Assignment 3 Template

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<u>Problem 3:</u> 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.