Data Science

Home Work 2.

1. Practice the data set DS\_HW1\_R\_and\_R\_data.xlsx.

Use ANOVA to analyze the factor effects of Inspector and Part. Each treatment has 3 replicates (tests). Explain the analysis results for all the following questions, including the ANOVA table and the test results. Now the parts and inspectors were randomly sampled from two corresponding populations. Now, the 10 parts and 3 inspectors were randomly sampled from two corresponding populations. For example, there are 100 parts in the part population and 10 parts are randomly sampled. Also, there are 30 inspectors in the inspector population and 3 inspectors are randomly sampled. Use the whole data set of DS\_HW1\_R\_and\_R\_data.xlsx for the analysis.

1. Give the ANOVA table with the interaction effect.
2. Are Inspector and Part the significant factors for impedance? Why?
3. Is there an interaction effect between the Inspector and Part of the impedance? Why?
4. Exam the data for model assumptions.
5. Estimate the variance of repeatability, reproducibility, and gauge.
6. Compare the random factor analysis to the fixed factor analysis. What are the difference?

Upload the DS\_HW2\_yourname.docx (include all your answers and codes) to MOODEL before 10/24 22:00.