Building Confidence Intervals
Assignment 7

Name: SKYLAR VALERIO

IV 1. In a survey of 3450 registered voters who reside in California, 1789 were found to be republican. Construct a confidence estimate for the true percentage of republicans among registered voters in California. Use a confidence level of 95%.

[0.5019, 0.5352]

I 2. Chips Ahoy wants to perform a study to determine the number of chocolate chips in their cookies. To that end, they collected a sample of 40 cookies. The mean of this sample is 23.95 chocolate chips. From past studies, we know that the standard deviation is 2.55 chocolate chips. Construct a 99% confidence interval of the mean of chocolate chips in all such cookies.

N = 40
M = 23.95
ST = 2.55
C = 2.575

[22.9118, 24.9882]

IV 3. In a survey of 3005 adults, it was found that 81% used at least one prescription medication. Construct a 90% confidence interval estimate of the percentage of adults who use at least one prescription medication.

N = 3005
X = 2434.05
90% = 1.645

[0.7982, 0.8218]

V 4. Find the sample size needed to estimate the percentage of republicans among registered voters in California. Use a 0.03 margin of error; use a confidence level of 90%.

E = 0.03
90% = 1.645

752

IV 5. In a Gallup poll of 557 randomly selected adults, 284 said that they were underpaid. Construct a 95% confidence interval estimate for the proportion of adults who say they are underpaid.

N = 557
X = 284
95% = 1.96

[0.4684, 0.5514]

III

6. A local grocer wants to find out whether how many mixed flower bouquets in his inventory everyday. To that end, kept records of the daily bouquet sales for the last 27 days. The average number of bouquets sold every day was 11.8 and the sample standard deviation is 2.3. Construct a 99% confidence interval for the number of bouquets sold on a given day.

[11.461, 12.139)

M = 11.8
ST. = 2.3
99% CONF
T = 2.626

IV

7. In a Gallup poll, 1025 randomly selected adults were surveyed and 57% of them said that they used the Internet for shopping at least a few times a year. Construct a 99% confidence interval for the true proportion of adults who use the Internet for shopping.

[0.5302, 0.6098]

N = 1025
X = 584.25
99% = 2.575

V

8. As a manager for an advertising company, you must plan a campaign designed to increase Twitter usage. A recent survey suggests that 85% of adults know what Twitter is. How many adults should you survey in order to be 90% confident that your estimate is within 5% of the true population proportion?

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p = 0.85
q = 0.15
90% = 1.645

IV

9. The CBS' television show *60 Minutes* has been successful for many years. That show recently had a share of 20, which means that among the TV sets in use at the time the show aired, 20% were tuned to *60 Minutes*. Assume that this is based on a sample size of 5000 – which is a typical sample size for this kind of experiments. Construct a 95% confidence interval for the true proportion of TV sets that are tuned to *60 Minutes*.

[0.1889, 0.2111]

N = 5000
X = 1000
95% = 1.96

III

10. A group of 463 first-year college students were asked, "About how many hours do you study during a typical week?" The mean response is 15.3 hours. Assume that the study time is normally distributed with a sample standard deviation of 8.5 hours. Construct a 99% confidence level interval for the mean study time of all first-year students.

[14.263, 16.337]

N = 463
M = 15.3
ST = 8.5
99% = 2.575

2.626