1) Complete the following exercises from Myers, Montgomery, and Anderson-Cook (MMA-C), using a statistical software package:

> 2.3 The pull strength of a wire bond is an important characteristic. Table E2.1 gives information on the pull strength (y), die height (x1), post height (x2), loop height (x3), wire length (x4), bond width on the die (x5), and bond width on the post (x6).
> Note: The data is available in the Week 3 folder on Desire2Learn.
> a) Fit a multiple linear regression model using x2, x3, x4, and x5 as the regressors.
> b) Test for significance of regression using the analysis of variance with $\alpha = 0.05$. What are your conclusions?
> c) Use the model from part (a) to predict the pull strength when x2 = 20, x3 = 30, x4 = 90, and x5 = 2.0 .

> 2.10 Consider the wire bond pull strength data in Exercise 2.3.
> a) Estimate σ^2 for this model.
> b) Find the standard errors for each of the regression coefficients.
> c) Calculate the t-test statistic for each regression coefficient. Using $\alpha = 0.05$, what conclusions can you draw? Do all variables contribute to the model?

2) Using the data from Exercise 2.3 in MMA-C, also do the following analyses in a statistical software package.

> a) Select an appropriate subset of the variables and fit the reduced model. Compare the result of the significance test for the reduced model to the result obtained in 2.3(b).

> b) Using the reduced model from part a) above, predict the pull strength for the conditions given in 2.3(c). Compare the results results to those obtained for the full model.

> c) Prepare residuals plots for the reduced model from part a) above. Are there any indications of lack-of-fit or violations of the ANOVA assumptions?