**Math Modeling Exam Part I (50 Points)**

Congratulations! You have been granted an interview with Billy Beane of the Oakland A’s baseball team. He is hiring for the position of special assistant to the GM, and he is most interested in your mathematical modeling prowess (with no special knowledge of baseball needed!). Mr. Beane only cares about winning and thus how to predict how many games a team might win. He asks you to create a multiple regression model to predict the variable WINS based on the given variables. You have been provided with a sample of teams from the past 3 full MLB seasons.

**Parameters for the model:**

• There is no need to do research to find additional variables.

• Transformations are encouraged if needed (squared, interaction, etc.).

• All variables (but not the intercept) used in the model must be significant (P-value<0.05).

• Although he wants the highest Adjusted R-Square possible, he will only consider you for the position if your model’s Adjusted R-Square is **0.87** or above.

Instructions:

• State the ‘Adjusted R Square’ for your final model here:

Adjusted R-Squared is 0.996

• State the equation (with p-values for each coefficient) for your final model here:

Wins = -0.0957H-HR + 0.0407H\_BB + 374.0467H\_SLG + -0.1018P\_RunsA screenshot of a computer screen

Description automatically generated with medium confidence

Data Dictionary:

