Introduction:

Welcome to the exciting world of NCAA Division I Lacrosse, where we'll be delving into the intriguing relationship between faceoff percentages and win-loss percentages for Men's and Women's teams. Lacrosse is a fast-paced and dynamic sport that involves intense faceoff competitions, and we'll explore how these faceoff outcomes influence team success. Through this engaging worksheet, you'll gain hands-on experience in data discovery and regression analysis, unraveling key insights that shed light on the dynamics of faceoff performance in the 2022-2023 lacrosse season.

Learning Objectives:

1. Understand the concepts of scatterplots and regression lines as powerful tools for visualizing and analyzing relationships between variables.

2. Explore how gender indicators can be incorporated into regression models to evaluate differences between Men's and Women's Division I Lacrosse teams.

3. Analyze statistical evidence to determine if the intercepts and slopes of the regression lines significantly differ between Men's and Women's Lacrosse, uncovering insights into the impact of faceoff performance on win-loss outcomes.

Methods:

- Create scatterplots of faceoff\_win\_pct against win\_loss\_pctg with least squares regression lines to visualize the relationship between the variables.

- Fit linear models using faceoff\_win\_pct to predict win\_loss\_pctg and determine the effectiveness of faceoff\_win\_pct as a predictor using R-squared values.

- Incorporate indicator variables to differentiate between Men's and Women's Division I Lacrosse teams.

- Conduct statistical tests to assess if there are significant differences in intercepts and slopes between Men's and Women's divisions in the regression models.

- Estimate and interpret equations for the separate models to gain context on the relationship between faceoff win percentages and win-loss percentages for each division.

- Utilize data discovery and regression analysis techniques to draw meaningful conclusions about the impact of faceoff performance on team success in NCAA Division I Lacrosse, with specific insights into gender differences in faceoff outcomes.