**End-of-Class Exercises: Network Models  
Integer and Nonlinear Programming**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

In the Rating Football Teams example, suppose we want to *minimize the absolute value of errors* instead of squared errors. How would you change the model?

*Hint: use the Abs() function.*

**Step 1:** Specify the Excel worksheet. Make sure to record *all the necessary formulas*.

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| --- |
|  |
| … |
|  |
| … |
|  |

**Step2:** Specify Solver.

Set Objective: \_\_\_\_\_\_\_\_\_

To: ○ Max ○ Min ○ Value of: \_\_\_\_\_\_\_\_\_

By Changing Variable Cells: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Subject to the Constraints:

|  |
| --- |
|  |

□ Make Unconstrained Variables Non-Negative

Select a Solving Method: \_\_\_\_\_\_\_\_\_\_\_\_

**Step 3:** Report results.

The optimal sum of absolute errors = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The optimal home game advantage = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The optimal rating for Notre Dame = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Optional Question:** (for football fans who are also interested in sports analytics)

Compare this absolute error method to the squared error method we discussed in class: Which method do you think is better? Why?

**End-of-Chapter Feedback: Network Models  
Integer and Nonlinear Programming**

Pick your favorite question to answer:

1. Provide an example from your own experience where *network models, integer programming,* or *nonlinear programming* can be used to help you make a decision.
2. Did any example or concept in *network models, integer programming,* or *nonlinear programming* particularly resonate with you? If so, which one and why?
3. Is any example or concept in *network models, integer programming,* or *nonlinear programming* confusing to you? If so, which one and why?