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Practice: Conducting a One-Way ANOVA Analysis

In this practice, you use ANOVA to determine whether there are significant differences between the three reactors in the Impurity scenario. The file is **Impurity.jmp**.

1. What are your null and alternative hypotheses?

   The null hypothesis is that all three means are equal. The alternative is that at least two of the means are different from one another.

2. Conduct the one-way ANOVA. What conclusions can you draw from the output in the Analysis of Variance table?

   The *p*-value is < 0.05. So, you can conclude that at least two of the means are different.

3. Look at the mean diamonds. What can you conclude?

   The mean for reactor 3 does not overlap with the other two means. This indicates that the mean for reactor 3 is different from the mean for reactors 1 and 2.

4. Use Each Pair, Student's *t* to compare the means for the three groups. What can you conclude?

   Hint: From the red triangle, select **Compare Means**, and then select **Each Pair**, **Student's t**.

   The mean for reactor 3 is different from the means for reactor 1 and 2, but the means for reactors 1 and 2 are not significantly different from one another.

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