GBA 5140 Statistics Essentials for Business Analytics

Problem Set 5

Interval Estimation

**Problem 1**

Costs are rising for all kinds of medical care. The mean monthly rent at assisted-living facilities was reported to have increased 17% over the last five years to $3486 (The Wall Street Journal, October 27, 2012). Assume this cost estimate is based on a sample of 120 facilities and, from past studies, it can be assumed that the population standard deviation is $650. Write R code for the following tasks. ***Post your R code and RStudio output (console output) below each task.***

1. Develop a 95% confidence interval estimate of the population mean monthly rent.

Text

Description automatically generatedText

Description automatically generated

**Problem 2**

According to statistics reported on CNBC, a surprising number of motor vehicles are not covered by insurance. Sample results, consistent with the CNBC report, showed 46 of 200 vehicles were not covered by insurance. Write R code for the following tasks. ***Post your R code and RStudio output (console output) below each task.***

1. Develop a 95% confidence interval for the population proportion.Graphical user interface

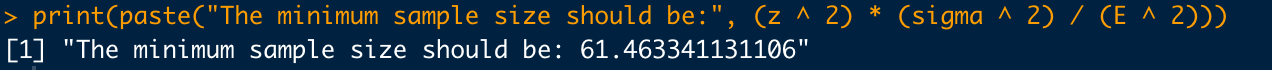
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**Problem 3**

Write R code for the following tasks. ***Post your R code and RStudio output (console output) below each task.***

1. How large a sample should be selected to provide a 95% confidence interval with a margin of error of 10? Assume that the population standard deviation is 40.Graphical user interface, text

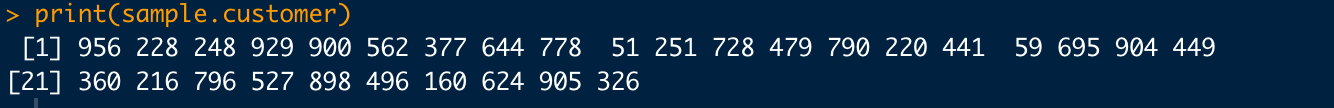
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**Problem 4 (Use R Version: 4.0.0+)**

Load “Data-SouthGermanCredit.csv” into RStudio. Write R code for the following tasks. ***Post your R code and RStudio output (console output) below each task.***

1. Use “1100” as seed, extract a sample of 40 observations from the population, and display row numbers in the sample.Text

   Description automatically generated with medium confidence

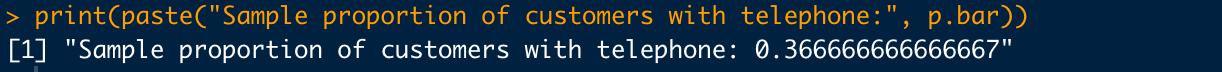


1. Compute the sample mean and sample standard deviation of variable “amount”.Graphical user interface, text, application, website

   Description automatically generatedText

   Description automatically generated
2. Compute the sample proportion of variable “telephone” that takes value “yes (under customer name)”.Graphical user interface, text

   Description automatically generated



1. Develop a 95% confidence interval for the sample mean of variable “amount”, assuming we ***don’t know*** population standard deviation of “amount”.Graphical user interface, text, application

   Description automatically generatedA screenshot of a computer

   Description automatically generated
2. Develop a 95% confidence interval for the sample proportion of variable “telephone” that takes value “yes (under customer name)”.

Text

Description automatically generatedGraphical user interface

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