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Practice: Comparing Simple Linear and Multiple Linear Regression Models

Open the file **VSSTeamData.jmp** in JMP. Make sure that the five outliers for **Yield** are hidden and excluded.

1. Select **Fit Y by X** on the Analyze menu to fit a simple linear regression (SLR) model for **MFI** (as **Y, Response**) versus **M%** (as **X, Factor**).

2. Select **Fit Model** on the Analyze menu to fit a multiple linear regression (MLR) model for **MFI** (as Y) versus **SA**, **M%**, and **Xf** (as model effects). Compare these two models.

    a. Which model has the better RSquare Adjusted value?

    b. Which model has the better root mean square error (RMSE) value?

    c. Which model does a better job of explaining the response, **MFI**?

    a. The MLR model with **SA**, **M%**, and **Xf**. When you compare two models on the same data, a higher RSquare Adjusted statistic is better. The MLR model has an RSquare Adjusted of 0.811, compared to 0.638 for the RSquare Adjusted for the SLR model.

    b. The MLR model with **SA**, **M%**, and **Xf**. When you compare two models on the same data, a lower RMSE is better. The MLR model has a RMSE of 0.918, compared to the RMSE for the SLR model of 1.27.

    c. The MLR model with **SA**, **M%**, and **Xf**. The MLR model has a higher RSquare Adjusted and a lower RMSE, so this model fits the data better.

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