

Siwei Zhang(Roger)
20335254
Stats Lab 2

1.1

Yes.

1.2

Assumptions: *Assume that sd is unknown.
 *Assume that pop is approximately normal, or sample size is large.
Null Hypotheses: *Different nurses will give the same readings.
Alternative Hypotheses: *Different nurses will give the different readings.
Conclusions: *Different nurses will give the different readings.

2.a

Results:

One Sample t-test

data: samp10
t = -0.60706, df = 9, p-value = 0.5588
alternative hypothesis: true mean is not equal to 50
95 percent confidence interval:
42.98442 54.04692
sample estimates:
mean of x
48.51567

p-value = 0.5588 shows that there is 55.9% probability the mean is equal to 50.
They make sense, cause the size of the sample is small, so there will be some error.

2.b

51:

One Sample t-test

data: samp10
t = -1.016, df = 9, p-value = 0.3361
alternative hypothesis: true mean is not equal to 51
95 percent confidence interval:
42.98442 54.04692
sample estimates:
mean of x
48.51567

t & p-value changed

49:

One Sample t-test

data: samp10

t = -0.19808, df = 9, p-value = 0.8474
alternative hypothesis: true mean is not equal to 49
95 percent confidence interval:
42.98442 54.04692
sample estimates:
mean of x
48.51567

3. The relationship between the confidence interval, the p-value, and the result of the hypothesis test.

The average(l.end,r.end) more close to 50, the p-value will be more close to 1.
If p-value>0.05, the result is TRUE, else, the result will be FALSE.

The tests gave 968 times "correct" answer.

3-again.

mean of the data set in (c): 8.05
sd of the data set in (c): 4.97

4.

My conjecture:

The mean = mean_a - mean_b

The sd = $\sqrt{\text{sd}_a^2 + \text{sd}_b^2}$

If sum the vectors:

The mean = mean_a + mean_b

The sd = $\sqrt{\text{sd}_a^2 + \text{sd}_b^2}$

5.

Null hypotheses:	Men and women have the same average body temperatures.
Alternative hypotheses:	Men and women have the different average body temperatures.
Conclusion:	Men and women have the different average body temperatures.
Type - I error	

if $\alpha = .01$

Conclusion:	Men and women have the same average body temperatures.
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