36 and s.d. of 516.79. What is the probability that a sample of 49 days over the past year has an average web page hit above 2500?

How about a sample of 121 days instead?

Problem #3

Assume the average daily number of web page hits a company gets follows a normal distribution with a mean of 2341.36 and s.d. of 516.79. What is the probability that a sample of 49 days over the past year has an average web page hit above 2500?

How about a sample of 121 days instead?

What if the distribution wasn't normal?

Problem #4

Assume that I own a chain of retail stores located at major cities across the country. The daily sales in thousands of dollars at each store has a mean of 17.06 and a s.d. of 5.12. What is the probability that a sample of 64 of my stores averages sales of more than $19K?

Problem #5

Assume that I own a chain of retail stores located at major cities across the country. The daily sales in thousands of dollars at each store has a mean of 17.06 and a s.d. of 5.12. What is the probability that a sample of 64 of my stores averages sales of more than $19K?

I am worried about one of my managers performance in retail sales. He manages 100 of my stores and they only average $14.35K in sales per day. What is the probability I randomly select 100 of my stores and get sales numbers that low?

What is the quantile value from the standard normal used for the following Confidence Intervals?

99%

94%

85%

Problem #6

An electronics manufacturer provides a full warranty on a certain type of television they make. The company will replace the television if any problems occur in the first year of use. The manager in charge of the warranty division wants to determine the proportion of warranties that are claimed. The manager samples 150 customer records and found that 17 of the customers used their warranty. Create a 95% confidence interval for the estimate of the proportion of customers who use their warranties.