```
title 'Simulated Normal Data';
%let n=50;

data cert;
  do group = 1 to 2;
     do i = 1 to &n;
        x = rand('normal', 0, 1);
      output;
      end;
  end;
run;
data cert; set cert;
   if group = 1 then x = 2*x + 10;
   else x = 2*x + 14;
run;
/* Increasing the number multiplied by x increases the variance.
Decreasing the number multiplied by x decreases the variance.
Changing the number added shifts the curve left or right to center on that number.

When you change the mean and standard deviation of x, the Univariate Tests of Fit for Normality remain the same.

When you change the mean on x to 12, the p-value for the t-test becomes insignificant (this t-test has a null hypot
that the mean is 12). The same is true when x is changed to 13. As soon as the x value goes to 11 or 14,
the p-value becomes significant suggesting that there is sufficient evidence to conclude that the mean is not 12.
The same is true of the t-test for the y values.

When the mean value of x and y are the same, the p-value for the Wilcoxon rank sum test with continuity correction
not significant. However, when the mean values of x and y are at least one value apart, the p-value becomes signifi
(this holds as long as the standard deviations are set to 4). When the standard deviation of x is set to 10 with a
of 11 and the standard deviation of y is set to 4 with a mean of 12, the p-value is not significant. This seems to
that large standard deviations make it harder to conclude that the true location shift is not equal to zero.

When the mean values for x and y are greater than three apart (with the same standard deviation) the p-value for th
Welch Two Sample t-test becomes significant. As the values for the standard deviation are increased, the p-value fo
this test increases. When the mean values are further apart, but the standard deviation values are high, the p-valu
not significant (ex: x mean - 16, x standard deviation - 12, y mean - 12, y standard deviation - 4).

The p-value for the Exact two-sample Kolmogorov-Smirnov test is significant whenever the mean values for x and y di
or the means are the same but the standard deviation values are at least three apart (ex: x mean - 12, x standard
deviation - 7, y mean - 12, y standard deviation - 4). */

proc sgplot data=cert;
density x /group=group;
run;

title2 'Descriptive Statistics';
proc univariate data=cert normal trim=.05 winsor=.05 mu0=12;
var x;
run;

title2 'Nonparametric Test of Hypothesis';
proc nparlway data=cert wilcoxon edf ;
class group;
var x;
run;

title2 'T Test';
proc ttest data=cert ;
class group;
var x;
run;



title2 'Fit for 2 populations';
proc univariate data=cert normal;
class group;
var x;
run;

quit;
ods latex close;
```