In this exercise, you will use Excel to generate a description of some data.

Step 1 - Do together
Use Excel to generate a set of 25 random values. Label them at the top as "Data 1". Make the mean=0 and std. dev. = 10. Remember you can do this with =NORMINV(DATA(), 0, 10).
Create a second set of 25 values labeled "Data 2" make the mean=10 and std. dev.=10.

Step 2 - Do together
Compute the following statistical descriptions of the data:

        mean, median, std. dev

Using functions in excel. For help, below is a cheat-sheet of excel functions.

Function	Excel Function Name
mean	=AVERAGE(DATA)
median	=MEDIAN(DATA)
std. dev.	=STDEV(DATA)

Step 3 - Together
For each column, we want to test the null hypothesis that the true mean is zero. To do this in excel, we first need to convert the mean we computed for each column into a mean. Remember the equation for the t-value is

$$t = (mean - null\ hypothesis) / (std.\ dev./ SQRT(N))$$

where here our null hypothesis is that mean true mean is zero. Once we have our t-value you can convert this into a probability using

$$= TDIST(t\text{-}value, degrees\ of\ freedom, tails)$$

where degrees of freedom is N-1 and tails = 2 (we want the two-tailed test).

Step 4 - Repeat
Repeat this on the second column

Step 5 - Compute a paired t-test
To compute the paired t-test we want to do a t-test (as before) but on the difference scores between the two condition. To do this, we first compute the difference from column 1 to column 2 as a new data set (labeled Data 3). Then we repeat the mean/std. dev./t- calculations again using the null hypothesis of zero (that the true difference is zero).