**Assignment 3 Template**

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**Problem 3: Fill in the information below based on your data which were generated using your ID number as the seed for the random number generator.**

**mu = 5**

**sigma = 7**

**The first ten 95% confidence intervals for mu are:**

**[,1] [,2]**

**[1,] 1.586361 7.220204**

**[2,] 1.063706 6.887914**

**[3,] 3.783006 8.753608**

**[4,] 1.319582 6.911108**

**[5,] 1.476240 7.982626**

**[6,] 4.763221 10.446678**

**[7,] 3.857572 9.324083**

**[8,] 3.592696 9.542991**

**[9,] 2.482057 7.706561**

**[10,] 3.033289 8.738827**

**The proportion of 95% confidence intervals which contain the true value of mu = 0.943**

**How close is this proportion to 0.95? What are the reasons for this?**

**Differs from 0.95 by about 0.7 %. This is because about 200 (5000/25) samples of the distribution were collected in generating the 95% confidence interval**

**The first ten 95% confidence intervals for sigma are:**

**[,1] [,2]**

**[1,] 5.328585 9.493601**

**[2,] 5.508636 9.814386**

**[3,] 4.701281 8.375974**

**[4,] 5.288563 9.422295**

**[5,] 6.153852 10.963926**

**[6,] 5.375512 9.577207**

**[7,] 5.170320 9.211631**

**[8,] 5.627892 10.026856**

**[9,] 4.941427 8.803825**

**[10,] 5.396397 9.614416**

**The proportion of 95% confidence intervals which contain the true value of sigma = 0.947**

**How close is this proportion to 0.95? What are the reasons for this?**

This differs from 0.95 by about 0.3 %, smaller than the difference for the estimation of mean mu, since the measurement of the standard deviation is less affected by sample size than measurement of the mean.