# Assignment 3 Write Up

Problem Statement

Xio Ltd. is a company that provides training to employees. The company is interested in understanding how training impacts employee satisfaction. The company has hired a chief data scientist to analyze a dataset of employee satisfaction ratings before and after training. The data scientist is asked to compute and analyze descriptive measures, as well as perform statistical inference analyses through confidence interval estimation and hypothesis testing.

Benefits of R for Statistical Analysis

R is a powerful statistical programming language that is free and open-source. It is widely used by statisticians and data scientists for a variety of tasks, including data analysis, data visualization, and machine learning.

Some of the benefits of using R for statistical analysis include:

* Flexibility: R is a very flexible language that can be used to perform a wide variety of statistical analyses.
* Power: R is a powerful language that can handle large datasets and complex statistical models.
* Efficiency: R is a very efficient language that can run statistical analyses quickly.
* Community: There is a large and active community of R users who provide support and resources.

Data Analysis

The data scientist first computes the descriptive measures for the pre-training and post-training satisfaction ratings.

The data scientist then performs a hypothesis test to determine if there is a significant difference between the mean satisfaction ratings for the pre-training and post-training groups. The null hypothesis is that there is no difference between the mean satisfaction ratings for the two groups. The alternative hypothesis is that the mean satisfaction rating for the post-training group is higher than the mean satisfaction rating for the pre-training group.

The data scientist uses a z-test as well as t-test to perform the hypothesis test. And made the decision based on p-value and z- or t- critical value.

Conclusion

The data scientist concludes that the training program has a positive impact on employee satisfaction. The mean satisfaction rating for the post-training group is significantly higher than the mean satisfaction rating for the pre-training group. The company can be confident that the training program is effective in improving employee satisfaction.

Recommendations

The data scientist recommends that the company continue to offer the training program. The company may also want to consider expanding the training program to include more employees. The company can also use the results of the analysis to improve the training program. For example, the company could focus on the areas where the satisfaction ratings were lowest before training.