REPORT ON STATISTICAL FEEDBACK AMENDMENTS

Student Name: Dinesh Seveti

Course: CSCI 690 – Spring 2024

Location of Consultation: Statistical Consulting & Research Support Office (ISELF 228)

Project Title: Report on Performance Analysis between Selection Sorts and Insertion Sort

Summary of Feedback Received:

- **Clarity of Hypotheses**: Explicitly state the null and alternative hypotheses.
- **Data Visualization**: Include box plots alongside histograms to show data variability and outliers.
- **Statistical Test Justification**: Justify the use of statistical tests (e.g., t-test, ANOVA).
- **Effect Size and Confidence Intervals**: Report effect sizes and 95% confidence intervals for interpretability.
- **Annotation and Labeling**: Improve labeling on graphs and figures with proper units and legends.

Amendments Made to the Paper and Analysis:

- Clearly defined hypotheses at the beginning of the analysis section.
- Added box plots to accompany existing histograms.
- Included justification for statistical methods chosen.
- Reported effect sizes and confidence intervals in the results section.
- Improved chart labeling with clear legends and measurement units.

Additional Feedback and Recommendations:

- The Statistical Consulting & Research Support office had different operating hours during finals week, which made the regular schedule inapplicable.
- Recommendation to run a **t-test** between selection sort and insertion sort times using the full dataset (**n = 100**), not just the average time. This approach compares the distributions and helps assess statistical significance. A **p-value < 0.05** indicates a statistically significant difference.
- For graphical representation, **box plots** were recommended over bar graphs for mean values. Avoid using bar graphs for displaying **ratios**, as they are singular values and such visualizations do not provide additional insight.