Confidence Interval Exercises

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Session 1. Estimation of the Mean

Exercise 1.1 *Exercise 9.1 p. 150 in Frisvold and Moe.*

Exercise 1.2 *Exercise 9.2 p. 153 in Frisvold and Moe.*

Exercise 1.3 *Running a traffic simulator twelve times, counting the number of vehicles passing the roundabout within a five-minute intervals, you get the following counts*

$$50, 39, 42, 55, 57, 45, 51, 58, 64, 48, 49, 54$$

Assuming that the number of cars per five minutes is normally distributed, calculate a 95% confidence interval for the throughput.

1.1 Binomial Proportion

Exercise 1.4 *Suppose you want to find out the percentage p of Norwegian students who think they have made a bad choice of degree programme. You poll 1000 students and 177 say they think their choice was bad. Give a 95% confidence interval for p.*

Exercise 1.5 *Exercise 9.11 p. 165 in Frisvold and Moe.*

Exercise 1.6 (See video for solution) *Suppose you are testing a system with error probability of* 0.01*. How many trials do you need to make your estimator $\hat{p}_e$ fall between* 0.011 *and* 0.009 99.75% *of the time?*