BUSS2302 Stat. Due Date: 2022/11/9

Lab Assignment 2

Notification: You should not only give the results in the following problems, but also the calculation formulas and Excel or Python files related.

Par, Inc., is a major manufacturer of golf equipment. Management believes that Par's market share could be increased with the introduction of a cut-resistant, longer-lasting golf ball. Therefore, the research group at Par has been investigating a new golf ball coating designed to resist cuts and provide a more durable ball. The tests with the coating have been promising.

One of the researchers voiced concern about the effect of the new coating on driving distances. Par would like the new cut-resistant ball to offer driving distances comparable to those of the current-model golf ball. To compare the driving distances for the two balls, 40 balls of both the new and current models were subjected to distance tests. The testing was performed with a mechanical hitting machine so that any difference between the mean distances for the two models could be attributed to a difference in the two models. The results of the tests, with distances measured to the nearest yard, follow. These data are available in Golf.csv.

(a) Provide brief descriptive statistics of data for each model, including data visualization and presentation of basic statistics.

(b) Formulate and present the rationale for a hypothesis test that Par could use to compare the driving distances of the current and new golf balls.

(c) Analyze the data to provide the hypothesis testing conclusion. What is the p-value for your test? What is your recommendation for Par, Inc.?

(d) Do you see a need for larger sample sizes and more testing with the golf balls? Discuss.