Use the link in the Jupyter Notebook activity to access your Python script. Once you have made your calculations, complete this discussion. The script will output answers to the questions given below. You must attach your Python script output as an HTML file and respond to the questions below.

In this discussion, you will apply the statistical concepts and techniques covered in this week's reading about one-way analysis of variance (ANOVA). An investment analyst is evaluating the 10-year mean return on investment for industry-specific exchange-traded funds (ETFs) for three sectors: financial, energy, and technology. The analyst obtains a random sample of 30 ETFs for each sector and calculates the 10-year return of each ETF. The analyst has provided you with this data set. Run Step 1 in the Python script to upload the data file.

Using the sample data, perform one-way analysis of variance (ANOVA). Evaluate whether the average return of *at least one* of the industry-specific ETFs is significantly different. Use a 5% level of significance.

In your initial post, address the following items:

1. Define the null and alternative hypothesis in mathematical terms and in words.
2. Report the level of significance.
3. Include the test statistic and the P-value. See Step 2 in the Python script.
4. Provide your conclusion and interpretation of the test. Should the null hypothesis be rejected? Why or why not?
5. Does a side-by-side boxplot of the 10-year returns of ETFs from the three sectors confirm your conclusion of the hypothesis test? Why or why not? See Step 3 in the Python script.

In your follow-up posts to other students, review your peers' results and provide some analysis and interpretation:

1. What does a post-hoc test (like Tukey's HSD test) contribute after one-way ANOVA is performed?
2. Comment on your peers' results and compare them with your own.

Remember to attach your Python output and respond to all questions in your initial and follow-up posts. Be sure to clearly communicate your ideas using appropriate terminology. Finally, be sure to review the [Discussion Rubric](https://learn.snhu.edu/d2l/common/dialogs/quickLink/quickLink.d2l?ou=1230325&type=content&rcode=snhu-702316) to understand how you will be graded on this assignment.