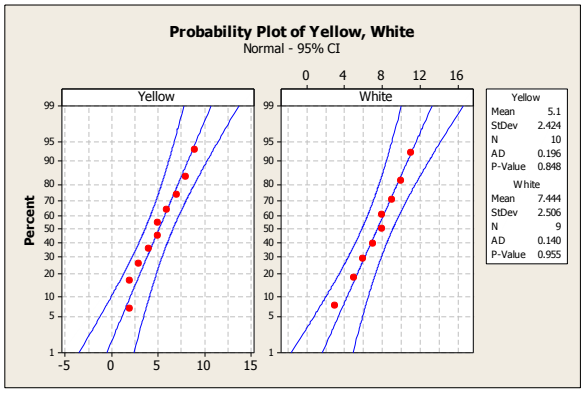
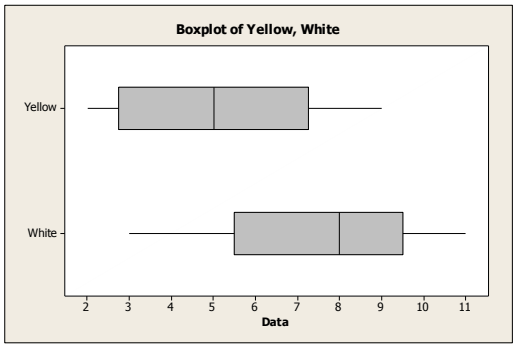
Comparing μ_1 and μ_2 (pooled variance t-test)

A men's softball league is experimenting with a yellow softball that they believe is easier to see during night games. One way to judge the effectiveness is to count the number of errors. In an experiment the yellow ball was randomly assigned to 10 games in a season of 19 games and the traditional white ball was assigned to the other 9 games. The league would like to know if there are fewer errors, on average, when the yellow ball is used. Use $\alpha = .01$.

Yellow	White
5	7
2	6
6	8
7	5
2	9
5	11
3	8
8	3
4	10
9	





Yellow		*White*	
Mean	5.1	Mean	7.444444444
Standard Error	0.766666667	Standard Error	0.835183132
Median	5	Median	8
Mode	5	Mode	8
Standard Deviation	2.424412873	Standard Deviation	2.505549396
Sample Variance	5.877777778	Sample Variance	6.277777778
Kurtosis	-1.045558013	Kurtosis	-0.229775237
Skewness	0.20584564	Skewness	-0.406178029
Range	7	Range	8
Minimum	2	Minimum	3
Maximum	9	Maximum	11
Sum	51	Sum	67
Count	10	Count	9

Two-Sample T-Test and CI: Yellow, White

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Two-sample T for Yellow vs White

         N  Mean  StDev  SE Mean
Yellow  10  5.10   2.42     0.77
White    9  7.44   2.51     0.84


Difference = mu (Yellow) - mu (White)
Estimate for difference:  -2.34
99% upper bound for difference:  0.56
T-Test of difference = 0 (vs <): T-Value = -2.07  P-Value = 0.027  DF = 17
Both use Pooled StDev = 2.4629
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Two-Sample T-Test and CI: Yellow, White

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Two-sample T for Yellow vs White

         N  Mean  StDev  SE Mean
Yellow  10  5.10   2.42     0.77
White    9  7.44   2.51     0.84


Difference = mu (Yellow) - mu (White)
Estimate for difference:  -2.34
99% CI for difference:  (-5.62, 0.94)
T-Test of difference = 0 (vs not=): T-Value = -2.07  P-Value = 0.054  DF = 17
Both use Pooled StDev = 2.4629
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