The research question for this scenario is described as follows:

“I plan on questioning individuals that I know that are in the “IT World” to find out their background and beginning salary. This will be great because it will afford me the opportunity to know how the whole process works. Also, I will be informed of what makes a person “standout” against peers alike. I think the mean of starting salary for Network Security will be between 65,000 – 75,000, say $70,000.”

To test the significance of the hypothesis that the mean of starting salary for Network Security will be between 65,000 – 75,000, say $70,000, use *t*-test for single mean. Since the population standard deviation of the starting salaries for Network Security is not known, and the size of the sample is less than 30, the use of *t*-test is appropriate. The only assumption needed in this case is that the distribution of the starting salaries for Network Security is approximately normal.

The null and alternative hypotheses for this test are,

*H*0: The mean of starting salary for Network Security will be between 65,000 – 75,000, say $70,000, i.e. µ = 70000.

against

*H*a: The mean of starting salary for Network Security is different from $70,000, i.e. µ ≠ 70000.

Level of significance, *α* = 0.05

Here,

Sample size, $\left(n\right)$ = 10

Sample Mean $\left(\overbar{x}\right)$ = $61,400.00

Sample Standard Deviation ($s$) = $16,627.96

The two-tailed *t*-critical value at 0.05 level with *n* – 1 = 10 – 1 = 9 degrees of freedom is

 $t\_{0.025, 9}=$ 2.262.

The rejection region is, “Reject the null hypothesis if observed *t* < –2.262 or observed *t* > 2.262.”

The required test statistic is,

 $t= \frac{\overbar{x }- µ}{{s}/{\sqrt{n}}}= \frac{61400 -70000}{{16267.96}/{\sqrt{10}}}=-1.64$

Since – 2.262 < observed *t* = – 1.64 < 2.262, do not reject the null hypothesis.

The results indicated that at 0.05 level data provides no sufficient evidence to reject the claim that the mean of starting salary for Network Security will be between 65,000 – 75,000, say $70,000.